Triphasic

Lacrosse Training Manual

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Foreword

Matt Van Dyke has taken our strength training and conditioning to a new level. His scientific approach toward specific lacrosse movement training has given us a direct and meaningful method of preparing our players for competition at the highest level of collegiate lacrosse. Our strength is greater, our movement is more fluid and our soft tissue injury rate has lessened dramatically. I am proud and thrilled that Matt is leading our Strength and Conditioning program in a manner that is based on research and expertise. Our players are always motivated and always look forward to using this methodology to keep us at the forefront of Division 1 lacrosse.

- Bill Tierney, University of Denver Head Lacrosse Coach, 7-time National Champion Coach

Through this training program, I was able to compete at the best physical shape of my life after suffering three foot surgeries in a matter of six months. The program provided in this manual prepared me for my season to a greater extent than I could have ever imagined. With this programming, I was able to not only return to playing professional lacrosse, but was named an All-Star, and also won the 2016 MLL Championship in which I was named the MVP. This feat was accomplished exactly one year after my final foot surgery. None of this would have been possible without the Triphasic Training Model laid out in this manual.

- Eric Law, 2016 MLL Champion & Championship MVP, 2016 All-Star

With the lacrosse specific training shown in this manual, I have been able to recover faster and prevent injuries, such as pulled muscles and other nagging joint problems. This is an efficient training system that does not over work your body, while still improving strength. I improved my balance and speed through this training program.

- Wes Berg, NLL and MLL Athlete, 2015 NCAA Tournament Most Outstanding Player

Under the training program demonstrated in this manual, I have experienced a complete change in my lacrosse game. The lacrosse specific nature and knowledge of the game allowed me to play stronger, with more speed, and recover faster while playing.

- Jeremy Noble, NLL and MLL Athlete

Preface

What This Manual Is Not

Every performance coach should understand that the Triphasic Lacrosse Training Model presented in this manual is not an end-all or ultimate answer to all training. Although this systematic training protocol continues to show impressive results with athletes of all levels, it is important to appreciate and understand that this training manual, like any training program, cannot guarantee results for every individual. Even with the most up-to-date knowledge, science, and other sport specific knowledge, it is not guaranteed an athlete will reach an elite-level status. This feat is rarely achieved for the majority of athletes, regardless of training completed. That does not mean this level of performance should not be actively sought after for every athlete in the most efficient, appropriate manner possible.

What This Manual Is

All performance coaches have one ultimate desire, to create the ultimate athlete. One that is powerful, yet resilient according to the physical demands of lacrosse. Triphasic Training, which is a system in and of itself, is responsible for numerous Olympic, World, and National Championships. All of these principles and the existing research has been applied specifically to the requirements of lacrosse. Although the principles and concepts described throughout this manual are extremely advanced in both their physiological response by the body and implementation in training, they are presented in a manner so that the high-school lacrosse coach, one that has no understanding of the body, can successfully utilize these training principles to the highest extent. This manual has taken the needs of every lacrosse athlete and then broken them down into six physical qualities. In order to display the physical proficiency required by a lacrosse athlete, each of these six physical qualities must be trained appropriately. The program demonstrated in this manual represents one to be completed by an elite-level lacrosse athlete. However, the principles applied throughout this manual can, and have been, applied to athletes with younger training ages with extreme levels of success. If you wish to discuss programming possibilities for younger athletes please contact triphasiclacrosse@gmail.com. The training system created, and explained, in this manual demonstrates years of attempts to create an all-encompassing, systematic approach to physical training specific to the sport of lacrosse.

SECTION 1

LACROSSE BACKGROUND, SIX PHYSICAL PERFORMANCE QUALITIES, & TRAINING CONSIDERATIONS

1.1 Lacrosse Background

Lacrosse has been referred to as the "fastest sport on two feet" due to the physical and technical skill set required in competition. Lacrosse is an explosive, violent, full-contact, team sport and is one of the oldest sports in North America.

The sport was originally created and played by Native Americans, with fields being miles in length and competition lasting multiple days in some cases. The play of lacrosse has become much more regulated to date, with a regulation time of sixty minutes, divided into four, fifteen-minute quarters. In the occurrence of a tie game at the finish of those sixty minutes, a four-minute, sudden death overtime period is completed and repeated until a team scores.

The field dimensions, shown below in Figure 1.1, is 110 yards in length and a width of 60 yards. The field is then separated into three sections by two restraining lines, the midfield (middle 40 yards of the field), the attack zone (35 yards), and the defensive zone (35 yards). With teams scoring on opposite goals, one team's attack zone is their opponent's defensive zone.

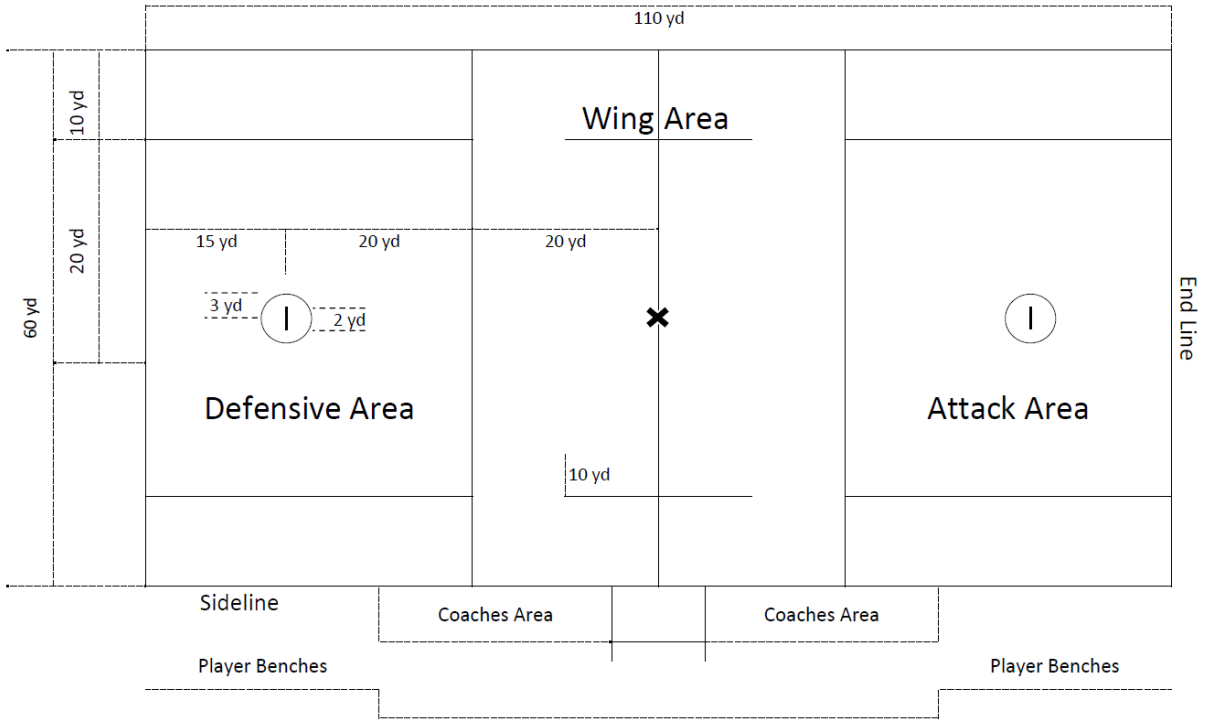

Figure 1.1 - The Dimensions of a Men's Lacrosse Playing Field

This separation of the field creates position-specific responsibilities and the unique requirements of those individuals in each zone. At any one time there are ten athletes per team allowed on the playing field. These ten players are broken up into the following four positional groups:

- 3 Attackmen
- 3 Midfielders

- 3 Defensemen
- 1 Goaltender

The goaltender is responsible for preventing the opposition from scoring. He does this by defending the goal. The defensemen assist the goaltender in preventing the opposition from scoring. These players typically remain in the defensive zone and compete for the entire sixty minutes. Midfielders play both defense and offense and typically cover the most distance throughout a game. Attackmen are responsible for the offensive production and scoring throughout the game. Clearly, each of these positions utilize a somewhat different skill set. Performance training should be completed specifically for each of these position's requirements. The specific considerations for each position's physical requirements will be covered in greater detail in an upcoming section.

In addition to being the "fastest sport on two feet," lacrosse is also the fastest growing sport in the United States [(1)]. In recent years, participation has spiked and continues to increase, with more than 400,000 youth athletes competing and multiple NCAA programs being added every year. Even with this exponential growth, few studies have been completed on lacrosse athletes and there is limited data available on the specific requirements of the sport. However, performance in this sport can ultimately be broken down into six physical performance qualities. When these qualities are well understood, they are able to be implemented within a system that reduces injury likelihood while also optimizing performance at specific times of the year, which is vital for playoff appearances.

1.2 Six Physical Performance Qualities

When considering the speed and full-contact nature of the game, as well as the game length and the size of the field, it becomes clear there are multiple aspects within the sport of lacrosse for which athletes must be specifically trained [(2)]. In order to compete at the highest levels of lacrosse every athlete requires each of the six physical performance qualities to be in a highly trained level. As described above, each individual position within the sport of lacrosse requires a slightly different set of skills. Nevertheless, every position will require the six physical performance qualities. These six physical performance qualities are implemented throughout the Triphasic Lacrosse Training Model described throughout this manual. To the majority of performance coaches, the training of these qualities are not new concepts by any means; however, their importance cannot be overlooked in training.

When broken down scientifically, the six physical performance qualities include the three energy systems (Oxidative, Glycolytic, and ATP/Cr-P), Strength, Repeat-Power, and Speed. Each of these physical performance qualities are shown, along with a brief description, in Figure 1.2. Now, many performance, as well as lacrosse, coaches may look at this and say, "of course there are more physical qualities that are required in lacrosse than just these six." Yes, there are many more performance factors and skills that must be considered and trained in the sport of lacrosse; however, each of those skills fits into one of the six physical performance qualities. The ability to repeatedly sprint for the entire sixty minutes of a game is determined upon the training and conditioning of the three energy systems as well as the repeat-power quality. Skills such as change of direction and agility fall within the strength and speed physical performance qualities. The more force an athlete is able to absorb and re-direct, or "load and explode," the quicker they will be able to change direction on the playing field. Each of these skills will be explained to a greater extent in later sections, but ultimately it is important every coach understands the importance of these six physical performance qualities and the effects they have on

lacrosse performance. Figure 1.3 below is a visual representation of the six physical performance qualities for an elite level lacrosse athlete to reach optimal performance.

6 Physical Performance Qualities of Lacrosse	
Physical Performance Quality	**Functions During Performance**
ATP/Cr-P Energy System	Short burst, high-intensity activities of less than 10 seconds in duration
	Sprinting towards the goal, dodging a defender, face-off wing play
Glycolytic Energy System	High-intensity activities that occur for greater than 10 seconds
	Extended shift on either offense or defense, longer sprint series in competition, running out the clock at the end of a game
Oxidative Energy System	Allows long distances to be covered, improves recovery ability when properly trained, forms foundation of all other qualities trainability
	Sometimes multiple miles covered in a game, ability to recover and play at high speeds even at the end of a game, recovery between competitions
Speed	The ability to move at a high velocity, usually for a brief amount of time
	Sprinting towards the goal, dodging a defender, getting back on defense after a turnover, clearing the ball
Repeat-Power	Increases ability to produce high forces for extended amounts of time
	Sprinting at high speeds even at the end of a long game, playing at a high level with multiple games per weekend, face-off athletes
Strength	Increases force production, basis of repeat-power and speed qualitites
	Body checking and other body contact, picking up a ground ball in a scrum, face-off athletes, dodging with pressure, play near the crease

Figure 1.2 - The Six Physical Performance Qualities of Lacrosse

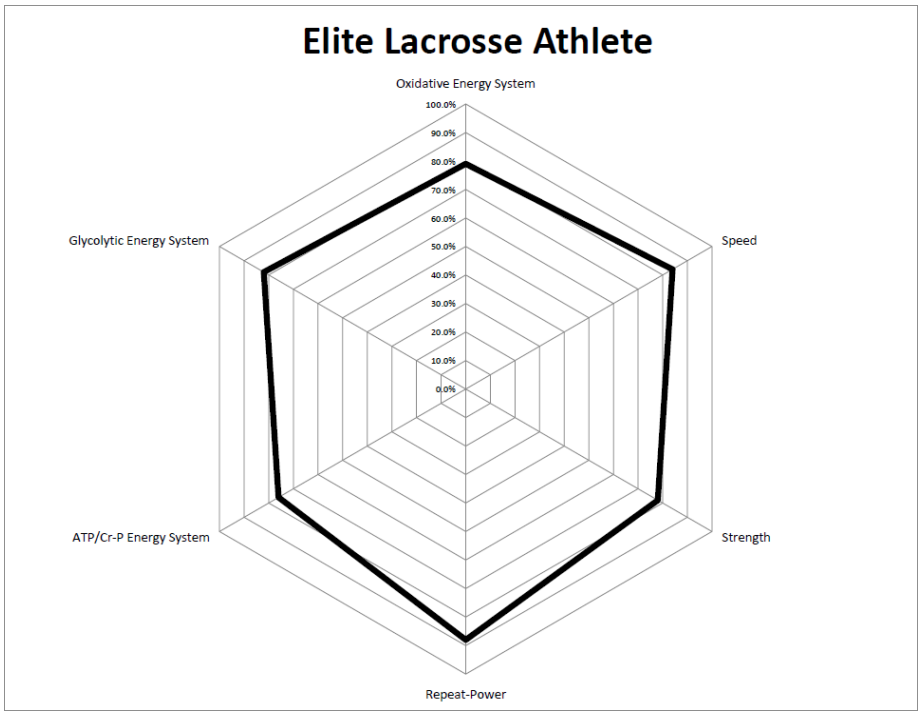

Figure 1.3 - Six Physical Performance Qualities of an Elite Lacrosse Athlete

Ultimately, the foundations of all performance abilities are built upon the oxidative and strength performance qualities. Through the improvement of these two qualities, the other four performance qualities are able to be developed to a greater extent. Without a solid foundation created by these two, oxidative and strength, a lacrosse athlete will not be capable of recovering throughout the course of a game appropriately. This leads to an inefficient athlete that will not be capable of optimal performance late in a competition. The two pyramids created by these two qualities are shown below in Figure 1.4, these are important to remember later on when the order of training each quality is demonstrated. Simply put, without a solid foundation of the oxidative and strength qualities, the ability of other performance qualities to be improved is drastically reduced.

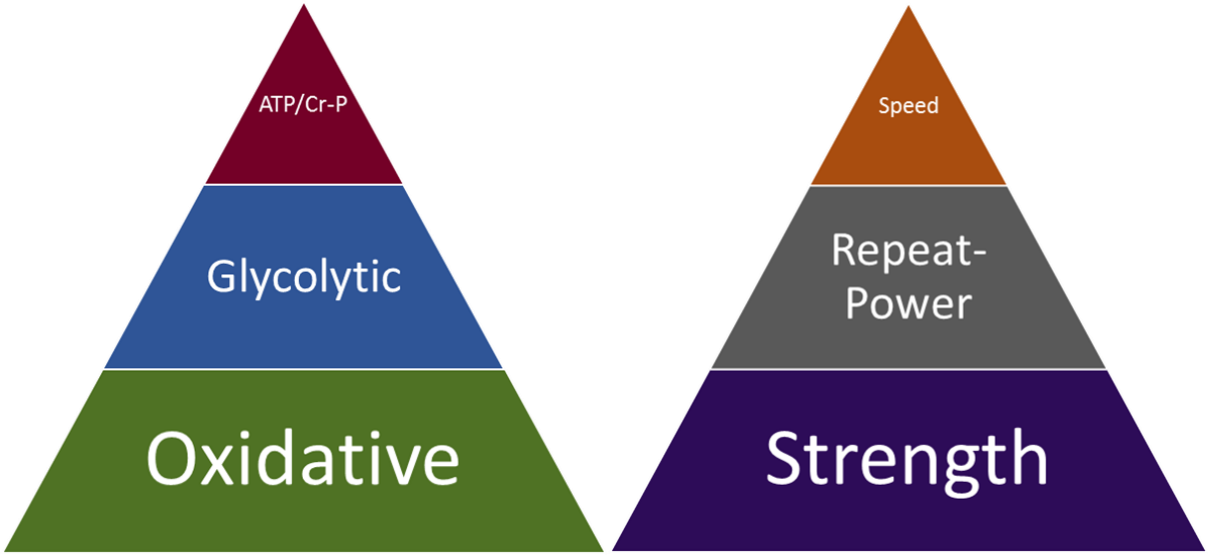

Figure 1.4 - Energy System and Strength Pyramids of the Physical Performance Qualities

The three energy system performance qualities include the oxidative, glycolytic, and ATP/Cr-P energy systems. As shown above in Figure 1.2, the oxidative energy system functions at lower intensities to allow longer distances to be covered at a slower pace. This quality is also vital for recovery from high-intensity activity, such as sprinting in lacrosse, and serves as the foundation for the other two energy systems required in competition. Training adaptations realized with the improvement of the oxidative energy system range from increased oxygen availability to improved fat metabolism within the body, which makes training and performing less fatiguing on the body. The importance of the oxidative energy system becomes clear when comparing an athlete's ability to control his heart rate. An athlete with a highly trained oxidative system can complete tasks at a much lower heart rate than an athlete not trained in this performance quality. This means athletes trained in this quality can function at much higher intensities while maintaining an extremely high level of efficiency, ultimately meaning they can do more work while expending less energy. Clearly the oxidative energy system functions as the support system for all other physical performance qualities. However, simply training this zone only will not optimize performance in all other qualities. Examples of the oxidative energy system in both competition and training are shown below in Figure 1.5.

Oxidative Energy System
Functions During Performance
Allows long distances to be covered, improves recovery ability when properly trained, forms foundation of all other qualities
Oxidative Energy System in Lacrosse
Cumulative long distances covered during a game
Ability to recover rapidly after a long shift
Playing at high-intensities through the 4th quarter
Recovery between competitions such as two game weekends
Oxidative Energy System in Training
Biking
Jogging
Aerobic interval training
Weight lifting circuit

Figure 1.5 - The Oxidative Energy System and its use in both Competition and Training

The glycolytic energy system is utilized within the body to complete high-intensity activities of greater than ten seconds, up to two minutes. Although technically the glycolytic energy system becomes the primary source of energy utilized in high-intensity efforts greater than ten seconds, training time must reach a minimum of twenty seconds in order for maximal effects to be realized in the improvement of this system. It is for that reason, even with high-quality training, the minimal training time for the glycolytic energy system is twenty seconds. This performance quality is necessary in lacrosse as sprinting is a vital part of the game, especially for the midfielder experiencing a longer shift. Figure 1.6 below gives examples of competition and training examples of the glycolytic energy system.

Glycolytic Energy System
Functions During Performance
High-intensity activities that occur for greater than 10 seconds
Glycolytic Energy System in Lacrosse
Extended shift for either offensive or definsive athletes
Running out the clock at the end of a game
Sprinting the field during a transition from defense to offense
Glycolytic Energy System in Training
Running a 300 yard shuttle
Pushing a heavy sled for greater than 15 seconds
Completing a lift to failure (greater than 8 reps) or 15 plus seconds

Figure 1.6 - The Glycolytic Energy System and its use in both Competition and Training

Finally, the ATP/Cr-P energy system works within the body to allow the highest intensities to be reached for short bursts of less than ten seconds.

This energy system is highly utilized in the sport of lacrosse as sprinting and change of direction over short distances is relied on heavily for success. The ATP/Cr-P energy system examples for both competition and training are listed in Figure 1.7. In order to train the ATP/Cr-P energy system, training at maximal intensities for short duration must be executed. These maximal intensities can only be reached so often though, meaning longer rest times are required to maximally train this performance quality. Specific guidelines for the training each of these energy systems will be given later on in this section.

ATP/Cr-P Energy System
Functions During Performance
Short burst, high-intensity activities of less than 10 seconds in duration
ATP/Cr-P Energy System in Lacrosse
Sprinting towards the goal
Dodging a defender
Face-off wing play
Fast break occurrences
ATP/Cr-P Energy System in Training
Running full speed for a short amount of time
Lifting explosively or heavy for a set of 10 seconds or less
Short burst agility training

Figure 1.7 - The ATP/Cr-P Energy System and its use in both Competition and Training

The combination and appropriate training of all three performance zones plays a pivotal role in improving and maintaining the necessary optimal performance needed by every lacrosse athlete. The training requirements of each performance zone are woven into the structure of the Triphasic Lacrosse Training Model, which will be described throughout this manual. Without the appropriate training of the oxidative energy system, no other qualities are capable of being improved to their maximal extent. When this training model is followed, the performance zones build upon each other to allow optimal performance.

The three energy systems described each play a role in the optimal performance of every athlete and allow the qualities of strength, repeat-power, and speed to be realized to their fullest extent. In other words, the training of these three energy systems allows the body to remain functioning in a high-quality state throughout the stressful training or competition experienced.

It is no surprise that strength is a key physical performance quality as every coach understands the importance of strength in the sport of lacrosse. Through specific training, strength improves force production and increases muscle size, which are both crucial for athletes. Due to the high forces needed to improve strength, loads of greater than 80% of an athlete's 1-rep max are used in training. Without a basic level of strength, the ability to produce high levels of force consecutively, for repeat-power, or at a high rate, as needed for speed, is reduced. Once again, it the main concept that strength lays the foundation for the other two qualities, repeat-power and speed, to be maximized. The importance of the strength quality is currently well understood by coaches. Examples of strength for both competition and training are shown in Figure 1.8.

Strength
Functions During Performance
Increases force production, basis of repeat-power and speed qualities
Strength in Lacrosse
Body checking and other body contact
Picking up a ground ball in a scrum
Dodging with pressure
Play near the crease
Strength in Training
Training with a heavy implement
Pushing a heavy sled
Lifting heavy weight

Figure 1.8 - The Strength Performance Quality and its use in both Competition and Training

The repeat-power performance quality is the ability to execute high force movements repeatedly and relies on the foundation created by the strength performance quality. Repeat-Power is only capable of being maximized when all three energy systems are also trained to the highest extent. These energy systems provide fuel for high-intensity situations and allow an athlete to train harder for longer simultaneously. This quality is crucial for a lacrosse athlete as they must not only be able to create force, but must do so continuously for the entire duration of the game. Training of this quality leads to reduced fatigue levels, allowing a highly-focused mental state to be maintained. Examples of the Repeat-Power performance quality are shown below in Figure 1.9.

Repeat-Power
Functions During Performance
Increases ability to produce high forces for extended periods of time
Repeat-Strength in Lacrosse
Sprinting at high speeds at the end of the 4th quarter
Playing at a high level with multiple games per weekend
Face-off athletes
Repeat-Strength in Training
Running a 300 yard shuttle
Pushing a heavy sled for greater than 20 yards
Completing a heavy training lift to failure (greater than 8 reps) or 15 plus seconds per set

Figure 1.9 - The Repeat-Power Performance Quality and its use in both Competition and Training

Finally, the speed performance quality is the ability to move at a high velocity. Speed, much like the repeat-power performance quality, is built upon the foundation of strength, while also being closely related to the ability of the ATP/Cr-P energy system. The stronger an athlete is, the more force-producing capabilities his muscles possess during sprinting actions. Speed must be trained at the highest possible intensity for every repetition completed if an improvement is to be realized. If an athlete does not complete the required movement at the highest velocity possible, speed will never be trained. That being said, full recovery is required between each repetition when training for speed. It is also important to note training with exercises at high velocities, in addition to sprinting, can also improve this performance quality.

Exercises can be completed with the intent to maximally accelerate the object being used in training. Methods of training can range from heavy exercises like a back squat, but can also include light weight, high-velocity exercises or even unloaded body weight training exercises. Maximal acceleration throughout whatever exercise is utilized must remain a training goal if speed is to be improved. Remember to allow appropriate recovery to ensure high-quality, and not capacity training is achieved. Figure 1.10 gives examples of the speed quality in competition as well as training.

Speed
Functions During Performance
The ability to move at a high velocity, usually for a brief amount of time
Speed in Lacrosse
Sprinting towards the goal
Dodging a defender
Clearing the ball after a defensive stop
Fast break occurrences
Speed in Training
Sprint training
Lifting explosively for a short set
Short burst agility training
Lifting light weight extremely fast

Figure 1.10 - The Speed Performance Quality and its use in both Competition and Training

These six qualities lay the foundation for many of the skills developed and required by all lacrosse athletes; without them the specific skills are not able to be maximally developed on the field. Each performance quality must be considered and trained specifically throughout training and approached with an organized, systematic, methodical program in order for optimal performance to be achieved. Each of these six physical performance qualities training methods will be expanded upon to a great extent in the sections to follow, but it is critical all coaches understand how each of these qualities are required for optimal and elite level lacrosse performance. It is important to note that although these qualities are broken up individually in training, they are all intertwined and are all utilized as one within the athlete's body in training and game situations.

This manual will show the appropriate ordering and combination of these six qualities which creates the unique system that is the Triphasic Lacrosse Training Model. This model continues to allow optimal performance for all athletes as each of the six physical performance qualities are considered. Once again, it is important to note other skills, such as agility and proprioception, will also be improved through the specific enhancement of these six physical performance qualities improved within the Triphasic Lacrosse Training Model.

The amount of training, or stress, applied to each specific performance quality should be determined based on these pre-determined needs of each position. However, based on the parameter graphic shown earlier in Figure 1.2, each of the six physical performance qualities are required to a high extent in the sport of lacrosse for all positions. None of this should be new information to a performance coach. However, this basic idea must be kept in mind at all times throughout the training process. A coach must always consider the requirements of the competitive event in the creation and implementation of a training program.

With the understanding that these six qualities are crucial for elite performance in lacrosse, it is even more vital each of these qualities adaptations are understood and can be implemented in a training setting. Keeping these qualities in mind, it must be realized there will be times when an athlete will not be training in a "sport-specific manner." At different times throughout the year, particularly in the off-season, methods used may actually decrease performance in one parameter due to the improvement of another physical quality to the highest extent possible. In the Block Periodization Model, which is described in Section 2, performance qualities are improved on an individual basis, which may lead to the slight decrease of other parameters. However, when this system is used appropriately and with the correct timing, optimal performance becomes possible for each and every athlete.

High-level coaches must also understand the physiological adaptations required to achieve the sport skills demonstrated on the playing field and what training methods lead to said adaptations. The systematic annual plan leading to peaking, or optimal performance, laid out in this book considers each adaptation, or performance quality, required in order to be successful in the sport of lacrosse and trains in a manner to maximize each performance quality individually.

The training model laid out in this manual accomplishes this goal of specific training based on the requirements of the sport of lacrosse. The Triphasic Lacrosse Training Model aims to prepare each individual lacrosse athlete with the physical capabilities required for his specific skills needed to perform at the highest level possible. Only when this training model is followed is the likelihood of optimal performance maximized. This is due to both the specific programming applied and the efficiency of the training utilized within this systematic training model.

The Triphasic Lacrosse Training Model is a methodical, well-thought-out, systematic method of training which ultimately leads to the optimal performance potential for all individuals. Required, sustainable adaptations, such as structural and metabolic enhancements to the six physical performance qualities, occur due to the implementation of the specific stress applied within each training block. It is in this training model that long-term training adaptations are aptly realized leading to optimal performance and a successful outcome. The methods to achieve each of these adaptations will continue to be expanded and built upon throughout the programs provided within this manual, ultimately leading each athlete to achieve success to the highest level possible.

This is not a system based on making an individual tired or fatigued, and it is not mindless work; it is an all-encompassing system designed to maximize performance during the high-stressors experienced in competition. The Triphasic Lacrosse Training Model is not based on the idea of implementing neat or new exercises or the newest fads in training, it is based on the body's specific response to training qualities.

1.3 High-Quality and Work Capacity Training

Each of the six physical performance qualities can be further broken down into two components, *high-quality* and *work capacity*. When these two components are accounted for in training appropriately, optimal results are seen in each performance quality [3-5]. High-quality training improves the ability of the performance quality to function at the highest intensities possible. Work capacity training, on the other hand, focuses on improving the performance quality's ability to be used for an extended period of time. By training these components at specific times within a workout and/or training block, the greatest improvements possible to each performance quality have the potential to occur.

High-quality training requires greater rest times since maximal intensities are required to improve this aspect of a performance quality. Work capacity is increased when shorter rest times are used in training, as the goal of training becomes improving the length of time the physical performance quality can continue to be used by an athlete [3-5].

An example of this work capacity training in lacrosse is the ability to run repeated sprints in a specific amount of time with little to no rest time in between. Most coaches, in general, tend to excel in work capacity training, or the ability to continue to push their athletes to the brink of exhaustion. Most athletes would agree they have endured grueling conditioning drills where, by the end, there is nothing left in the tank. It is important to note this manual is not stating difficult training sessions, aimed at improving work capacity, are not vital for lacrosse performance. However, these workouts should not be the only method implemented in a program, as the glycolytic energy system becomes disproportionately elevated. The importance of each of the energy systems and the high-quality training required to specifically improve them cannot be overlooked. Figure 1.11 below depicts the work and rest durations for both the high-quality and work capacity component of all three energy systems.

Comparing High-Quality and Work Capacity Energy System Training			
ATP/Cr-P Energy System			
High-Quality Training		Work Capacity Training	
Work Duration	Rest Duration	Work Duration	Rest Duration
3-10 sec.	1:30-5:00 min.	3-10 sec.	30-45 sec.
Glycolytic Energy System			
High-Quality Training		Work Capacity Training	
Work Duration	Rest Duration	Work Duration	Rest Duration
20-30 sec.	2:30-8:00 min.	40 sec.-1:30 min.	2:00-6:00 min.
Oxidative Energy System			
High-Quality Training		Work Capacity Training	
Work Duration	Rest Duration	Work Duration	Rest Duration
1:30-6:00 min.	1:00-3:00 min.	3:00-8:00 min.	1:00 min. and below
		20-120 min.	Continuous

Figure 1.11 - Comparing High-Quality versus Working Capacity Training

An example of this can be seen in the movie *Miracle* when Coach Brooks lines the team up and has them skate repeat sprints on the ice after tying a game he felt they should have won. By the end of this the players were doubled over in exhaustion and completely drained from the high-intensity skating. The majority of us have experienced a coach that approached training with this mentality, to simply push their athletes to the edge with every training session. In this example, because Coach Brooks did not allow rest time for the team, only the work capacity glycolytic energy system was trained.

Consequently, the aerobic and ATP/Cr-P energy systems are neglected. Every performance coach must understand there is a time and place for each component, high-quality and work capacity, to be executed within a training program. True optimal performance may only be achieved when all training factors are accounted for and completed appropriately. Figure 1.12 shows the advanced programming requirements of the three energy systems to meet either the high-quality or work capacity component in training. The Triphasic Lacrosse Training Model takes each of these components into account throughout the annual, block, weekly, and daily training schedules completed.

Advanced High-Quality and Work Capacity Energy System Training Comparison							
ATP/Cr-P Energy System							
High-Quality Training				Work Capacity Training			
Work Duration	Rest Duration	Total Volume	HR Range	Work Duration	Rest Duration	Total Volume	HR Range
3-10 sec.	1:30-5:00 min.	4 to 8 repetitions	N/A	3-10 sec.	30-45 sec.	8 to 16 repetitions	N/A
Glycolytic Energy System							
High-Quality Training				Work Capacity Training			
Work Duration	Rest Duration	Total Volume	HR Range	Work Duration	Rest Duration	Total Volume	HR Range
20-30 sec.	2:30-8:00 min.	3 to 4 repititions	170+ bpm	40 sec.-1:30 min.	2:00-6:00 min.	4 to 12 repetitions	170+ bpm
Oxidative Energy System							
High-Quality Training				Work Capacity Training			
Work Duration	Rest Duration	Total Volume	HR Range	Work Duration	Rest Duration	Total Volume	HR Range
1:30-6:00 min.	1:00-3:00 min.	6 to 12 repetitions	155-170 bpm	3:00-8:00 min.	1:00 min. and below	10 to 24 repititions	140-155 bpm
				20-120 min.	Continuous	1 repetition	140-155 bpm

Figure 1.12 - Advanced High-Quality versus Work Capacity Training

A simple example of high-quality versus work capacity training is the difference between training for maximal speed versus conditioning. Maximal speed training is a high-quality component, and thus requires increased recovery times as the athlete must truly run at maximal speeds in order to improve this physical performance quality. Athletes are only capable of running at maximal speeds if they are fully recovered between sprints. If a coach reduces the recovery time between repetitions, training shifts to a work capacity, rather than a high-quality, training session, just like the skating example above. This returns to the simple idea that specific improvements in each performance quality must remain the goal of training. Every coach must understand the high-quality and work capacity components must be specifically stressed in training at certain times within the annual cycle.

Examples for high-quality, work capacity, and combination training are given below for each energy system in Figures 1.13-1.15. It is important to note that although multiple methods (running, biking, sled pushes, swimming, etc.) are capable of adapting these systems, the most transferrable to sport will be running. This is the case because the body continues to adapt to the stressor method presented in training. As seen in the examples provided in Figures 1.13-1.15 below, the recovery period between each repetition ultimately determines whether high-quality or work capacity training is completed. By training each of these components (high-quality and work capacity), the athlete will have an improved ability to produce high-intensity efforts, while also increasing the length of time each energy system is capable of remaining activated. Every lacrosse athlete must train both of these components at the appropriate times within the daily, weekly, and annual blocks to achieve optimal results.

Comparing High-Quality and Work Capacity Oxidative Energy System Training

Oxidative Energy System in The Triphasic Lacrosse Training Model

High-Quality Training	Work Capacity Training	Combination Quality/Capacity Training
Biking (1:30-6:00 min. on 1:00-3:00 min. off for 6-12 reps)	Biking (3:00-8:00 min. on 1:00 min. and below off for 10-24 reps) or Continuous Biking (HR 140-155)	Biking (1:30-6:00 min. on 1:00-3:00 min. off for 6-12 reps) Followed By: Biking (3:00-8:00 min. on 1:00 min. and below off for 10-24 reps) or Continuous Biking (HR 140-155)
Jogging (1:30-6:00 min. on 1:00-3:00 min. off for 6-12 reps)	Jogging (3:00-8:00 min. on 1:00 min. and below off for 10-24 reps) or Continuous Jogging (HR 140-155)	Jogging (1:30-6:00 min. on 1:00-3:00 min. off for 6-12 reps) Followed By: Jogging (3:00-8:00 min. on 1:00 min. and below off for 10-24 reps) or Continuous Jogging (HR 140-155)

Figure 1.13 - Oxidative Energy System High-Quality, Work Capacity, and Combination Training

Comparing High-Quality and Work Capacity Glycolytic Energy System Training

Glycolytic Energy System in The Triphasic Lacrosse Training Model

High-Quality Training	Work Capacity Training	Combination Quality/Capacity Training
Bike Sprints (20-30 sec. on 2:30-8:00 min. off for 3-4 reps)	Bike Sprints (40 sec.-1:30 min. on 2:00-6:00 min. off for 4-12 reps)	Bike Sprints (20-30 sec. on 2:30-8:00 min. off for 3-4 reps) Followed By: Bike Sprints (40 sec.-1:30 min. on 2:00-6:00 min. off for 4-12 reps)
Shuttle Running (20-30 sec. on 2:30-8:00 min. off for 3-4 reps)	Shuttle Running (40 sec.-1:30 min. on 2:00-6:00 min. off for 4-12 reps)	Shuttle Running (20-30 sec. on 2:30-8:00 min. off for 3-4 reps) Followed By: Shuttle Running (40 sec.-1:30 min. on 2:00-6:00 min. off for 4-12 reps)

Figure 1.14 - Glycolytic Energy System High-Quality, Work Capacity, and Combination Training

Comparing High-Quality and Work Capacity ATP/Cr-P Energy System Training

ATP/Cr-P Energy System in The Triphasic Lacrosse Training Model

High-Quality Training	Work Capacity Training	Combination Quality/Capacity Training
Short, Heavy Sled Pushes (10 sec. on 2:30-5:00 min. off for 4-8 reps)	Short, Heavy Sled Pushes (10 sec. on 30-45 sec. off for 8-16 reps)	Short, Heavy Sled Pushes (10 sec. on 2:30-5:00 min. off for 4-8 reps) Followed By: Short, Heavy Sled Pushes (10 sec. on 30-45 sec. off for 8-16 reps)
Short Burst, Agility Training or Running (10 sec. on 2:30-5:00 min. off for 4-8 reps)	Short Burst, Agility Training or Running (10 sec. on 30-45 sec. off for 8-16 reps)	Short Burst, Agility Training or Running (10 sec. on 2:30-5:00 min. off for 4-8 reps) Followed By: Short Burst, Agility Training (10 sec. on 30-45 sec. off for 8-16 reps)

Figure 1.15 - ATP/Cr-P Energy System High-Quality, Work Capacity, and Combination Training

1.4 Training Considerations

Specific training principles and ideas involved in the training programs laid out in the chapters to come are laid out and described throughout this section. These training principles include stressing the athlete optimally, prevention of injury in training and reduction of injury on the field of play, and transfer of training. Each of these ideas presented in this section serve as the foundation from which all training programs presented in later chapters will be created. By the end of this chapter every coach should have a firm understanding of the basic principles that should be considered when planning and implementing every training session completed by an athlete. Only when these training principles are effectively implemented with appropriate timing within the annual cycle is optimal performance possible.

1.41 Optimal Stress Application & General Adaptation Syndrome

The first training consideration, which is vital prior to any understanding of the sport of lacrosse or other knowledge, is the complete understanding of optimal stress application and the general adaptation syndrome (GAS) [6]. Even before a coach considers the amount each physical performance quality is required in performance, it is vital every coach understand the stress and adaptation response the body encounters in order to maximize the effects of training.

Transfer of training, whether it be a technical skill, the ability of the body to mobilize energy stores through the use of the three energy systems, or the ability to produce high levels of force within a movement, is ultimately determined by one aspect, STRESS. Simply put, in order to improve any skill or performance quality, an athlete must be exposed to that stimulus, or stressor. Only when the concept of stress and its specific application in the adaptation process is well understood can training be implemented appropriately within a systematic program to achieve optimal performance. The Triphasic Lacrosse Training Model has been created and programmed in a manner that utilizes the body's stress response and induce specific desired adaptations according to the requirements in the sport of lacrosse, ultimately leading to optimal performance.

The goal of the human body is to always remain in a homeostatic state, or a state of comfort. Stress, in a general sense, occurs on a daily basis, to all people, with no prejudice. It can be largely accumulated through training, although one's family, money, psychological state, school and performance issues may all play a role in the athlete's response to stress and must be constantly considered. A disturbance in homeostasis, or any stressor, leads to some level of adaptation within the organism. When stress is applied and the body experiences this disruption of homeostasis, whether in training or everyday life, the body has one goal: survival.

An athlete's body will increase its odds of survival through any means necessary, even when that means functioning in an inefficient manner. Only after the stressor has subsided and the body has guaranteed survival, does the adaptation process occur. This process ensures the organism is well-equipped, should that stressor present itself again. Performance coaches must work to improve the efficiency of the body in regards to the specific stressors it experiences in training and/or competition. As a performance coach, the approach in training must be to put the body outside of its comfort zone to cause a specific change in the athlete. Only when this approach is applied in the systematic, properly organized fashion seen in the Triphasic Lacrosse Training Model is optimal performance achievable.

The highly organized and systematic Triphasic Lacrosse Training Model presented in this manual requires the understanding of the concept of balance. A performance coach is ultimately a stress manager and must realize that balance is crucial in order for optimal performance to be achieved by any athlete. A simple way to view the stress being applied in training is to consider training on a continuum. If stress is applied at an extreme amount with limited recovery, the athlete will be unable to cope with the excessive levels of stress and begin to respond poorly. At the opposite end of the continuum, if not enough stress is applied during training, the desired training adaptations will not occur and optimal performance will never be reached.

In either case, too much or too little stress in the training process will hinder the improvement of the desired performance qualities and limit the transfer of the skills to the competitive event. This less than optimal stress application, either too much or too little, will hinder an athlete's development over the course of time and ultimately lead to detrimental effects on their performance. Managing and balancing stress is a crucial aspect of every performance quality required in competition.

All performance coaches must keep this stress continuum in mind and maintain the appropriate levels of stress required of each athlete to achieve success. Figure 1.16 below displays the continuum used for appropriate training. Throughout this manual, the Triphasic Lacrosse Training Model will present the specific adaptations that occur with each training block, but without the general, appropriate understanding of stress and how to implement it with balance those specific adaptations will be useless knowledge.

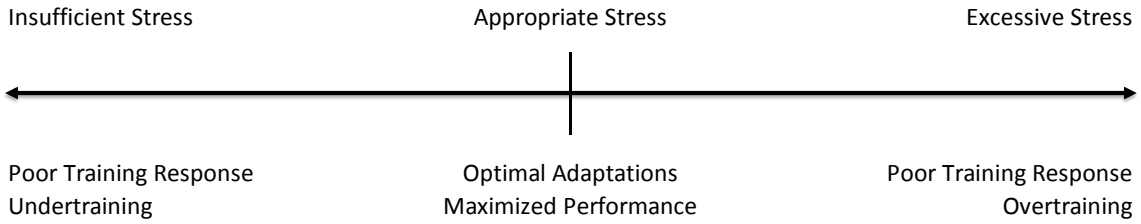

Figure 1.16 - Determining appropriate training stress

As an athlete trains, adapts, and progresses through the development process, the line dictating "Appropriate Stress" for each athlete in Figure 1.16 shifts further to the right side of the continuum. This is due to the fact as the body accumulates stress and then adapts to that training stress, increased amounts of stress are required to achieve continued adaptations in that specific quality.

Every athlete's body prepares and adapts to the specific stress experienced in training. After training the body should view that stressor experienced as simple and easy to overcome. An elite athlete has a high capability to adapt to whatever stimulus is provided them, this is the fundamental idea behind long-term athletic development. If this is not well understood, inappropriate stress will be applied at the incorrect times and an athlete will not adapt to their highest capabilities and optimal performance will not be achieved. An example of this can be seen in many Division I football athletes. After their freshman year, which is typically aimed at development, athletes fail to see continued improvements in performance. This is due to the increased requirements of both the amount and specificity of stress required in training to continue the realization of transfer of training, which will be discussed thoroughly in the upcoming section.

The Autonomic system plays the determining role of the appropriate stress application for each athlete. The “ANS” controls the majority of the responses that occur throughout the body when a stressful event, such as training, is experienced by an athlete. This portion of the nervous system is divided into two components, the sympathetic and parasympathetic nervous systems. Each of these components of the ANS play a vital role in the stress application and recovery processes every athlete requires.

When an athlete experiences any stressor, whether that be in training, an issue in their family or with a significant other, the parasympathetic nervous system becomes downregulated by an increased response by the sympathetic nervous system. Basically, when as the body encounters any stressor, it prepares itself to maximize the completion of the required action. This includes the increased blood flow, mobilization of resources within the body, and a heightened ability to produce force by the muscles. It is for this reason the sympathetic nervous system has been termed the “fight or flight” aspect of the ANS, as it enhances the odds of surviving, or overcoming, the applied stressor.

Although this is an important and necessary process in improving performance in stressful situations, it is imperative to realize that an increased sympathetic drive can also lead to performance decreases. At first glance, we can view extreme feats of the sympathetic nervous system as desirable, such as a mother lifting a car off of their young child. However, when these situations are examined more closely it becomes clear many cognitive abilities, which are absolutely vital for performance in the sport of lacrosse, are diminished to a great extent. Ultimately, as extreme stressors are experienced in competition, an athlete will commonly begin to lose technical performance skills they are otherwise proficient in. As the body encounters extreme sympathetic arousal, the likelihood of inefficient functioning increases dramatically and performance decreases occurs.

A simple example of this extreme sympathetic drive is a highly experienced and accurate lacrosse shooter is unable to control the location of his shots. If, for whatever reason, his sympathetic nervous system has increased his output, his learned technical skills that he has repeated thousands of times will become useless and he will lose control of his cognitive functioning. As seen in this shooting example, the sympathetic system can function to heighten awareness in a high stress situation, but it can also lead to the breakdown of skill ability, such as accuracy of a shot, if the sympathetic system becomes too activated. Every athlete will have a specific heart rate range in which they are able to perform, and maintain, at an optimal level.

The parasympathetic nervous system works in the opposite manner of the sympathetic nervous system and leads to the body returning to a normal homeostatic state. For this reason, the parasympathetic nervous system has been termed the “rest and digest” phase, as it leads to the calming of the body after a stressor has been experienced. It is during this post-stressed state that adaptation occurs and the body can begin to adapt and prepare for that specific stressor, should it occur again.

It is vital performance coaches prepare their athletes in an appropriate manner based on each of the stressors required in the competitive event to guarantee optimal performance as a possibility. Ultimately, the ability of the athlete to control his heart rate during the specific requirements of competition must remain of upmost importance to every coach. The high response rate and functioning of each energy system as well as the proper breathing pattern determines the abilities of each athlete to quickly transfer from one branch of the ANS to the other. This becomes especially important in repeat sprint sport events.

Learning appropriate breathing, termed *belly breathing,* is essential to controlling the balance between the sympathetic and parasympathetic nervous systems and ultimately the heart rate during both training and performance. This breathing technique is executed by inhaling through the nose and exhaling through the mouth. Throughout this process it is vital that the lower abdomen initiates the movement rather than the chest. The chest will, and should, eventually expand, just after the abdomen does. Shallow chest breathing releases stress hormones that lead to an increase in sympathetic arousal, which are counterproductive to the end goal of maintaining an appropriate heart rate during competition, leading to a less efficient athlete.

This breathing technique should be used at all times to help control heart rate and keep every athlete within his appropriate range for optimal performance. Belly breathing can be trained to improve efficiency through specific practice in training sessions. For example, if belly breathing is made a focal point of recovery between every set completed, the athlete is much more likely to utilize this method in performance. By practicing this breathing technique during training and for other relaxation purposes, an athlete will improve his ability to keep heart rate lowered consistently or lower it rapidly when an extreme stress level occurs. This training can be instrumental for controlling the stress response during high-intensity situations commonly experienced in performance and can lead to increased durations of both focus and optimal performance.

Applying appropriate levels of stress, of both magnitude and the timing, is the foundation upon which all peaking abilities are based. Once again, be a stress manager! This Triphasic Lacrosse Training Model will provide the resources to not only manage stress for each athlete, but will also demonstrate the requirements to achieve optimal stress response and adaptations in every athlete encountered.

The application of appropriate stress is only the first aspect of performance enhancement. As mentioned previously, without the necessary recovery the body will not adapt to its maximal ability. This process of improving performance occurs due to the general adaptation syndrome (GAS), which is shown below in Figure 1.17. The goal of training in the Triphasic Lacrosse Training Model becomes stressing a specific performance quality beyond its level of “comfort” and then allowing the body to recover, improve, and gain the desired results from training. This process of adaptation followed by supercompensation should be well understood by all coaches.

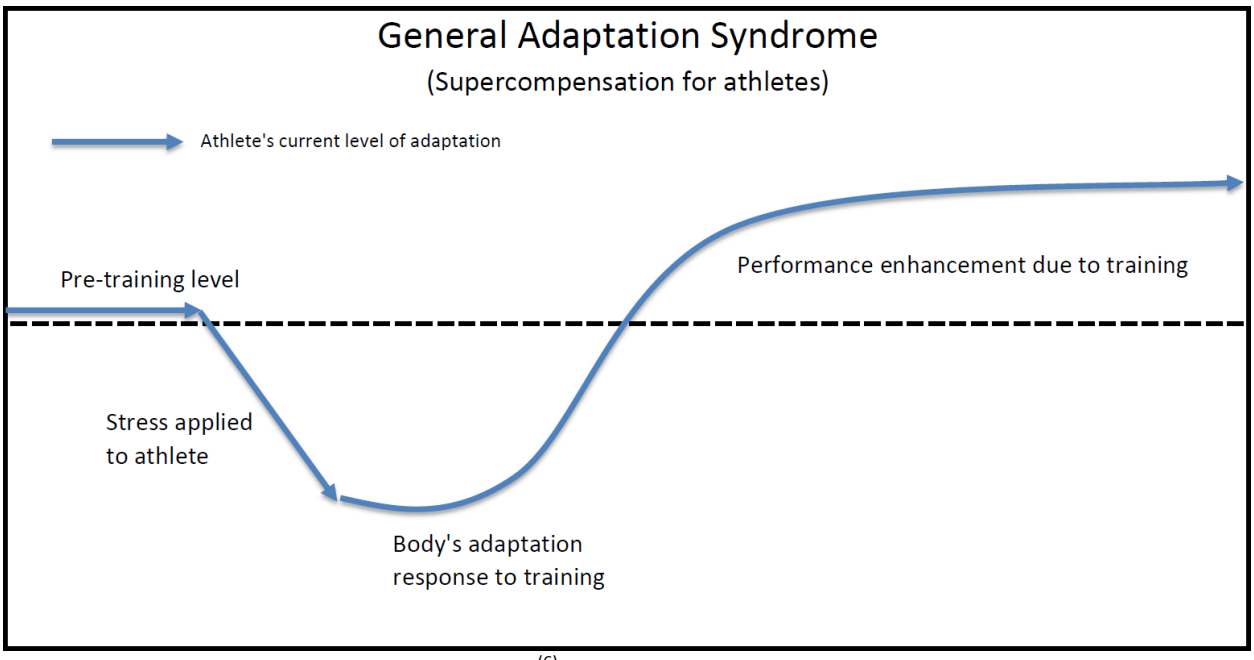

Figure 1.17 - General Adaptation Response (GAS) [6]

Discomfort is a necessary and expected aspect of the adaptation process as the body must experience a large enough stressor to cause adaptation to that specific stressor. However, based on the understanding of the stress continuum shown earlier in Figure 1.16, a logical and systematic approach to training must be implemented at all times to ensure appropriate stress is applied. After the initial stressor has subsided, as long as the intensity of the stressor was not too extreme, the body will enhance its ability to complete that trained skill or quality in the most efficient, specific way possible. This enhancement prepares the body for that stressor, should it occur again in the future. This is why training must be completed systematically and specifically to the competition event being trained for, to ensure the body adapts and is prepared for the stressors experienced in the athletic event.

It is through the constant process of stressing, adapting (or recovering), and improving of an athlete, that all training should be based [7]. Simply put, stress or train the body in a similar manner to the requirements of the task at hand, if you want to improve a skill, you must practice or train it specifically. This basic idea of the general adaptation syndrome can and must be applied in extremely specific manners if transfer of training is to be maximized and optimal performance is to be reached. Only when stress is understood can the specific training presented within the Triphasic Lacrosse Training Model be applied to each athlete's required performance qualities.

Figures 1.18-1.20 below represent the three possible outcomes of stress application in training. Each of these three results are determined based on the stress continuum shown above in Figure 1.16. The first figure, Figure 1.18, displays the improvements possible when stress is applied in an appropriate amount for the desired adaptation, which leads to improved performance to the fullest extent. The second figure, Figure 1.19, shows the results of an athlete that is stressed using insufficient means in training. This training method results in a poor training response and no performance gains due to the training applied. The final figure, Figure 1.20, represents the results of an over-trained athlete, or one that has experienced excessive levels of stress. When this approach is implemented in training, the athlete's body does not have the resources or capabilities to adapt to the demands being placed upon it in

training. Thus, a negative, or poor, training response occurs and an athlete will end in a worse performance state than pre-training levels.

The final two examples (Figures 1.19 and 1.20) must be avoided by performance coaches at all costs. If either of these two occur at any time within the training cycle, a desired skill or performance quality will be left either undertrained or with a negative adaptation, leading to an athlete to a less than optimal state of performance. It is vital performance coaches understand stress and manage it appropriately based on the guidelines laid out. This is the only systematic method created that considers each of the models presented simultaneously, which is truly the only option if optimal performance is to be reached in lacrosse performance.

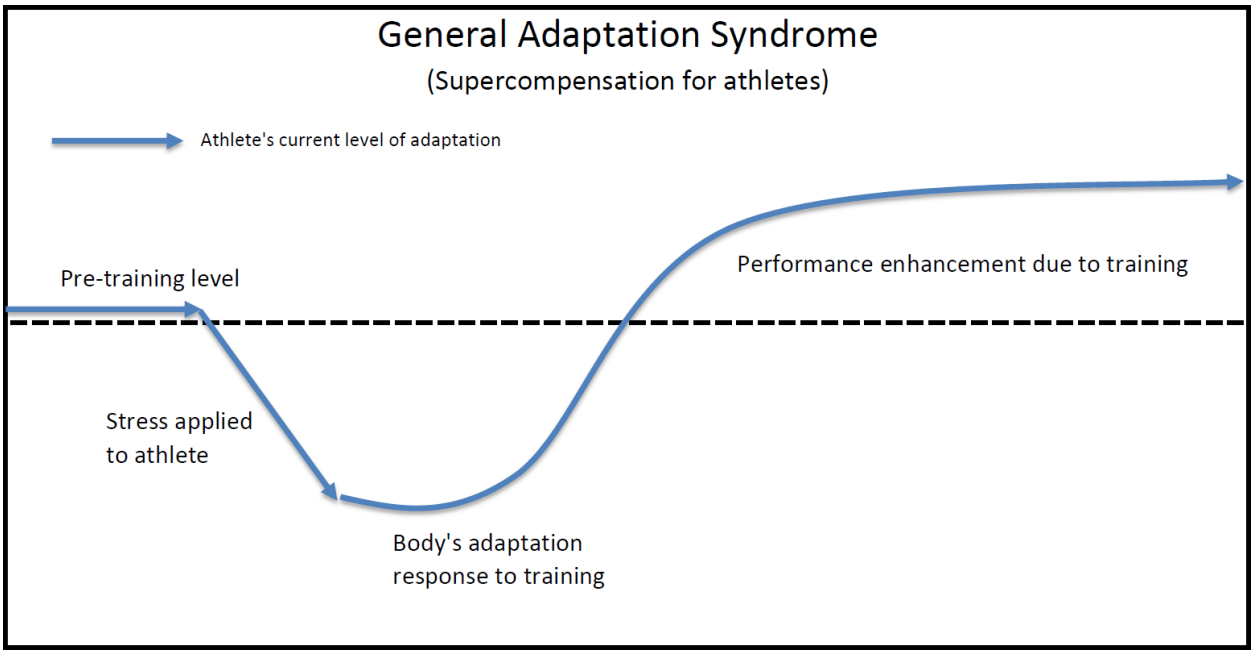

Figure 1.18 - Adaptation Response with Appropriate Stress in Training (Desired Adaptation)

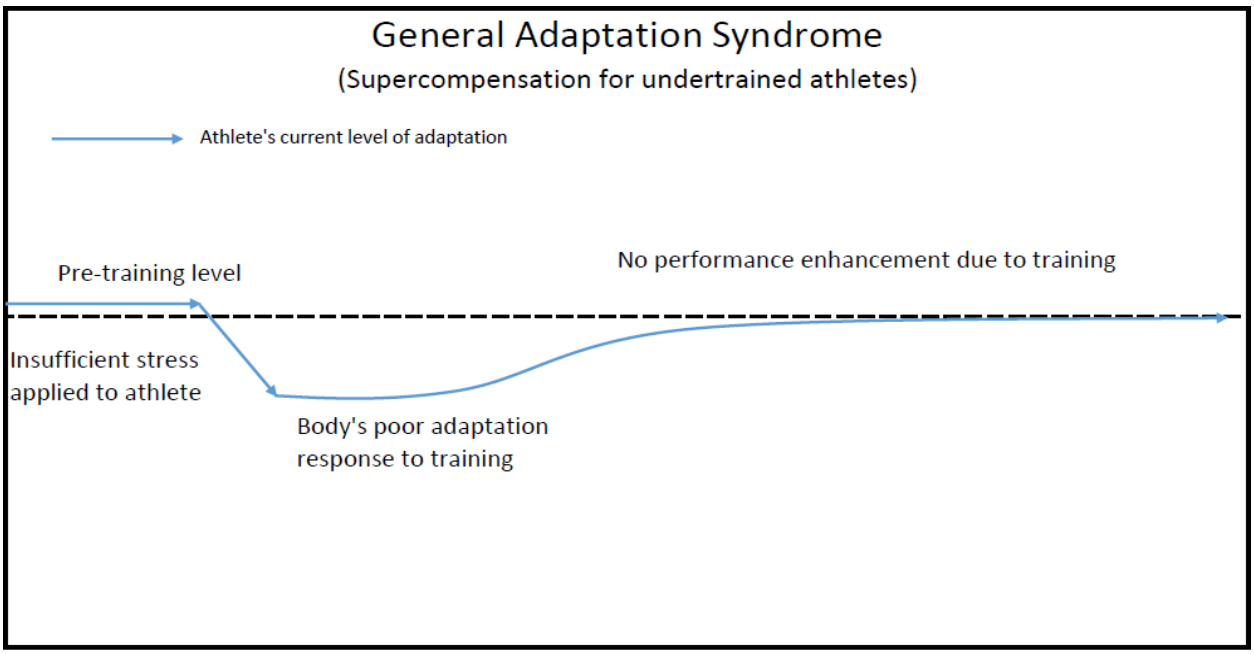

Figure 1.19 - Adaptation Response with Insufficient Stress in Training (No Response)

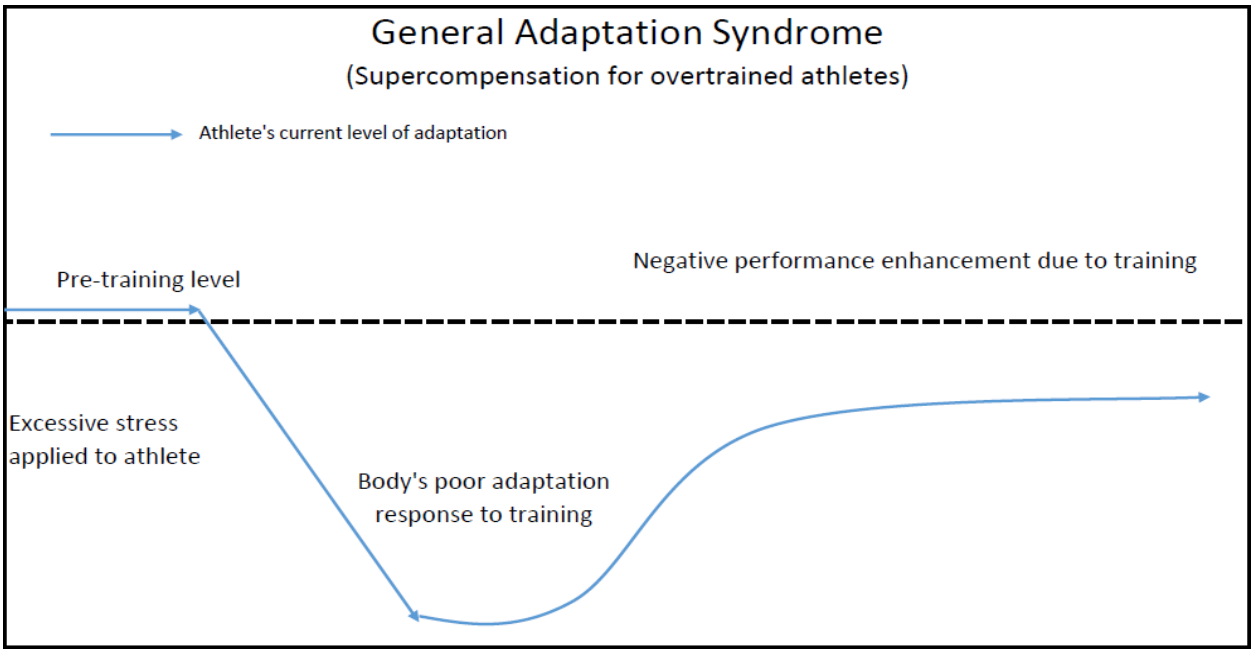

Figure 1.20 - Adaptation Response with Excessive Stress in Training (Decreased Performance)

Every performance coach must view the training process of each athlete in two individual phases. Both the training session, or stressor, and the recovery phase. These two phases give an in-depth view of the athlete's bodily response to the stressor applied and must be carefully considered in training to ensure the desired adaptation(s) occur. Both the training and recovery balance will vary depending on the time of the year. However, the overall concept remains that too much or too little stress leads to less than ideal adaptations and creates an impossible situation for optimal performance to occur.

Based on Figures 1.18-1.20 above, stress and the body's response can be thought of as a wave. As stress is applied, the wave, or readiness of the athlete, drops below the pre-training level. It is at this time homeostasis has been disrupted due to the completed training. Once the stressor has subsided, the upswing of the wave occurs with adaptation and recovery beginning. The importance of recovery cannot be overstated as this phase allows supercompensation of the trained performance quality. It is at this high point of the wave that optimal performance of the trained skill is possible.

It must be realized that nowhere is it ever stated that full recovery and supercompensation must occur between every training session. If full recovery were to be allowed, results will be minimal as truly high levels of stress are never accumulated. In this instance the training response will resemble Figure 1.19 and ultimately no, or extremely minimal, performance gains will be realized by the athlete. Once again, Figure 1.17 above demonstrates the proper implementation of a training stressor and the body's response. When the process of stress and adaptation are well understood, these principles can be applied specifically to the six performance qualities required for elite performance in lacrosse. This creates the systematic, proven Triphasic Lacrosse Training Model.

1.42 Injury Prevention and Reduction

Injury prevention in training and reduction on the field is the second training consideration presented in this manual. This consideration is presented second in this manual only due to the fact that without the appropriate implementation of stress in training can the prevention and reduction of injury be accomplished. As coaches, it must be understood that every aspect of an athlete's life contributes to his stress levels described in the previous section. Competition, practice, and training are commonly considered as stressors; however, travel, family life, significant other issues, even exams contribute to the accumulated stress experienced by an athlete [9]. Studies have now shown football athletes are more likely to be injured during finals week than during training camp. These are stressors that must be accounted for at all times, especially during the competitive season.

There is a clear distinction between prevention and reduction of injury for both training and play due to the uncontrollable nature of lacrosse. The most commonly experienced injuries include lower extremity injuries (ankle and knee issues are experience most commonly), as well as concussions [1, 10-13]. The knowledge and understanding of each injury's mechanism continues to increase, leading to improved training and reduced injury likelihood during gameplay.

Once again, there is no method that can entirely prevent injuries during competition. However, there are specific methods laid out throughout this manual to ensure athletes experience the most efficient training possible. A few of these methods are described in this section and include the incorporation of specific motor learning, the training of appropriate glute functioning, activation techniques, multi-dimensional training, rate of force acceptance training, and neck training. Each of these training methods are implemented at specific times throughout the year in order to prepare every athlete for the high stressors experienced in competition.

The body continues to learn in the manner it is trained; this forms the foundation of motor learning. The specifics of this learning process will be provided in the transfer of training section to follow. However, it is important coaches realize appropriate motor learning plays a role in reducing injury likelihood in lacrosse. Methods for increased motor learning will be described in the training sections of this manual. However, one important aspect of injury reduction and improved performance is the appropriate

functioning of the glutes. We have developed a specific layered system to increase the ability of these vital muscles in athletics.

The gluteus maximus, or glute, is likely the most discussed muscle in the body, particularly in the world of athletics. As a performance coach or any other professional that works to understand the human body, this is likely one of the most fascinating muscles as it is also the most commonly dysfunctional muscle found in athletes. There have been many methods and techniques introduced to assist with dysfunctional glutes, ranging from hip bridge to banded clamshell and other exercises to increase the glute firing. These are all useful exercises to some extent, but they do not apply the required stress to increase glute activation to the highest extent. Before these specific methods to maximize glute activation and function in dynamic movements are utilized, the basics of the glute muscles must be entirely understood.

The glute muscles are primarily responsible for hip extension, which as we know is crucial for all athletic events and movements. However, this muscle is also responsible for concentric movements in other planes, including abduction and external rotation. That being said, the glute is also responsible for the important role of eccentrically decelerating the hip in the opposite movements (hip flexion, adduction, and external rotation), which are all mechanisms of ACL tears, FAI, and other issues athletes experience. For this reason, the firing of the glutes appropriately is critical for reducing injury likelihood, particularly at the knee, as, once again, the mechanism of knee injuries commonly occurs due to excessive adduction and internal rotation. As the glutes become inhibited, for whatever reason, the ability to control the hip and knee become greatly reduced. This leads to an increase in traumatic injury likelihood, which we as coaches must be working to prevent at all times.

As the primary driver of the hip into extension and the critical deceleration of the body safely in various positions and angles, the glutes, and surrounding musculature should fire in a specific pattern with every movement. Whether it is running, cutting, walking, throwing a football, shooting in lacrosse, etc., the glutes should be utilized as the primary driver in EVERY movement. In hip extension, the glute should be the first muscle to fire, followed by the hamstring and contralateral quadratus lumborum (QL), which is shown below in Figure 1.21. This should not be new information to those dealing with the human body and elite level performers on a regular basis. However, the fact of the matter is almost every athlete we have tested does not utilize this optimal pattern. Many athletes fire from their hamstring first, leaving their primary muscles, the glutes, inactive. This pattern leads to a change in gait and likely a pulled hamstring in high-speed running scenarios.

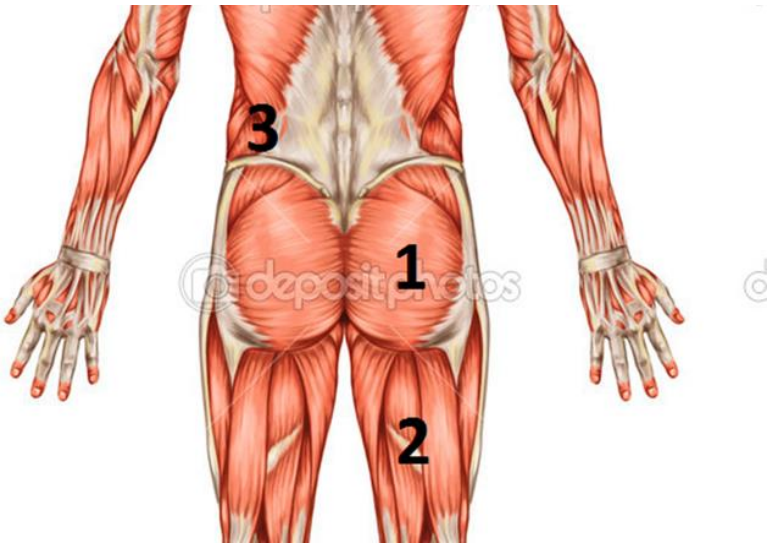

Figure 1.21 - Appropriate firing of the hip extension musculature firing

There are multiple reasons why these changes in firing patterns occur. These reasons include an athlete that is structurally "off," has learned compensation patterns, or is in a chronically sympathetic state. Ultimately your glutes function by the "use it or lose it" mentality. Unfortunately, and amazingly, your body is so efficient, intelligent, and aware of its need for hip extension in movement that it will find other ways to complete this required hip action. These compensation patterns, such as the hamstring being recruited as the primary mover rather than the glute, occur due to the vast musculature surrounding the hips. Once again the "use it or lose it" approach is taken. If for some reason the body cannot fire the glute, it will find a secondary, although sub-optimal, firing pattern for hip extension.

Regardless of the reasoning it is vital a coach is capable of creating optimal, functional firing patterns within the hip with the glute as the primary mover. This will reduce injury likelihood and also improve power output from an athlete. The following will provide, a scientific, research-based, layered system to "reset" your athletes per se into their appropriate, optimal hip extension firing pattern. These methods will be laid out in a pyramid fashion ranging from pure volume with correct coaching and cueing, isometric activation protocols, manual activation techniques, up to structural adjustment principles to ensure appropriate patterning. The glute layering pyramid is demonstrated below in Figure 1.22. This layered system begins with a foundation that all coaches should be capable of providing their athletes, and then progresses to other methods that become more selective in their utilization. At the very least coaches should be providing glute isometric work and then the 3-D contralateral circuit. Ultimately, this system is based on availability, with the most readily available systems forming the foundation of performance.

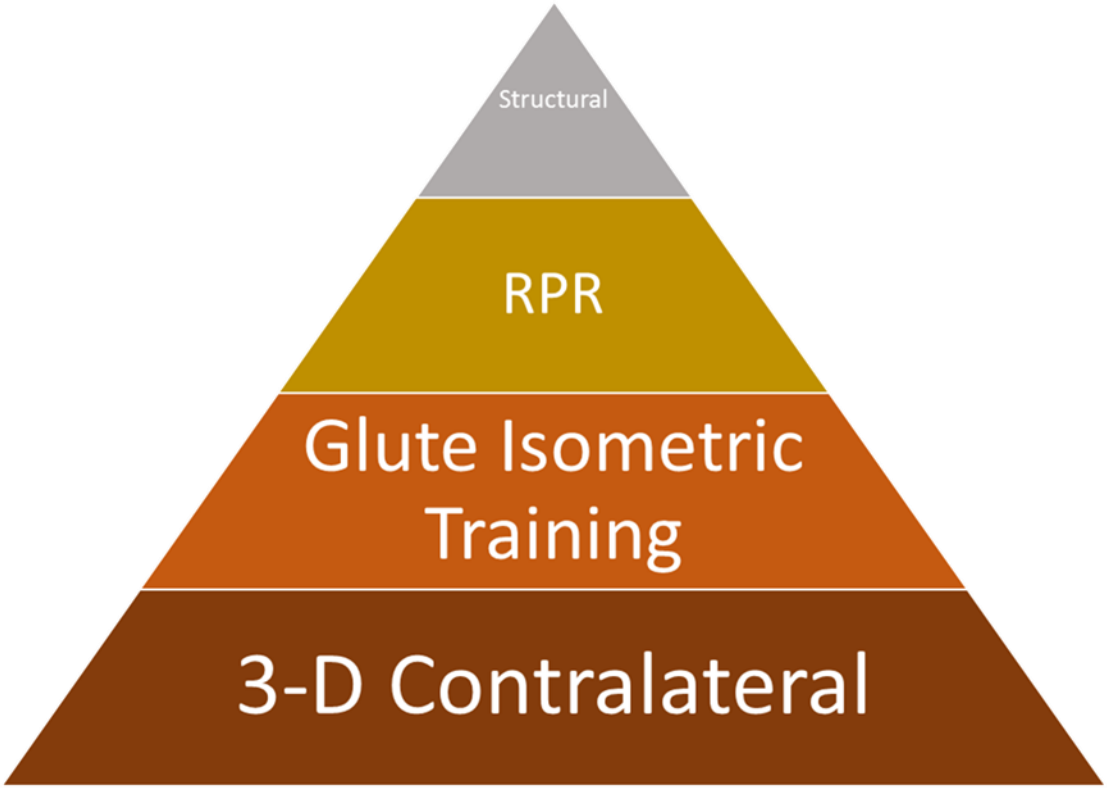

Figure 1.22 - The Glute Layered Pyramid

After seeing this figure, some coaches may feel they already incorporate the majority of these, and it is entirely possible that components of this protocol are implemented. However, as each layer is explained on a deeper level, every coach will begin to realize the physiological importance of the individual components involved in this glute training process.

In order to ensure glute function to the highest extent, a coach must first ensure every athlete is in structural alignment. Many athletes have structural issues that may go unnoticed that are limiting performance. Without structural alignment, an athlete will become inhibited in specific muscle groups, particularly the glutes. If this structure is left in a misaligned position, the athlete will forever be in a reduced state of functioning. This returns to the concept of “don’t add load to dysfunction.” It is important to note structural issues can occur in multiple places, particularly the hips and the feet. The feet are commonly overlooked in this process. In many actions, the feet are the only contact point an athlete has with the ground, thus they are responsible for relaying the ground forces experienced up to the hips, ultimately leading to an eccentric loading of the glutes. However, the foot commonly does not have the appropriate mobility at specific joints, which means the information is never relayed up to the glutes. Therefore, appropriate foot function, as well as other potential structural alignment issues, must be considered as dysfunction can ultimately lead to glute inhibition.

Many coaches are fortunate enough to work with extremely skilled chiropractors who can greatly assist with the glute functioning process. If a coach has this resource, physical therapists, or even an athletic training staff they trust, it is important to develop a relationship with them as their knowledge will be invaluable to the progression and safety of an athlete. However, it is understood that not all coaches have this valuable resource available to them. It must be noted that we are in no way suggesting you take chiropractic or other structural adjustments into your own hands if you are not certified to do so. If

you do not have this skill set personally, or do not have a chiropractor available to you, then this layer is simply unavailable to you and your athletes. It is for this lack of availability to some coaches that this layer forms the peak of the pyramid and not the foundation.

When the structural inhibitions of the body have been resolved, the Reflexive Performance Reset/RPR™ method is able to be implemented with the highest level of success. For those unfamiliar with this technique, it is a form of reflexive therapy that considers neurolymphatic, neurovascular, acupuncture, and many other techniques. When combined, this activation leads to an immediate change in muscle function and compensation patterns within every athlete.

Compensation patterns have been referred to multiple times already, but what leads to these patterns being developed? Factors including stress, such as past trauma, home and work life, and other general stressors experienced, repetitive exposure to a specific movement pattern, as well as posture all play a role in the sequencing pattern of the body and can all lead to compensation.

As compensation patterns are engrained through motor learning, reciprocal inhibition, synergistic dominance and neuromuscular efficiency can all be affected. Reciprocal inhibition occurs when one dysfunctioning muscle leads to a decreased neural drive in its antagonist muscle. An example of reciprocal inhibition occurs when the psoas becomes shortened and leads to a decrease in force producing capabilities in the gluteus maximus, as they are antagonist muscles. Ultimately this inhibition leads to reduced force production by the prime mover and places stress and compensation patterning in a synergist muscle. Synergistic dominance is the outcome of the reduced or inhibited functioning of the primary mover in the kinetic chain or sequence. In this pattern a synergist acts to take over for a major muscle, or primary mover, in an attempt to maintain force production. An example of synergistic dominance would be the hamstrings taking over for the dysfunctional glutes in hip extension. Ultimately synergistic dominance will lead to altered movement patterns, decreased neuromuscular efficiency and control, and increased injury likelihood.

The glute commonly experiences a compensation pattern due to the many number of muscles surrounding the hip. The body can find other ways to complete hip extension. The hamstrings are commonly the group to take over the skill of hip extension, leading to the inappropriate pattern described in the opening section (hamstring, to glute, to contralateral QL). However, when this occurs the body functions inefficiently and is at an increased risk of injury.

RPR™ techniques consider the appropriate sequencing of the muscular system, or kinetic chain sequencing, in every movement completed in life. Everyone should fire in the 1-2-3 pattern, or from the inside-out with explosion, not implosion [15]. This pattern is shown below in Figure 1.23. When a compensation pattern occurs and the 1-2-3 firing order does not occur an athlete experiences implosion, or he drives forces inwards back toward his zone 1. Basically, as the body finds new patterns to complete a task, or compensation patterns, the capability to produce power is lost as the body functions inefficiently. As performance coaches our goal should always be to create explosion, or the 1-2-3 pattern. When the body is executing movements in the correct sequence, the right structures complete the right job at the right time. Notice in Figure 1.23 below, the glutes are found in zone 1 and the hamstrings and QL's are found in zone 2. This ensures the appropriate firing pattern of glute, to hamstring, and finally contralateral QL. As soon as compensations occur and zone 1 (the glute) is no longer used as the primary driver, implosion of the body occurs as synergistic, zone 2 muscles (the hamstrings) are required to take over the job of the primary driver. Once zone 1, ultimately the gluteus

maximus, is altered, the entire sequencing of the body is altered with increased injury likelihood and reduced performance.

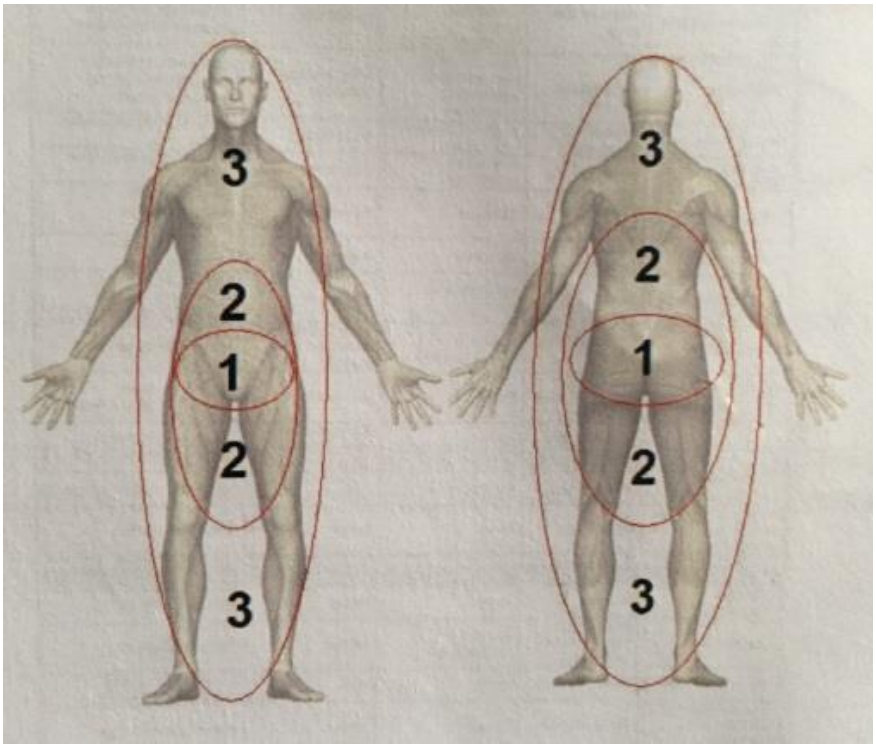

Figure 1.23 - The 1-2-3 sequencing found within the body when correctly functioning

Diaphragmatic or "belly" breathing in the appropriate manner is one method to maintain the appropriate 1-2-3 patterning. This sounds oversimplified, but anatomy shows the direct connection between the diaphragm and the psoas, which is a primary mover in zone 1. For this reason, the importance of this breathing technique cannot be overlooked. Many coaches may already apply this method of breathing in an attempt to reduce the stress response of the body. Anytime the chest is used in breathing, the body is forced to act as if it is encountering a stressful situation. An athlete that breathes through his chest, rather than using the diaphragm, chronically will cause a much greater compensation pattern to occur than a "belly breathing" athlete. This should make perfect sense as stress is one of the factors leading to the patterns other than the 1-2-3 sequence.

A second reason the use of diaphragmatic breathing is useful in athletics is the change in pressure throughout the lungs. When using "belly breathing," the inhaled oxygen is pulled deep into the lungs, where the partial pressure is less than at the top of the lungs. This allows greater amounts of oxygen to be pulled from the lungs at a higher rate, leading to an improved aerobic and cognitive functioning.

Through the utilization of the reflexive reset, RPR^{TM} is applied to ensure the optimal hip firing pattern (glute, hamstring, and finally contralateral QL) of the body is functioning at the highest level. In lacrosse, the muscles within the body do not function as individual pieces, but rather as entire chains. The synchronization realized due to the implementation of RPR^{TM} allows the appropriate use of each muscle group within the kinetic chain at the correct time. When the body is activated through this technique and is properly utilizing the 1-2-3 sequencing pattern, the ability to learn and apply skills that maximize coordination and synchronization required for success in any athletic competition is improved.

This method leads to immediate increases in neural drive to the muscles "activated" and can be seen in isolated muscle testing. Through the implementation of RPR™ an athlete has an increased ability to fire his hips in the appropriate sequence. This access to the glute plays a crucial role in creating sustainable, long-lasting changes to hip firing patterns, which are now understood to be vital to performance.

For more information on RPR, go to: reflexiveperformance.com

The previous two layers described, structural and RPR™ require previous training and a specific skill set prior to their implementation. Although they each play critical roles in the activation of the glutes, it is understood that not all coaches are equipped with, or have, these skills available to them. These next two methods are readily available to every performance coach. For that reason, they form the base of the glute layering pyramid due to their accessibility.

The glute isometric protocols are designed to regain the ability to fire the glutes in all three planes of motion. This training method has been developed due to evidence of increased corticomotor excitability through transcranial magnetic stimulation due to isometric glute training [(14)]. Put simply, the motor cortex area of the brain specific to the glute muscle fires at a greater amplitude post-glute isometric training, or an athlete has an increased ability to learn to utilize their glutes in the appropriate firing pattern of hip extension after this training method is implemented.

Time under tension and athlete tolerance become the two primary factors in this training method. Examples for each of these progressions are provided in section four of this manual. Based on research, the goal time under tension to optimally "prime" the motor cortex for the glutes seems to be around twenty minutes. For that reason, these three progressions all require around that time. However, as an athlete adapts and is able to progress, the amount of time spent in isometric positions increases. For example, in progression 1, of the eighteen-minute training protocol six of the minutes are spent in unilateral, constant movement patterns (Forward Cross Crawl, Cross-Under Lunge, and Cross-Under Lunge Crawl). These patterns are implemented as they continue to stimulate the motor cortex while also allowing an untrained athlete to recover from the isometric work. As an athlete progresses and is able to handle greater isometric training, a higher percentage of the twenty minutes consists of isometric work. A coach can also increase the intensity of an isometric by adding a focal point for the athlete; simply have them focus on one single point as they complete the isometric exercise. An electric muscle stimulation machine can also be utilized on the gluteus maximus to increase intensity even further. However, a coach should use extreme caution with this method as extreme levels of soreness are seen after its implementation.

Simply based on the examples provided in section four, it is common for coaches to add extra work or utilize a higher tension band. However, this must be completed with extreme caution. The primary goal of this training is to ensure the glutes are utilized in the firing pattern. If excessive load or exercises are implemented, an athlete will find ways to cheat, or compensate. Some of our strongest athletes experience EXTREME levels of soreness with the level 1 progression and a yellow mini-band. This is due to their compensation patterns and the lack of glute firing in every movement they complete. These high-level athletes are exceptional cheaters, and thus are commonly the sorest in their glutes the day after this program.

The glute isometric progressions are implemented at a high level during the aerobic GPP phase, due to the increased volume seen in this training block. By priming the glutes through this readily available

method, an athlete can then fire appropriately through a high volume of different exercises and movement planes to “cement” this optimal hip firing pattern.

Once the glutes have been primed through the use of the isometric protocols, along with RPR, and structural layers, if available to you as a coach, the next step is to add a higher level of volume in full movement while utilizing the appropriate hip firing pattern. As stated above, this protocol is implemented within the aerobic GPP phase as its volume and intensity also lead to aerobic adaptations within the body. Typically, this exercise method is prescribed to be completed with a maximal number of repetitions within a specific time frame. For example, an athlete completes repetitions for thirty seconds, followed by a ten-second rest prior to the start of the next exercise. This program is provided in section four with all other training protocols.

The 3-D contralateral program is completed after the glute isometric protocol as it adds repetition to the now available correct glute firing pattern in all three planes of motion. As referred to in the opening paragraphs, the glute has functions in all three planes of motion. Only when these are incorporated into training appropriately can the highest level of function be achieved. Previous layers function to improve the ability to utilize the optimal hip extension pattern, however, they are all completed in an isolated fashion. The 3-D contralateral program is the first layer to utilize the appropriate glute firing pattern in full, complex, multi-planar movements. As almost every athlete has been using an incorrect firing pattern, this exercise method requires heavy coaching. Without appropriate cueing, an athlete will simply revert to his old methods of firing from his hamstring first and all progress from previous layers will be lost. This is the most critical time for changes to be made in actual function through real-life, or athletic, movements. At the initiation of every movement, the athlete should feel the glute contract to some extent. This returns to the idea of creating an “explosive” rather than “implosive” athlete. We want all forces to be generated from zone 1, or the glutes, and then transferred to the extremities of the body. By reinforcing this appropriate hip extension firing pattern, optimal movements are able to be executed.

The glutes are clearly the most important muscle group in the human anatomy. They play a critical role in every aspect of locomotion as they function as the primary movers to extend the hips, particularly the eccentric deceleration of the body. When the glute activation process is set up in a layered system it allows coaches to emphasize certain aspects over others. In the layered example given here the foundation is formed by an activity that every coach should have prepared in their tool box, simply the ability to coach and cue an athlete. For that reason, the 3-D contralateral forms this foundation of optimal glute firing. Through high volume training of the glutes and good coaching the body will begin to utilize the glutes appropriately to a greater extent.

The isometric glute protocols increase the motor cortex firing of the brain. Although this training is applicable to any muscle, such as a quadriceps muscle firing post ACL, the glutes represent the most common dysfunctional major muscle in the human body. By incorporating isometric training to achieve the around twenty-minute threshold, an athlete’s ability to fire the glutes in movement are increased. The equipment required for this is minimal, thus the implementation of this training method will assist with the motor learning involved in the 3-D contralateral training to follow.

The RPR™ method described in this section may not be available to everyone. However, if you have the opportunity to attend this course I would highly recommend it as immediate, lasting changes in glute function are capable in minimal time (less than twenty seconds). This method increases neural drive to the glutes prior to the glute isometric program, leading to increased intensity and greater

response within the motor cortex. As it is not readily available for all coaches it has been placed above the isometric program.

Finally, the structure and/or chiropractic aspect of glute function must be addressed. We are aware that this technique is not always available for all coaches as it requires outside assistance for the majority of its implementation. For that reason, it creates the very top portion of the glute layering pyramid. This should not diminish the importance of this method as without it optimal function will not ever be possible.

To create a simple analogy for this glute layering process, we can treat the glutes like a circuit breaker. If an athlete's structure, hip or foot function is off, it's as if the power to the breaker is off. Regardless of how well the circuits function there is no change as there is no power input to the breaker. Once the power is on, or the athlete's structure is appropriate, RPR™ methods can be applied to ensure the circuit to the glutes is closed, or able to conduct electricity. If this activation technique is not applied, an athlete will lack neural drive to the glutes, as a result the circuit will be left open, or be "switched off." Once the circuit breaker has been closed or "flipped on" through RPR, the glute isometric training protocols are implemented to increase the strength and capacity of the "glute circuit." Finally, the 3-D contralateral is implemented to repetitively send the stronger signal to the glutes, which increases the body's ability to function at the highest possible level and begin to add strength appropriately.

Every one of these layers within the functioning of the glute revealed in this section play a specific role. At the very least coaches must be capable of completing the basics prior to completing any others. Once again, when viewing the pyramid presented in Figure 1.22, a coach should begin from the highest level they are capable of completing all layers below. For example, if a coach is not trained in RPR™ techniques, the glute isometric and 3-D contralateral protocols would be implemented. A chiropractor that has been trained in RPR™ would be capable of utilizing all four methods of the layered glute protocol provided. Only when each of these layers of the glute are considered and implemented appropriately will the glute regain its full function as a primary mover. Once this has been completed the body will utilize the appropriate, optimal pattern of glute, hamstring, and opposite QL, leading to vastly reduced injury likelihood and increased performance and power output.

The 3-D contralateral program described above for glute functioning represents one method in which multi-dimensional training can be implemented to continue to reduce injury likelihood. Multi-dimensional training can be applied throughout the entire body to ensure optimal functioning and performance to occur. The methods of multi-dimensional training and the potential benefits will be demonstrated throughout the following section.

From the very beginning of a performance coach's career, the three planes of motion (sagittal, frontal, and transverse) are taught in basic anatomy classes. Figure 1.24 below shows these three planes of motion. However, as coaches progress into full-time work, many programs implement exercises which utilize primarily the sagittal plane (step ups, forward lunges, back squats, bench press), while commonly neglecting both the frontal and transverse planes of motion. Many coaches may argue that the majority of movements in athletic competition occur in the sagittal plane, or that strength is generally transferrable to all planes of motion. These arguments lead to the primarily sagittal based training programs regularly implemented. However, the movement in all three planes of motion places significantly different biomechanical and kinetic chain reaction demands upon the body. As the

understanding of movement through each joint of the body is improved, the importance of each plane of motion becomes apparent in all movement patterns executed.

Before the methods of multi-dimensional (3-D) training are described, the basic concepts of the three planes of motion must be well understood by all performance coaches. Figure 1 below displays each of the planes of motion (sagittal, frontal, and transverse) in respect to their application within the body.

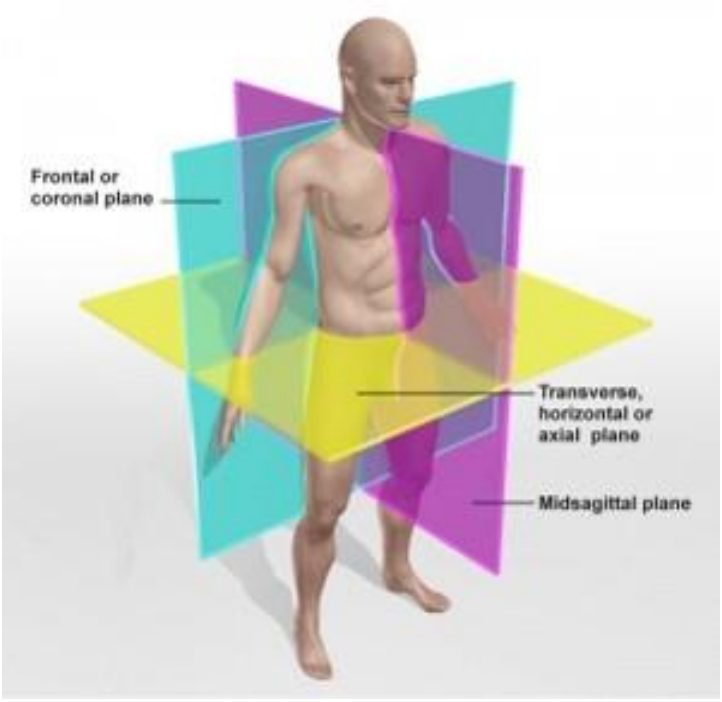

Figure 1.24 - The Three Planes of Motion found within the Body

Sagittal Plane: Separates the body into a left and right section. Any type of flexion and extension movements require the utilization of the sagittal plane of motion.

Frontal Plane: Separates the body into the anterior and posterior sections. Lateral movements require the use of the frontal plane of motion.

Transverse Plane: Separates the body into the upper and lower sections. Anytime rotation is completed within a movement the transverse plane of motion is used.

This is not new information to many coaches. At some point each of these planes was likely even memorized for some type of certification test. However, the implementation of exercises to each of the planes of motion can become difficult and sometimes complex. This does not have to be the case though, as there are simple strategies that can be applied to maximize the ability of each joint to function appropriately in its primary plane of motion.

Before these strategies are covered in greater detail, it is necessary every coach understands the value of all three planes of motion in even basic movements. A skill as simple as walking or running straight

ahead is viewed as a primarily sagittal movement by many. However, upon closer look, the application of a joint by joint approach reveals the importance of 3-D training in even the most "sagittal" of movements completed. The task of walking or running is completed by nearly every person/athlete on a daily basis. During normal gait, all three planes of motion are present and are required for efficient movement. As the foot strikes the ground, the subtalar joint experiences eversion, which leads to a pronation at the foot. This pronation of the ankle leads to tibial medial rotation, femur medial rotation, and eventually hip internal rotation. Finally, ankle dorsiflexion is required throughout gait to achieve appropriate toe-off through the big toe. These movements are all required and summate to create eccentric loading of the glute, which should be the primary driver of all hip extension.

Each of these joints is required to function to a high-extent if appropriate movement is to occur. This mechanism, termed tri-planar loading, clearly demonstrates the importance of all three planes of motion in everyday tasks. The subtalar joint experiences a frontal plane of motion change (eversion), the tibia experiences transverse plane of motion change (medial rotation), and the ankle experiences sagittal plane change (dorsiflexion). Figure 1.25 below depicts this tri-planar loading, which should occur in every stride taken. As this loading pattern occurs the glute is able to experience eccentric loading and an athlete experiences efficient movement.

It is important to note this pronation and tibial rotation occurring with every step. Although extremely important for appropriate and efficient movement, they do not function on the "more is better" approach. Every athlete must attain the proprioceptive control over his arch to ensure excessive pronation and tibial medial rotation do not occur, as this will lead to valgus stress placed upon the knee. In fact, many professionals measure this "medial-drift" occurring at the foot to determine potential pathologies.

Figure 1.25 - Tri-planar loading within the foot and lower leg in gait

Besides the improved efficiency of movement through appropriate joint articulation and tri-planar loading, 3-D training also leads to a reduction in the likelihood of injury. 3-D training, when programmed appropriately, leads to improved motor patterning, a reduction in biomechanical deficiencies, increased

range of motion, the creation of tissue tolerance, force absorption capabilities, and improved strength in extreme or abnormally utilized tissue lengths. Ultimately, the implementation of 3-D training leads to the ability of an athlete to create proprioceptive control and strategies to move in and out of disadvantageous positions which occur in athletics.

The benefits and adaptations listed above are just a few of the many improvements seen with the implementation of 3-D training methods. However, these methods must be implemented with a careful coach's eye. When movements are completed in multiple planes, tissue lengths can extend far beyond an athlete's active range of motion and into their passive length capacities. A lateral lunge is a simple example of this passive range of motion. As an athlete loads the leg reaching laterally, the leg stays in a relative neutral position to the pelvis as it remains directly below the hips. This is not the case for the trail leg, which is locked out and experiencing relative abduction when compared to the pelvis. Examples of this relative motion are demonstrated in Figures 1.26 and 1.27 below. It is the trail leg that experiences passive range and does not have a significant amount of neuromuscular loading. Therefore, exercises must be carefully implemented and managed to create specific outcomes that are actually seen in sport, not passive loading which many exercises create.

Figure 1.26 - Lateral Lunge, the left hip experiences relative hip abduction and ankle inversion

Figure 1.27 - Cross-Under Lunge, the left hip now experiences relative hip external rotation, adduction, and ankle eversion

Every coach must continue to decrease an athlete's active to passive range of motion deficit, as this deficit is the most common place an injury is likely to occur. If an athlete lacks active, neuromuscular control over a range of motion, they will not have the ability to maintain appropriate position as they are passively experiencing the movement. It is this ability to control tissue in greater ranges of motion that must be actively sought after by all coaches and athletes. By placing the body into appropriate positions that are not normally experienced in training, the athlete learns to control their joint in these extreme ranges of motion. As athletes adapt to any stimulus provided, each individual becomes accustomed to these ranges of motion, ultimately leading to motor learning and tissue strength and tolerance.

Motor patterning is defined roughly as the recruitment of a muscle in a coordinated fashion in an attempt to accomplish a desired task. When the body is completing a novel task the motor pattern functions inefficiently, but as an athlete experiences repetition at a specific joint angle and tissue length the movement is executed at higher efficiency, or co-ordination levels. Ultimately, every movement completed is a learned skill, with each requiring specific training in order for maximal efficiency to be achieved in performance. 3-D training methods aim to enhance the skill learning of athletes in planes as well as ranges of motion commonly overlooked in training. Through correct coaching of these multi-planar exercises, many biomechanical issues are also addressed as joints experience appropriate articulation in these ranges of motion.

By creating variability within movement, positions and demand coaches can drive neuromuscular stress and orthopedic articulation to create appropriate kinetic chains reactions and efficient biomechanics within their athletes. For instance, a coach can drive subtalar joint articulation and hip internal rotation by creating a rotational reach pattern. This is only created when movement from the hip and ankle are

encouraged and taught as part of a kinetic chain reaction. Otherwise, many athletes may just reach or drive motion rotationally from their arms, shoulders, and/or T-spine. Many isolated mobilization exercises can improve articulation at a singular joint, but recreating the demand across the entirety of the kinetic chain teaches movement from appropriate zones. This leads to a reduction in dysfunctional movement patterns, or compensation patterns, commonly displayed by athletes.

In addition to the motor and movement pattern improvements, multi-plane training contributes to improved strength, particularly in the extreme ranges of motion. This enhanced strength is in part due to the increased neural drive and co-ordination in these positions (motor patterning described above), but is also due to improved tissue tolerance at these new lengths. Figure 1.28 below demonstrates the length-tension relationship experienced at the individual muscle fiber. The majority of movements in athletics are completed within the “Normal Tissue Length”, however there are times, particularly when an injury occurs, that tissue enters the “Extreme ROM” (range of motion) lengths. With appropriate multi-dimensional training, the ability of an athlete to accept and produce high-levels of force is improved at these different tissue lengths. These training adaptations are demonstrated in Figure 1.29 below.

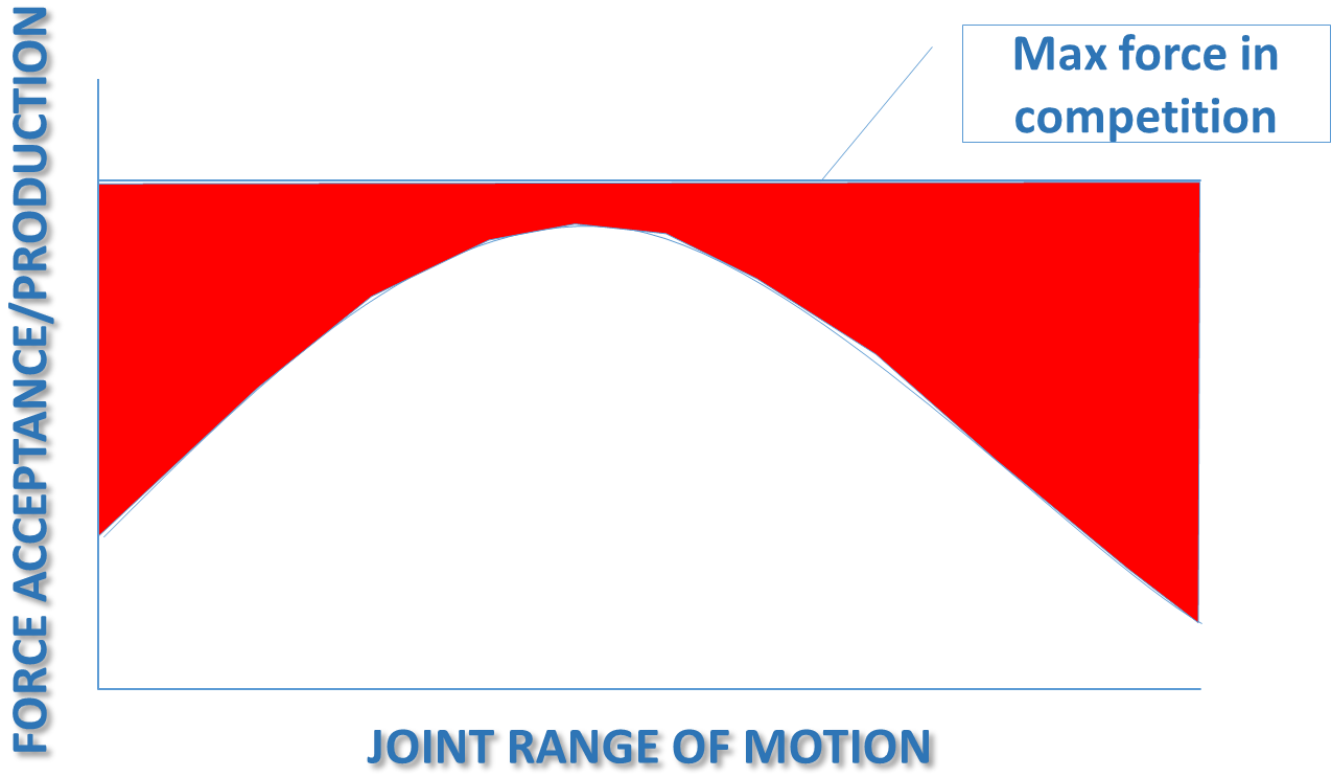

Figure 1.28 - 3-D Pre-Training Levels at Different Tissue Lengths

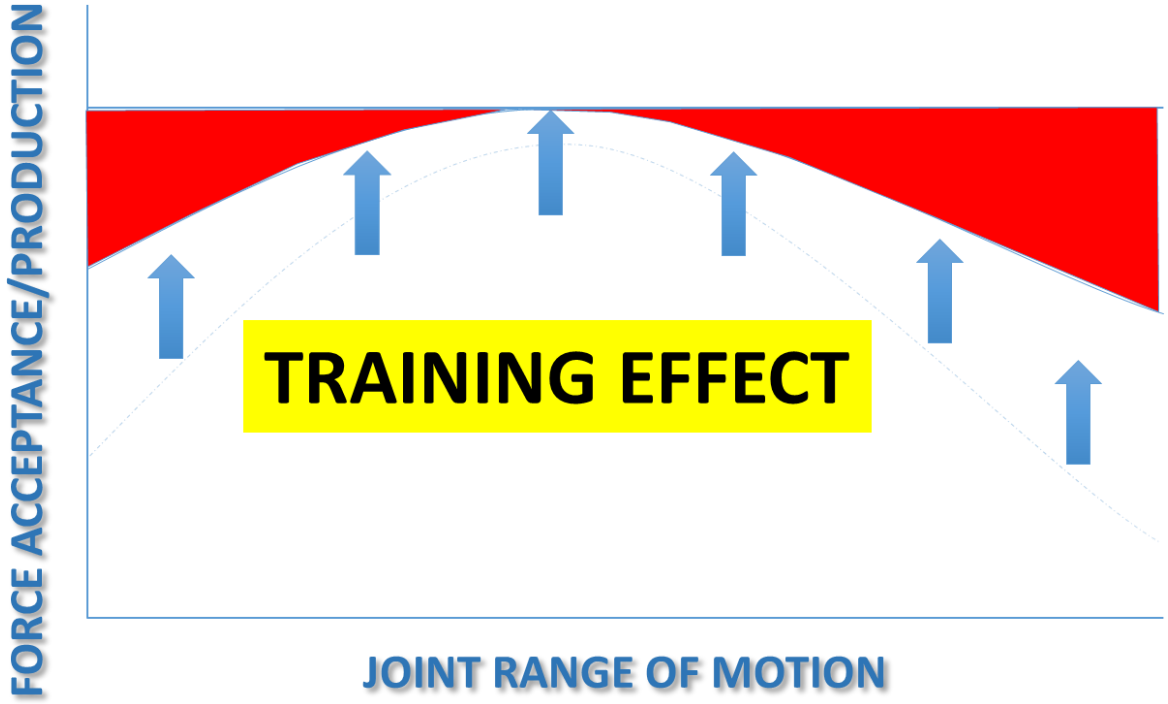

Figure 1.29 - Training Adaptations Experienced at Different Tissue Lengths

The understanding that the majority of athletic movements are completed within a normal range has led to the emphasized training of maximizing force absorption and production within those “Normal” ranges. However, this method of thinking leaves the “Extreme ROM” zones, or the lengths experienced when an injury is sustained, in a weak and undertrained state. Multi-plane training, when implemented in a way that drives new tissue lengths, creates strength, and thus stability, at these uncommonly experienced tissue lengths or joint positions. This increased exposure, and resulting strength, leads to an even greater ability of the tissue to absorb and tolerate high force levels when extreme lengths are experienced. This returns to the concept of active to passive control. As an athlete experiences range of motion in new tissue lengths, they are capable of improving their neuromuscular control throughout the movement to a greater extent, ultimately leading to a reduction in injury likelihood. As explained above, a primary goal of the 3-D training methodology is to improve the functioning of both the joint and the tissue to optimally articulate and tolerate loads at the “Extreme ROM” zones.

Just as performance coaches implement stress to cause a specific adaptation, disadvantageous positions can be applied in training in order to further reduce injury likelihood. By placing an athlete in these positions, the ability to develop proprioceptive control is provided. This ultimately gives an athlete a strategy to maneuver in and out of disadvantageous positions experienced during competition and reduces the likelihood of sustaining an injury.

Figure 1.30 - Disadvantageous Positions Experienced in Competition

Figure 1.30 demonstrates an example of an “awkward position” commonly experienced in a lacrosse game. As the player plants his foot to execute a roll-back dodge, adduction or valgus at the knee occurs. This is a position most performance coaches avoid entirely in the weight room. However, if an athlete is never given a strategy to move in and out of this position in training, motor patterning and tissue tolerance will never be learned.

Due to the highly reactive nature of athletics it becomes clear the body must respond in a rapid manner, leading to awkward positions, such as the one displayed in Figure 1.30. By providing an athlete these proprioceptive abilities and strategies in the awkward positions experienced, an athlete’s injury likelihood is greatly reduced. Ultimately multi-plane training methods aim to improve the athlete’s ability to decelerate, stabilize successfully, and attain proprioceptive control in awkward ranges of motion experienced in athletics.

Every performance coach has learned the three planes of motion that are present in every athlete. However, the implementation of these different planes can become more difficult in a practical training setting. Coaches must understand the application of each plane of motion, even in what appears to be primarily single plane movements such as walking or running. By providing appropriate stimulus and training to all three planes of motion and applying a joint-by-joint approach an athlete will improve motor patterning, his neuromuscular control in different positions, and his ability to get in and out of disadvantageous positions safely. Each of these adaptations leads to a greater ability to perform effectively while reducing the risk of injury, which should remain top priorities for all coaches. Through the better understanding of the spectrum of tissue lengths an athlete is exposed to consistently in specific sports, coaches can better prepare and condition athletes. This leads to a decreased injury risk and better reconditioning methods for athletes during return to play protocols.

Once the glutes are functioning to a high level and an athlete has increased control at different tissue lengths, it is important to train an athlete to absorb high forces at high velocities. The ability of the

athlete's body, specifically muscles, to receive and overcome high levels of force plays a critical role in reducing injury likelihood. The ability to rapidly create high levels of force, termed rate of force development or "RFD," has long been shown to be a primary determinant of athletic performance. The specific training and adaptations that occur to RFD within the Triphasic Lacrosse Training Manual will be covered in great detail in later sections. However, with RFD playing such a vital role in performance, the ability to absorb high levels of force is often overlooked. This ability is termed the rate of force acceptance or "RFA." RFA is crucial for performance because lacrosse requires athletes to constantly absorb and overcome forces.

Anytime a lacrosse player dodges, cuts, plays defense, or moves dynamically in any fashion there is a constant undulation between producing and absorbing force. On the field, every athlete with every movement is constantly speeding up or slowing down. As an athlete speeds up, RFD plays a major role in acceleration; however, as he slows down, or decelerate, his RFA ability plays the biggest role. RFA is particularly important as an athlete's inability to tolerate high forces in a rapid fashion, or reduced RFA, is a common mechanism of injury.

As an athlete decelerates his body experiences a high-eccentric load all at one time, as shown in Figure 1.31 below. If an athlete has a poorly trained RFA, he does not have the ability to appropriately decelerate, or eccentrically load his musculature, and injury likelihood is increased dramatically [16]. Through specific eccentric training, for both strength and at high velocities, the RFA for an athlete can be improved dramatically. Methods of this training will be provided in later sections of this manual, but it is critical coaches understand the importance of training lacrosse athletes to absorb high levels of force. Every athlete must be capable of matching the speed at which contact is made, while also applying high enough force levels to not only meet but overcome the immediate force levels required.

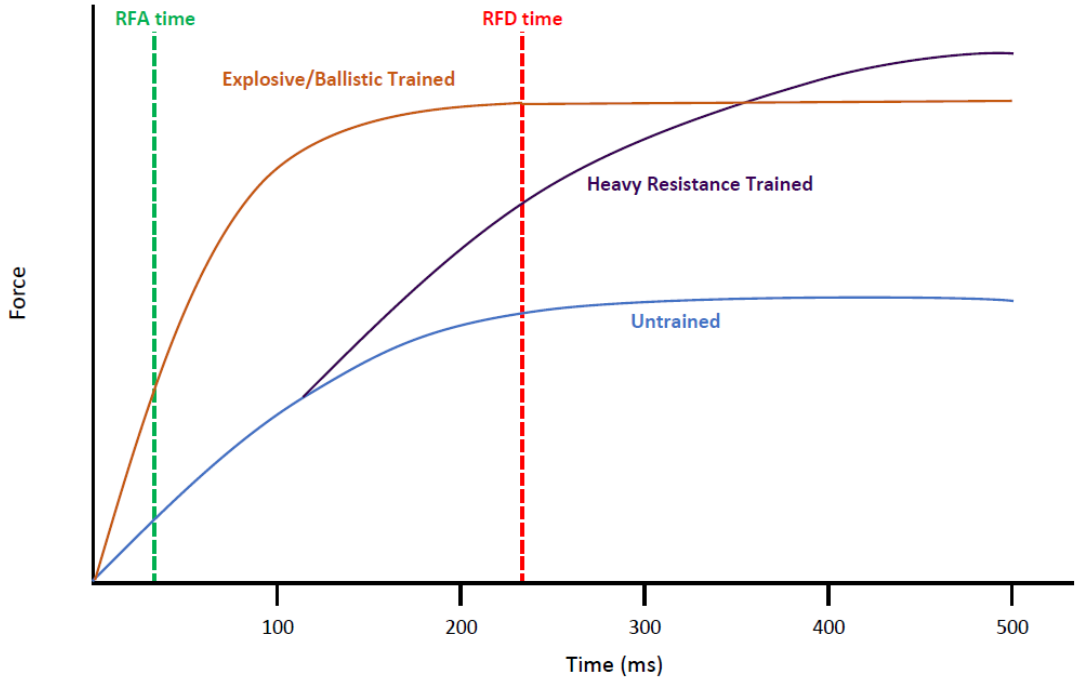

Figure 1.31 - RFD vs. RFA in a high-velocity athletic movement

Another injury common in lacrosse that deals with the ability to decelerate a body part is a concussion. With the increasing concern around the incidence of concussions in lacrosse, which is third in occurrences only behind football and ice hockey, specific training methods must be implemented to reduce the likelihood of sustaining one of the debilitating injuries. Appropriate use of activation methods to create explosion within the body, along with neck training can be implemented to drastically reduce the likelihood of this traumatic brain injury.

Elite level lacrosse players excel primarily due to their ability to cognitively function at a high level during game-play. A lacrosse player must be capable of thinking at extremely high rates while also executing athletic movements. Clearly the brain plays an important role in this ability to think, process, and react appropriately in competition. That being said, coaches must ensure the safety of this vital asset at all times. Due to the physical nature of lacrosse, training must be completed to ensure an athlete is equipped with the appropriate neck, jaw, mandible, and shoulder girdle strength needed to protect his most important performance factor, his brain [(17)].

Think of the head, neck, trap, and shoulder girdle as a tree. A tree has strong roots holding the trunk and branches in place so it can withstand nature. If a tree does not have strong roots and a strong trunk, the tree will break and/or collapse. Just as a tree has roots, so does the neck. The trapezius, upper back muscles, and entire shoulder girdle act as the roots to the neck, head, and brain. The neck and jaw musculature is the trunk of the tree. The head is the most important branch bearing fruit, in this case cognitive thinking. We must have strong and stable roots (traps, upper back, shoulder girdle) to ensure we have a stable foundation. We also must have a strong trunk (neck, jaw musculature) to help absorb and the outside physical forces. Having these critical pieces will help stabilize and anchor the head and brain, ultimately decreasing the concussion/neck injury likelihood [(17)].

To read more on neck training, visit http://vandykestrength.com/pages/neck_training

Each of these considerations plays a vital role in preventing and/or reducing injury likelihood in the sport of lacrosse and are implemented specifically within the Triphasic Lacrosse Training Model. Whether the goal of training is to teach and allow appropriate patterns through motor pattern, activation, or three-dimensional methods; to improve tissue tolerance and the ability to overcome high forces through RFA or three-dimensional method; or to reduce concussions through the use of neck training every coach should utilize training methods to diminish injuries. Ultimately, an effective performance program, such as the Triphasic Lacrosse Training Model, can have a dramatic impact on a team's success simply by keeping all athletes healthy and prepared to compete at the highest level.

1.43 Transfer of Training

Transfer of training is crucial and the ultimate goal for any training program implemented. Every coach has one concept in mind: to improve the performance of an athlete on the lacrosse field. An example skill required in performance is the specific amount of force produced with every stride while sprinting or executing a dodge. This idea can be lost occasionally as too many coaches get caught up in using specific exercises, rather than applying the knowledge of the six physical performance qualities simultaneously with appropriate stress. It is always important to remember to not get caught up in numbers or the completion of a certain lift. Coaches are training lacrosse athletes, not power or Olympic lifters. Once again, the specific improvement of the six physical performance qualities according to their

needs in lacrosse are much more important than just strength. Training programs must match this thinking if transfer of training, or performance on the field, is to be maximized [18].

Every action completed by the body is a learned skill. To repeat that again, EVERY ACTION COMPLETED BY THE BODY IS A LEARNED SKILL. Every step, movement, change of direction executed in everyday life or on the lacrosse field is completed based on the foundation and accumulation of previously experienced actions by the body. It is absolutely imperative coaches understand this principle and its application in preparing an athlete for performance. This is where the idea of "use it or lose it" comes from. Every coach must implement the specific requirements of lacrosse at the appropriate time of year to maximize specific skill learning and performance.

With the understanding that every action is a learned skill there are clearly many skills that must transfer from training into competition. However, the majority of these can be boiled down to three abilities. These three skills include the enhancement of the required motor patterns, an improvement of the energy systems in both their output and efficiency, and finally the ability to produce force rapidly in the competitive movements. Each of these skills requires a high output from the nervous system in a specific pattern and will be covered in great detail throughout this manual as they form the foundation of sport perfection, and thus optimal performance.

Optimal performance is a term that will be consistently used throughout this manual, as it should ultimately be the goal of all training. Its continued use should display the importance of achieving optimal performance at the appropriate and desired times within the competition calendar. It is important for all performance coaches and athletes alike to understand the meaning of this term and how it can be applied to the specific skill set needs of the event. Optimal performance can only be achieved when each of the skills required in the competitive event is improved, or peaked, to the fullest extent possible, at the desired time. This peaking of each skill required is only possible when training methods that maximize the transfer of the specific skills needed in competition are implemented [18].

When subjects are introduced to a new and relatively complicated task, such as those found in lacrosse, the body will function in an inefficient manner. This is due to the reduced motor learning, myelination, and the other adaptations that occur in the skill-learning process. It is important all coaches understand there is NO WAY to mimic the exact required movements of lacrosse outside of actual practice. The speed required to complete these skills CANNOT be matched, and thus should not be attempted to be attained in training. An example of attempting to improve transfer of training is comparing a heavy set bench press at 80% of an athlete's 1 repetition max (1RM) compared to a medicine ball chest pass. The medicine ball exercise is much closer to the speed and rate of force development required during an athletic movement, thus it will have a higher transfer of training than the 80% 1RM bench press.

It is more important athletes learn to absorb and generate high levels of forces at high velocities for the duration of the competition in training and practice. The requirement for increasing transfer of training from the weight room to the competitive event must be realized in order to optimize performance. For this reason, it is necessary to train using specific exercises that utilize the similar muscle activation patterns and ATTEMPT to mimic the high velocities realized in sport. Implementing training with these ideas in mind will improve the efficiency the body functions during lacrosse movements in both practice and competition.

It is unlikely that training improvements in one movement will correlate to other movements, even within the same muscle. An example of this can be seen in the quadriceps muscles. Although quadriceps

contraction is common for many movements in athletics such as jumping, cycling, and/or sprinting, the sequence of muscle activation for each of these movements differ so that a set of neural connections established as a result of quadriceps training is unlikely to help with multiple movement patterns. For this reason, it is vital to train lacrosse athletes in patterns similar to the movements seen in competition, such as sprinting and agility methods.

Motor learning forms the foundation of the skill-learning process. Skill development, at the most basic level, is the ability of the body to adapt to a stimulus and adjust its response in order to achieve optimal results for that one specific task. The accomplishment of any task, especially athletic skills that require high forces and velocities, require proper coordination and rely on previous experiences and the motor learning ability of the athlete. This coordination of movement can be improved through the proper training stimulus.

Motor learning increases the efficiency of movements, such as muscular contraction patterns utilized in lacrosse. In novel or complex tasks, co-activation by antagonist muscles is often excessive, but has been shown to decrease with practice [19-22]. However, after four weeks of resistance training a smaller input from the central nervous system is required to achieve the same muscle activation post-training [23]. The development of a specific skill, once again, leads back to the importance of training programs having a high transfer of training, allowing the learned skills, ranging from nervous system adaptations to increased force output, to be transferred from the weight room to the lacrosse field [18, 23].

The 10,000 hour rule is a perfect example of this skill-learning process in action. It has been shown that 10,000 hours is about the time it takes to truly become an “expert” at a certain skill. It does not matter what the end goal is, whether it is sprinting, golfing, change of direction, etc., as long as 10,000 hours of high-quality learning are completed. This number is not exact and will change based on each individual. However, the ability of the body to learn and recall specific skills is extremely useful in the world of athletics and lacrosse performance. The learning of skills is all due to myelination that occurs with every movement completed in life.

Myelin is a white, fatty substance that coats axons throughout the brain and human body. Axons act as wires, carrying electrical signals along billions of chains of nerve fibers, relaying messages from the CNS to the peripheral nervous system and then back again [24]. As the amount of myelin increases, the proficiency of the skill correlating with that specific neural circuit is increased as well.

Myelination of axons is increased with the development of skill [23]. Skill development leading to an increase in myelination is the result of motor learning, which forces the brain to fire the electrical impulses through specific neural circuits to the motor units of the muscles [23]. The increased number of signals continuously sent through a specific group of neural circuits leads to an increase in myelin, which wraps the axon of nerves and acts to speed up conduction velocity [23].

Studies have shown that a physiological adaptation of the brain to learning a new skill is the addition of myelin around the neural circuits responsible for that specific skill [23]. A second study showed that myelination could be inhibited by blocking of specific neural circuits. These two studies show stimulation of neural circuits, such as those observed in thoughts and movements, is a requirement to increase myelination [23].

Again, every task, thought, and action that the human body and brain perform is a learned skill or reflex circuit [23]. The basic ideas regarding neural transmission can be broken into three points. The first is that

every movement, thought, or feeling is a precisely timed electrical signal traveling through a chain of neurons, otherwise known as a circuit of nerve fibers allocated together to perform a task. Second, myelin is the insulation that wraps many of those nerve fibers and increases the signal strength, speed, and accuracy. Finally, myelination is important for skill development. The more a particular neuronal circuit is fired, the more myelin insulates that circuit. These stronger, faster signals lead to more fluidity throughout an athlete's thoughts and movements [23].

Increasing myelination due to a specific movement calls for better methods to determine how athletes should train and practice. The next step is to find ways to maximize the amount of neural input each athlete processes while competing in his specific event. If this feat is achieved, coaches would have the ability to speed up the development and learning process, which would ensure athletes reach their full potentials [24]. There are many theories considered valid that may be responsible for the increase in myelination as this research is still in its infancy and is highly theoretical [23].

Every coach must use motor learning to maximize skill development and transfer of training of the specific requirements of lacrosse. Like every aspect of coaching, motor learning is a delicate balance between both art and science. The principles of high-quality versus capacity training continue to apply to motor learning. For optimal skill learning to take place, a specific window of time must be utilized. This window occurs when an athlete is warmed up, but not yet physically tired, or when his nervous system is in a high-quality state. A coach that simply focuses on making athletes "tired" each day at practice will never optimize this learning process. Put simply, a tired athlete is no better than an old dog when it comes to learning new tricks. It is not that the desire is not there, but rather his physiology limits the ability to learn new skills and achieve higher performance levels when fatigued.

The considerations for appropriate transfer of training must be applied to the each of the six physical performance qualities of lacrosse. The metabolic systems, three energy systems, along with the muscular system must be carefully trained in order to teach the required skills of the game. Each of the specific training aspects will be covered thoroughly throughout each phase of the Triphasic Lacrosse Training Manual program.

1.44 Peaking Athletes Optimally

The final aspect to consider for lacrosse athletes is the peaking of the six physical performance qualities at specific, desired times throughout the annual calendar. In the world of athletics, before the focus of a specific stressor or physical performance quality can be chosen within the training cycle, the competition dates must first be determined. The knowledge of when athletes must be peaked will allow a coach to set up a plan that will complete all phases of training within the allotted time frame. When an athlete approaches a game or match, he has prepared for competition knowing the date and exact specifications of the event. This allows a systematic training protocol to be implemented with the end date and objective to be known long before the competition occurs. Ideally athletes should be physically prepared just prior to beginning pre-season camp, as these camps primarily focus on technique, skills, and tactics rather than physical performance quality development.

Ultimately, the goal of every lacrosse team should be ending the season as a championship program. It is critical all coaches understand how each of the six physical performance qualities must be trained and peaked for optimal lacrosse performance. The Triphasic Lacrosse Training Manual demonstrates the program implemented that guarantees this occurrence and leads to maximized athletic performance as

shown below in Figure 1.32. The training methods utilized to optimally peak each individual athlete will be explained in great detail throughout the remainder of this training manual.

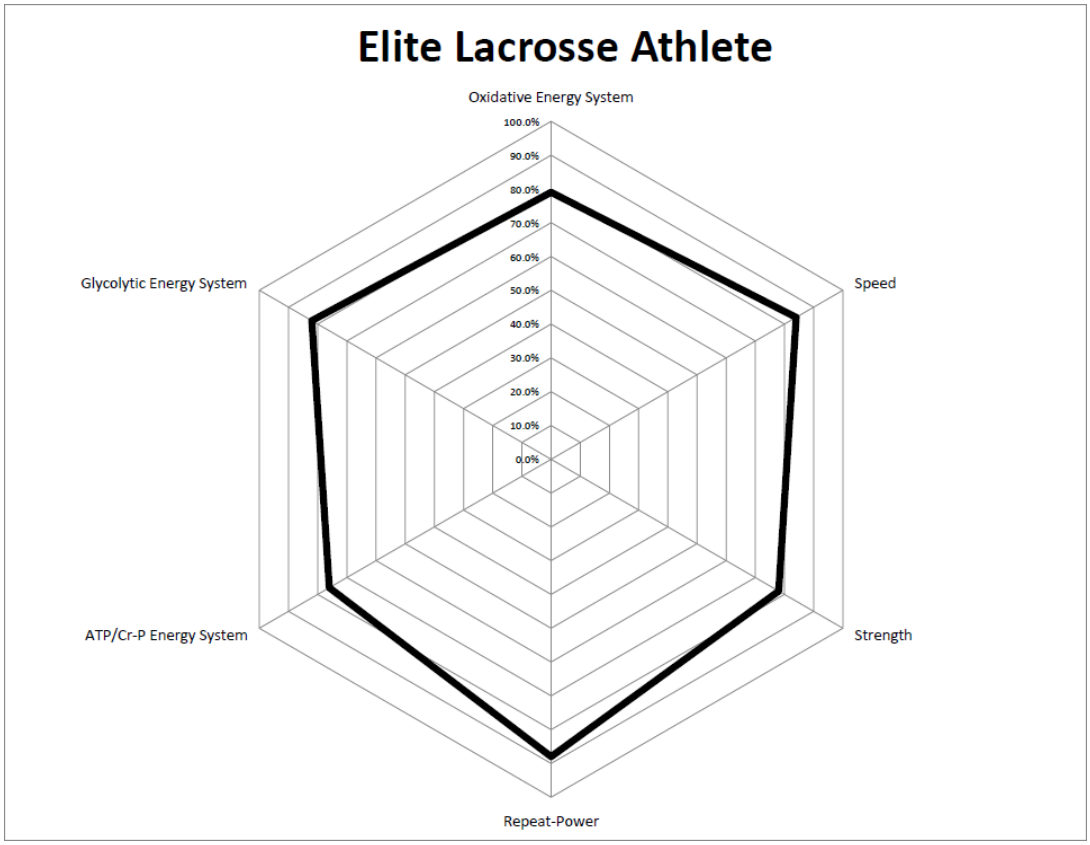

Figure 1.32 - Six Physical Performance Qualities of an Elite Lacrosse Athlete

SECTION 2

ENERGY SYSTEM, BIOMECHANICAL, & POSITION SPECIFIC REQUIREMENTS OF LACROSSE

2.1 Lacrosse Energy System Breakdown

The three energy systems introduced in the first section of this manual (Oxidative, Glycolytic, and ATP/Cr-P) are required to each function at a high level for optimal performance to be possible in the sport of lacrosse. Regardless of skill set or hours spent shooting or practicing by an athlete, if these three systems are not trained to the highest extent, the athlete will never be prepared to compete [24].

Although these energy systems are trained individually, it is important to understand these energy systems do not function as either "on" or "off," but are rather in constant flux, like a "dimmer" light switch [26]. Regardless of the situation all three energy systems provide energy to the body, but to a different extent. At the initiation of a high-intensity sprint in lacrosse, the ATP/Cr-P and glycolytic energy systems increase dramatically. The oxidative energy system still provides some energy to the athlete, although limited in amount [24]. As an athlete begins to fatigue during a competition or practice, the oxidative system begins to play a much bigger role in performance and energy production [24]. Each energy system is turned up or down in the body depending on the experiences the athlete undergoes [26]. It is important all coaches understand this concept of the three energy systems.

Basically, an athlete undertrained in the three energy systems will constantly be considered as "out of shape" or "one step behind the play." This type of play can be due to a multitude of reasons, all dealing with the three energy systems. Either the athlete lacks the ability to recover from a high-intensity, sprinting gameplay or the ability to produce the energy substrates required at a rapid rate. Ultimately, it is up to you, the performance coach, to determine exactly what each individual athlete needs. However, the Triphasic Lacrosse Training Manual has been created to ensure each of the three energy systems are trained, and then maintained at the highest level for the entire duration of a season.

Based on the description above, lacrosse is a repeat-sprint sport, meaning success in the sport is dependent on the ability to repeat high-speed movements and sprints multiple times in quick succession throughout the entirety of the game. The team that can dodge, sprint, and create fast-break opportunities late in a game will have a much higher likelihood of winning than its slower, more fatigued opponents [25].

Each of the three energy systems are required to a high extent to make quality play possible late in a game. These three systems, when trained appropriately, maximize energy availability, capacity, and a high recovery rate [24]. The limiting factors for repeat-sprint athletes can ultimately be boiled down to three scenarios [26]. 1). Cr-P cannot be re-synthesized at a high enough rate, 2). metabolic accumulation occurs, whether that be the increase in H+ leading to acidosis or the increase in inorganic phosphate (Pi) leading to inhibited muscle contraction capabilities, and 3). oxygen availability [26].

It should be clear repeat-sprint sports, such as lacrosse, require a unique approach as both the power production and efficiency must be highly considered, stressed, and adapted for each athlete. The principles applied to energy system development in the Triphasic Lacrosse Training Model, designed specifically for repeat-sprint sports will be expanded upon throughout this section, with examples to follow in a later section of this manual.

As described above, repeat-sprint sports require a specific, highly structured training program in order to ensure each of the three energy systems are trained maximally. These blocks are trained individually to improve the ability to recover and repeat high-intensity events, such as sprinting, dodging, playing

defense, winning face-offs, etc. The oxidative, or aerobic, system forms the foundation of all other performance qualities. The energy system pyramid, shown again below in Figure 2.1, displays the appropriate training progression for these three systems, from the bottom up. Each energy system plays a vital role in the ability to repeat high-intensity sprint situations continuously in a competition.

The availability of oxygen and clearance of metabolites through the oxidative system, the ability to tolerate high-levels of metabolites produced during intense situations by the glycolytic energy system, as well as the resynthesis and utilization of the ATP/Cr-P energy system are all trainable qualities and play important roles in the ability to complete repeated, high-intensity sprints. Notice each of the three energy systems are required in order for adaptations to be achieved that maximize repeat-sprint abilities. For this reason, all three energy systems are required to a high extent. Through the implementation of the Triphasic Lacrosse Training Model, an athlete will improve his ability to utilize oxygen, clear and tolerate extreme levels of metabolites, and increase his efficiency and recovery of the ATP/Cr-P energy system, ultimately leading to improved abilities to produce and maintain high-level sprints and other movements for the entirety of a competition. Without the proper training of these systems individually, as laid out in this manual, no other qualities, such as shooting or dodging, can truly be optimized by a lacrosse athlete.

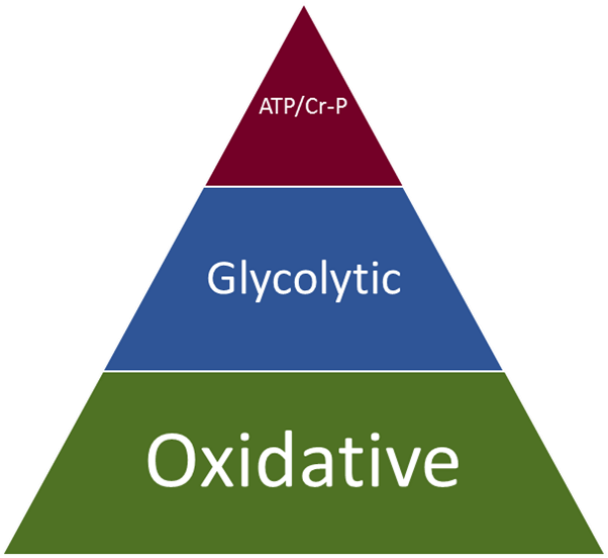

Figure 2.1 - Energy System Pyramid of the Physical Performance Qualities

2.2 Understanding the Energy System Requirements of Lacrosse

Prior to the implementation of specific energy system training to maximize performance in a repeat-sprint sport such as lacrosse, more detailed knowledge of the sport must be attained by the coach. These knowledge points include the sprint duration, sprint number, and the recovery time allowed prior to the subsequent sprint, or high-intensity scenario, experienced in both competition as well as practice by an athlete. Each of these considerations will influence the energy system contribution during repeat-sprint exercise [(24)].

Notice these three parameters must be considered for both practice and competition. As a performance coach, it must always be remembered the goal is to prepare the athlete for the rigors of the sport. For most, this will include a pre-season training camp of some sort. If athletes are simply prepared for

competition, but not for training camp, injury likelihood will increase dramatically. For this reason, all performance coach must understand the practice style and techniques of their sports coaches. This concept will be expanded upon in the annual plan described in section four of this lacrosse manual.

In the average field-based, repeat-sprint sport, the distances reported tend to average between twenty to thirty yards, or two to three seconds [24]. Now this does not mean an athlete, such as a defenseman on a fast-break, will never sprint for a greater distance than thirty yards and should not have that capability. However, the majority of training should be completed with these distances and required times in mind in order to optimally prepare each athlete for the rigors of lacrosse. Performance coaches must also remember they are ultimately preparing their players for the practices the sports coaches implement. If longer sprints are required by the coach in practice, then a performance coach must prepare athletes for these in order to reduce injury likelihood. As a performance coach with a well-rounded understanding of the requirements of lacrosse, it is vital you share this knowledge, in an absolutely non-condescending manner, with your sports coaches to benefit the team to the greatest extent. This will allow practices to be completed in a specific manner to the requirements of competition.

Even though a midfielder may cover multiple miles in a single competition or practice, it is more important that coaches understand the intensities those distances are covered by the athlete. Are they short sprints executed repeatedly? Or are they completed at a long slow pace? After the last section it should be clear the short, repeated-sprints are utilized much more often. Every performance and sports coach must take this into account when programming both practice and training sessions.

The number of sprints completed in a field, repeat-sprint sport on average varies greatly as well, from nineteen to sixty-two [24]. The large change in number of sprints completed during competition rely heavily upon the position of each athlete [24]. The duration of recovery between sprints also varies greatly based on the position of each athlete as well as every individual game. If one face-off specialist is much more skilled than his opponent, one team's attack can expect to have much less rest time between sprints than their defensive teammates. At this time, successive sprints with less than sixty seconds of rest time is considered in literature to be a repeat-sprint activity [27]. However, the average rest time between repeated sprints is somewhere between forty and seventy seconds in competition [26]. It has been shown that even with ninety seconds rest, a significant decrease in performance can be seen in as few as the eleventh sprint in repeat-sprint activities [24]. Therefore, athletes in lacrosse must be prepared to produce high-intensity efforts continuously with incomplete rest.

Ultimately, all coaches should continue to understand the exact requirements in creating an optimal training and practice plan. If the physiological and metabolic responses of repeated-sprint training are to be specific to the sport of lacrosse, then the sprint distance, number, mode, as well as recovery duration and method must replicate the requirements of lacrosse [24].

Taking all of these factors into account, the Triphasic Lacrosse Training Model, during the high-quality, Triphasic training phases, implements bouts of seven seconds on both Monday and Tuesday training sessions, higher quality bouts of five seconds on Wednesday and Thursday training sessions, and finally bouts of ten seconds on Friday. The number of high-quality bouts implemented in each of these days is also determined off of the specific requirements of the sport of lacrosse. By considering both the time and number of high-intensity efforts an optimal program can be created. This allows the energy systems required on the field to be continuously trained to the highest specificity to the requirements of a repeat-sprint sport such as lacrosse. These high-intensity programs will be shown in their entirety in a

later section. However, prior to training the high-intensity systems to the highest extent, every athlete must have the appropriate energy system abilities, with the aerobic system laying the foundation on the other two energy systems.

2.3 The Oxidative Energy System

As described in the first section of this manual, the oxidative system functions through the use of oxygen and is the primary source of energy at slower paces and/or longer distances. Although the oxidative contribution is small in a single, short-duration sprint (about 10% of total energy provided), there is an increased contribution by this energy system with each successive sprint completed, with up to 40% of energy being provided by the oxidative energy system during the final sprint [26,28]. Athletes with a higher VO_2max, which is a common measurement of the oxidative energy system, tend to maintain power output levels better than those with a lower VO_2max in repeat-sprint testing [26]. It should be clear this energy system is vital for the sport of lacrosse, specifically the ability to maintain high-level outputs [24].

As with any training implemented within the Triphasic Lacrosse Training Model, there are specific adaptation goals within each training block. For the oxidative energy system, required adaptations include increased oxygen availability, increased mitochondrial density, and improved efficiency, which allow the body to experience less fatigue during competition. Oxygen availability to the muscles utilized in the sport of lacrosse is improved in multiple ways, including adaptations to the heart, lungs, and other aspects of the circulatory system [29]. Enhanced oxygen availability, which is one of the training adaptation goals in this block, has been shown to improve high-level outputs over the course of repeated, short-burst sprints [26].

The contribution of the oxidative energy system increases with every repeat-sprint effort, and this energy system relies on the use of oxygen, so these adaptations are critical to improving this performance quality. Through appropriate training, the heart enhances its ability to pump larger quantities of blood, which is responsible for transporting oxygen from the lungs to the working muscles [29]. The lungs improve their ability to move inhaled oxygen to the blood [29]. Finally, the blood maximizes its oxygen carrying capacity and the capillaries increase the ability at which oxygen is capable of being delivered to the working muscle upon arrival [29]. Together, these adaptations due to appropriate training lead to an increase in oxygen availability and reduce fatigue experienced by athletes.

The body further enhances the oxidative energy system by increasing mitochondrial density [29]. This increase in the mitochondrial network improves the ability of each cell to utilize the increased oxygen now delivered to the working muscles. This leads to improved Cr-P re-synthesis after a repeat-sprint effort as the mitochondria are the only location where Cr-P is synthesized [26]. The increase in mitochondrial density also increases the fat metabolism, further enhancing the efficiency of the athlete at all exercise intensities.

Type I muscle fibers as well as specific movement efficiency are also maximized through the training of the oxidative energy system [29]. Athletes who have trained their oxidative energy systems to the highest level tend to have lower high-level outputs in maximal effort tasks, meaning they will be capable of maintaining their outputs for extended periods of time [26]. An athlete with a highly-trained oxidative system will be capable of contributing to a greater extent through this energy system, thus limiting the use of the glycolytic and ATP/Cr-P systems to some extent, reducing the amount of inorganic phosphate produced within the body [24]. Inorganic phosphate is important in repeat-sprint sports, as it is a

potential rate-limiter for these athletes to repeat high-intensity bouts [26]. This metabolite has the ability to reduce muscle power production and increase fatigue levels in a lacrosse athlete [26]. This will ultimately allow an athlete to maintain a high-level of performance for a greater number of sprint repetitions experienced in lacrosse.

The oxidative energy system is important as it allows an athlete to control his heart rate to a greater extent. An athlete with a highly trained oxidative system has the ability to complete identical tasks at a much lower heart rate than an untrained athlete. Athletes who have improved this energy system are able to train, practice, and compete at much higher intensities while maintaining an extremely high-level of efficiency. Ultimately, the trained athlete can complete more work while expending less energy than his untrained opponent.

An example of the importance of the oxidative energy system can be seen below in Figure 2.2, in which two starting lacrosse athletes are shown. Both begin at the same fitness levels at the opening face-off (top black dotted line). However, the athlete on the left has not been trained in his oxidative energy system, while the athlete on the right has trained his oxidative system. For demonstration purposes, both athletes experience the exact same six high-intensity sprint situations. Each high-intensity situation is represented in this figure by a decrease in sprint speed. It is common knowledge that as a player fatigues, his ability to run at high speeds is diminished. However, the aerobically trained athlete, on the right, declines at a much slower rate (green dotted line) than the athlete on the left (red dotted line). This improved performance is due to his optimally trained oxidative energy system, which leads to his ability to recover at a higher rate between every high-intensity sprint.

This example shows the effects of just six sprints, now imagine the difference in performance (in this scenario sprint speed) between athletes trained vs. untrained in their oxidative energy systems late in competition. The athlete on the left represents the athlete that is commonly “a step behind the play” due to his lack of aerobic training. Ultimately, the appropriate training of the aerobic system, and the other two energy blocks, will allow an athlete to sprint faster and shoot more accurately much later in a game than if this foundational aspect of performance is not trained. Clearly, this allows a team more aerobically trained a much higher likelihood of success, or winning the game. The methods implemented within the Triphasic Lacrosse Training Model to adapt the oxidative energy system will be shown and explained in a later section.

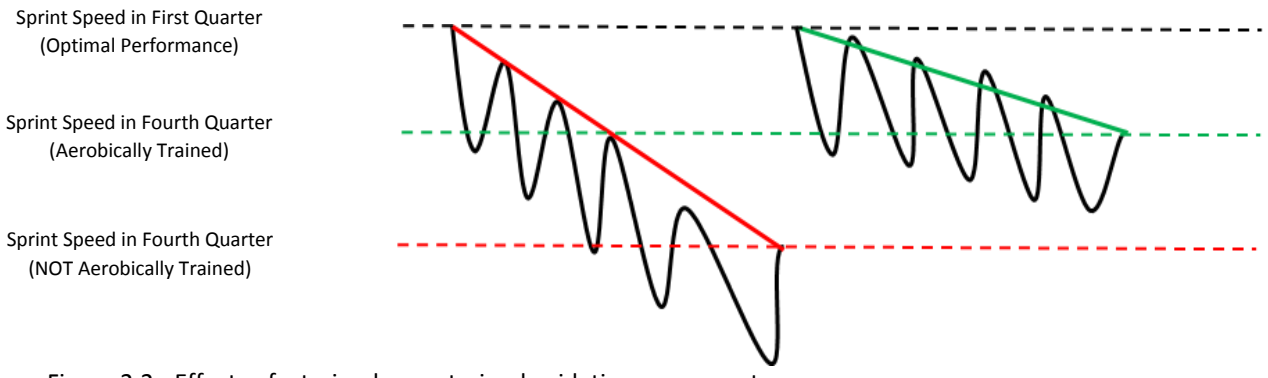

Figure 2.2 - Effects of a trained vs. untrained oxidative energy system

2.31 The Oxidative Energy System and Lactate Clearance

As mentioned above, one role of the oxidative system is the clearance of metabolites, which accumulate during high-intensity activities [30,31,33-35]. These metabolites, in this case hydrogen ions, accumulate and are capable of altering the pH of a muscle [30,34,35]. Ultimately, this accumulation will lead to a reduction in high-intensity performance abilities [30,33,35]. As both power production and efficiency are vital aspects of performance in a repeat-sprint sport such as lacrosse, it is critical that training be completed to allow an athlete to overcome metabolite accumulation. Both the physiological adaptations, as well as the implemented training will be provided throughout this manual.

The reduced power output due to accumulated metabolites is commonly associated with "lactic acid" by many coaches. However, the fact is "lactic acid" dissociates at such a high rate as this substance is immediately broken into two components, hydrogen ions and lactate. As the accumulation of hydrogen ions has been presented as a limiting factor in high-intensity exercise, it is important every performance coach understands the purpose of lactate and how it is utilized within an athlete's body [30]. Specifically, it is important to understand the clearance of hydrogen ions and how to train every individual to maximize this adaptation [32-34]. Only when an athlete can clear these accumulated metabolites can optimal performance be attainable.

Lactate and hydrogen ions are being constantly produced within every person at all times, not just during high-intensity exercise [32]. Even while you are reading this, likely seated, your body is producing both of these. No one realizes, or feels, this production like when exercising at high-intensities though as your body has the ability to clear these by-products, specifically the hydrogen ions, prior to them accumulating. However, as exercise intensity increases, metabolite production increases as well. Clearance rates continue to match this production, up to a specific threshold [34]. When this threshold is reached and crossed, the athlete is no longer capable of clearing the produced hydrogen ions at the rate of production and accumulation begins to occur [34]. It is this threshold, termed the "lactate threshold" that has the ability to separate an elite athlete from just an average one. This threshold can be improved, or shifted further to the right, with the proper oxidative training described in this training manual [34]. Figure 2.3 below represents both an "untrained" and "trained" athlete, with the trained athlete being capable of producing greater amounts of work prior to the accumulation of lactate. This skill relates directly to the ability of an athlete to function efficiently in high-intensity situations. The "trained" athlete in Figure 2.3 will be capable of recovering at a much higher rate than the "untrained" athlete. This, once again, relates back to Figure 2.2 and the importance of recovery between high-intensity bouts. By improving the ability of an athlete to clear lactate, an athlete is capable of producing more repeat-sprint efforts prior to fatigue due to the accumulation of metabolites occurs, which performance coaches should now understand as a potential limiting factor of performance in lacrosse [31,33,35,36].

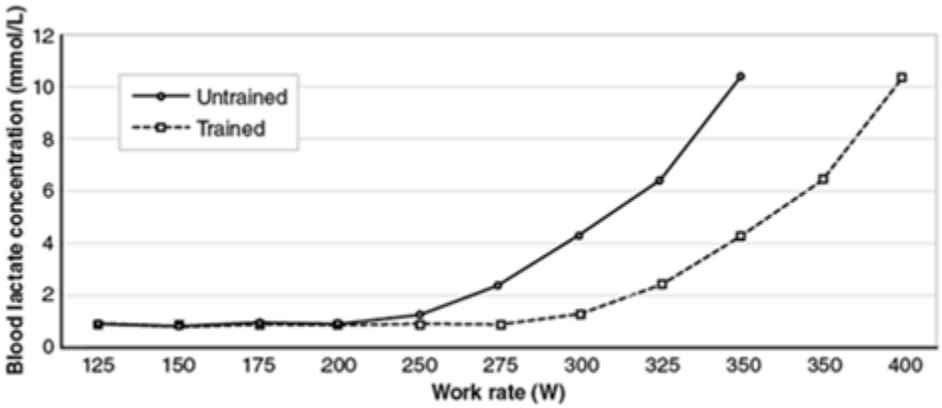

Figure 2.3 - The lactate threshold training effect

One of the primary purposes of lactate is to accept hydrogen ions, which ultimately lead to the pH change in muscle, thus limiting repeat, high-intensity performance [31,33]. This capability of lactate makes it an important buffer within an athlete's body. With muscular pH being one of the limiting factors in repeat-sprint sports such as lacrosse, it is vital to train the body to buffer the produced hydrogen ions as efficiently as possible [31,34]. Lacrosse athletes who complete repeat-sprint efforts have the greatest potential to improve this skill through specific lactate clearance training.

High-intensity efforts, such as those completed in practice and competition in lacrosse, require rapid re-synthesis of ATP. Without the ability to resynthesize ATP, the body will accumulate inorganic phosphate, the other metabolite likely limiting the ability to repeat high-intensity efforts [31,33,36,37]. Lactate, by acting as a buffer and accepting hydrogen ions, allows specific enzymes responsible for ATP replenishment to continue to function at the highest levels. Through appropriate training the body has the ability to increase lactate production, but it cannot increase substrate levels. Therefore, lactate plays an important role in allowing energy pathways to continue to resynthesize ATP, thus limiting the accumulation of inorganic phosphate and increasing the ability to continuously produce high-intensity efforts [35-37].

Finally, lactate can also be utilized within an athlete's body as an energy substrate [32]. Oxidative, or slow-twitch, fibers within the body have the ability to utilize lactate as an energy source, which again increases ATP:ADP ratios and limits the accumulation of inorganic phosphate [36,37]. These fibers able to utilize lactate as an energy source include the type I muscle fibers, heart, and kidneys, with the heart actually preferring to use lactate as a substrate during exercise [32]. Lactate can also be utilized in the liver and can then be translated to a readily usable energy source [32].

When lactate leaves a muscle cell, nearby type I, or oxidative, muscle cells have the ability to utilize lactate as an energy source. If these type I fibers have been trained appropriately, they will have an increased ability to utilize this lactate as an energy source [32]. This specific training will be provided entirely in a later section. If there are no available type I fibers to utilize the produced metabolites, lactate will enter the blood stream, where it can be pulled in by other oxidative fibers, the heart, or the kidneys [32]. If each of these locations are saturated, the lactate will remain in the blood until it reaches the liver. At this point, the lactate can then be converted back to a usable energy source for the body and stored within the liver or sent back into the blood if immediate energy is required [32]. If the energy source is distributed back into the blood, it will be sent to a working muscle to be utilized in order to continue high-intensity activities, such as those required in both training and competition [32,33].

Prior to lactate being utilized in other areas of the body as an energy substrate, the methods in which it is mobilized in and out of a cell, or lactate kinetics, must be well understood. The main source of lactate transport, both uptake and removal, are the monocarboxylate transporters (MCT's) [30,33,34]. Although these are not the only method of lactate kinetics within a cell, they remain the primary source and will be the focus of this section. Studies show clearly that MCT's have an inverse relationship with blood lactate levels post-exercise [32-34]. As MCT concentration increases, blood lactate levels decrease. This demonstrates an importance in the ability to recover rapidly, as shown in Figure 2.2, as an increased MCT concentration improves lactate clearance rates [30,32-35].

In the case of lactate kinetics during exercise, only two MCT's are currently well understood and utilized. This includes MCT1 and MCT4. MCT1 is found primarily on type I, or oxidative, muscle fibers and is responsible for the uptake and removal of lactate [32-37]. With it being located mostly on oxidative fibers, which do not produce much lactate, the main purpose of MCT1 is the uptake or clearance of lactate that is produced and accumulated in high-intensity exercise by the powerful, explosive type II muscle fibers [33,34]. MCT1 ultimately has the ability to clear the lactate from the blood and then utilize it as an energy source within the previous described muscle tissues [32-34]. MCT1 is generally more responsive to specific training than MCT4, making the clearance of metabolic waste the most available training adaptation to improve this process occurring in high-intensity exercise bouts [30,32-34].

MCT4 is primarily located mostly on type II muscle fibers and is responsible for the removal of lactate from these cells, where the majority of this by-product is produced [33,34]. Although there is a much larger variation between subjects for MCT4 than MCT1, MCT4 does show improvements due to training, just not to the same extent as MCT1 [30,32-34]. Once again, the training and adaptation of the oxidative energy system is important as it improves the clearance of metabolites produced in repeat-sprint sports such as lacrosse.

The methods to optimize lactate within the body include both base endurance and high-intensity training [31]. High-intensity methods are already widely used and understood by performance coaches, but it is the base endurance training, which maximizes the oxidative energy system and fibers, that is the most pivotal piece to improve lactate kinetics [33,34].

Oxidative training builds a foundation for future training and, in this scenario, is any type of repetitive movement that increases blood flow while keeping the heart rate in an aerobic zone. During this training the length of the activity is a key determining factor, with the goal being a pace that can be maintained for an hour. It is this training at oxidative intensities that maximizes MCT concentration, particularly MCT1, and also increases mitochondria concentration [32-34]. These adaptations maximize the ability of the body to clear lactate and then utilize it as an energy substrate, while also improving the aerobic abilities of the athlete [32].

Many performance coaches understand and implement high-intensity training, which absolutely has an appropriate place. However, this method of training will not increase MCT concentration to the highest extent possible [30,32,34]. It is for this reason specific oxidative energy system training is absolutely vital for performance in the sport of lacrosse and other repeat-sprint sports. Also, when programmed correctly, this low intensity, oxidative training will prevent any explosive muscle fibers from shifting to a more oxidative state. This is because training is completed at a low enough intensity that powerful muscle fibers will not be recruited, and thus will not shift to a more aerobic state.

Ultimately, by improving lactate kinetics through appropriate oxidative training, which increases the MCT1 content and mitochondrial density, which assists in energy production, every athlete will have the ability to recover at a much higher rate [30,31,33-35]. Less hydrogen ion accumulation will occur, even at high-intensities, the three energy systems will produce greater ATP levels, as hydrogen ions that prevent the ability of each energy system to function to the highest extent will be reduced, and inorganic phosphate levels occur due to an increased ability to resynthesize ATP by the three energy systems [31,36,37]. All of these adaptations are capable of being achieved through an improved oxidative energy system.

Clearly the oxidative system plays a vital role in performance in the sport of lacrosse and must be trained appropriately. An athlete will have the ability to maintain pH levels as well as ATP:ADP ratios, even when producing large amounts of metabolites and power, such as those seen in repeat-sprint situations, all while functioning efficiently and utilizing minimal energy sources [31,34-36]. The better an athlete is at buffering during high-intensity exercise, the greater his ability to perform repeat-efforts with short rest bouts [31,33,35].

Even if the other five physical performance qualities were left untrained, athletes with a highly functioning oxidative energy system will have increased abilities to sustain performance throughout the duration of competition. This can be seen again in Figure 2.2 above. The specific methods of oxidative training will be covered in section four of this manual. However, it is vital the importance of the oxidative energy system is well understood by all coaches.

2.4 The Glycolytic Energy System

The importance of the glycolytic energy system is much better understood by coaches in its relation to performance in the sport of lacrosse, as it is responsible for high-intensity efforts for greater than ten seconds and can produce energy for up to two minutes [24]. Extended shifts or sprinting the full length of the field are primary examples of this energy system in the sport. Many coaches are familiar with the training of the glycolytic system, as it was discussed in section one. The mentality of pushing athletes to their physical limits with longer sprints, where they feel they have nothing left and are utterly exhausted is a prime example of this energy system being utilized. However, as stated in the first section, if this is the only method of training the athlete will have a disproportional glycolytic energy system compared to his oxidative and ATP/Cr-P energy systems and optimal performance will not be possible.

It is important to approach the training of this energy system utilizing a well-thought out, systematic program to ensure appropriate physiological adaptations occur, just as the oxidative system was described earlier. Although the specific training of the oxidative energy system lays the foundation for the glycolytic energy system, this anaerobic energy pathway must still be specifically trained to maximize its use within practice and competition.

As already described, the glycolytic energy system is primarily responsible for high-intensity efforts of greater than ten seconds for up to two minutes [24]. However, this energy system also leads to the production of the hydrogen ions responsible for pH changes, the same metabolites the oxidative energy system is trained to improve the clearance of [30,31,33-35]. Athletes that produce extremely high levels of energy from this energy system tend to fatigue more quickly due to the increased accumulation of these hydrogen ion metabolites [26,35]. Through appropriate training of this energy system, an athlete can learn to produce and then tolerate extreme levels of metabolite accumulation [31,35]. There are training

situations where it is absolutely necessary to push athletes to their "tolerance limits," coaches simply must make sure these training sessions are implemented appropriately and athletes have been prepared to handle those stressful sessions. This will ensure the glycolytic energy system does not become disproportionate in any athlete. This energy system is important for lacrosse, but not the most important.

Even in extremely short sprints, such as those experienced in a lacrosse competition, an athlete can experience high concentrations of accumulated hydrogen ions [24]. Clearly this energy system, as with any of the three energy producing systems, is active at all times and important for elite-level participation in lacrosse [24]. The ability of an athlete to produce high-intensity bouts is greatly diminished when this energy system is undertrained, as the distance covered in the second half of competition is significantly reduced when this energy system is not available to an athlete [24]. This energy system relies on glycogen in order to function at a high-intensity, if glycogen is limited, this pathway is unable to produce energy at a high rate [26]. Therefore, nutritional factors, which will be discussed in greater detail in the next section, must be considered when preparing to train or utilize this energy system to a high extent.

The glycolytic energy system can be trained to maximize an athlete's ability to produce and tolerate high levels of accumulated metabolites [31,35]. This is vital in the sport of lacrosse as high-intensity efforts are a requirement to compete at the elite level. However, this energy system cannot be enhanced without first training the oxidative energy system to increase lactate clearance, as described above. Every athlete must first have a method of ridding his muscles of metabolites prior to being capable of producing and tolerating them to extreme levels.

By training these two components of performance, the ability to complete repeat-sprint efforts is improved to a greater extent as an athlete can clear and tolerate high levels of produced metabolites, ultimately increasing the ability of an athlete to go "harder for longer" and continue to perform at high-levels late into a competition [31,35]. However, these physiological benefits are only possible when a scientifically-backed program, which optimizes these two energy systems on an individual basis according to their specific requirements is implemented. An athlete following the workouts laid out in this Triphasic Lacrosse Training Manual, which are provided entirely in a later section, will be capable of producing extremely high levels of force and intensity, while also having the ability to recover rapidly.

2.5 The ATP/Cr-P Energy System

The ATP/Cr-P energy system plays the largest role in generating energy needs for maximal-intensity activities occurring for a duration of less than ten seconds [26]. Clearly, this energy system is highly active during many situations within the sport of lacrosse, such as sprinting, defending, face-off wing play, and many other scenarios. For this reason, the importance of this energy system must be well understood by all coaches.

As with any of the three energy systems, training must be completed specifically in order to guarantee maximal desired adaptations are achieved by every athlete. For the ATP/Cr-P energy system, the primary adaptations include both the power production capabilities and the ability to resynthesize Cr-P at the highest rate. Every athlete has the ability to utilize the ATP/Cr-P energy system to a high extent, and it remains speculative as to whether enhanced utilization of this substrate is truly trainable [24]. As sprint performance is positively related to the rate of utilization of the ATP/Cr-P energy system, it is

important this energy system be developed to the highest extent [24]. However, faster sprinters, or those utilizing the ATP/Cr-P energy system at a higher rate, deplete their stores of this energy system significantly faster than slower sprinters [24]. This brings us to the second, and primary, adaptation goal of the ATP/Cr-P training block, the rate of Cr-P resynthesis. The ability to resynthesize Cr-P to a high extent varies tremendously on many factors, such as creatine and oxygen availability, as well as enzyme availability [38].

The energy source in the ATP/Cr-P energy system occurs as Cr-P is rapidly broken down into creatine and a phosphate molecule. This now free phosphate molecule can then be joined to create an ATP molecule, which is utilized as an energy source. At almost the same instant ATP breakdown begins, the Cr-P energy system begins to restore ATP in order to continue activity [26]. Thus, the rate of resynthesis of the ATP/Cr-P energy system plays a critical role in the ability to repeat high-intensity efforts. The resynthesis rate of Cr-P, following intense exercise, has both a fast and slow component and is best described by a bi-phasic manner [38]. Initially, the recovery of this occurs rapidly, with approximately seventy percent of the ATP and Cr-P being replenished in a sixty-second recovery period [38]. However, for complete recovery of this energy system up to three minutes are required [38]. During team-sport repeated-sprint exercise, where typical recovery periods are too brief to fully resynthesis Cr-P (i.e. 20–30 seconds), there is a decreasing absolute contribution from Cr-P to the total ATP production. For this reason, a coach must attempt to improve rate of resynthesis when training the ATP/Cr-P energy system. Although these rest times are not realistic for all scenarios such as training or practice, a minimum of thirty seconds recovery must be allowed when training the ATP/Cr-P energy system specifically. Without this appropriate rest time, the ability to utilize this energy system will be diminished, and training will become more glycolytic based.

As stated above, the resynthesis of Cr-P is the primary adaptation desired from the ATP/Cr-P training block. When an athlete completes a high-intensity bout, the Cr-P energy system attempts to resynthesize rapidly and prepare for another high-intensity effort. The ability to resynthesize Cr-P at a high-rate is critical for athletes competing in repeat-sprint sports such as lacrosse. The value of Cr-P resynthesis becomes apparent as the recovery curve of this energy system tracks closely with the recovery curve for power output [26]. As an athlete increases the amount of Cr-P, he increases his ability to produce high-power levels. Once again, this returns to the concept that athletes competing in the sport of lacrosse, which requires repeat-sprint efforts, must be capable of both producing high-power outputs, while also having the ability to recover at a high-rate from those power outputs.

The ability of this energy system to resynthesize Cr-P at a high level is affected by other physiological aspects, including accumulation of metabolites and oxygen availability. For this reason, the oxidative energy system plays a critical role in the resynthesis of the ATP/Cr-P energy system as this foundational energy system functions to clear metabolites and relies on oxygen to the body [24]. It is for these reasons the oxidative energy system lays the foundation for the other two energy systems and is trained first.

2.6 Nutritional Requirements to Support Energy System Training

As the understanding of the energy systems continues to grow, combined with the concept that each of the energy systems are in a constant “flux,” both turning up and down depending on intensity of exercise and the availability of substrates, it should become clear that supplying the body with appropriate nutrition is vital for performance. As it is the nutrition consumed by each athlete that supplies the energy sources, or substrates, to each energy system, it is critical athletes are getting the

appropriate intakes of each substrate. Each training phase implemented for the three energy systems has clearly defined adaptation goals, and therefore requires an individualized nutritional approach to maximize these goals. Ultimately, a performance coach has the ability to control the amount of "flux" each energy system experiences, or turn certain energy systems "up" or "down," by incorporating specific nutritional protocols. However, as this is a manual on training, rather than nutrition, only basic, easily applied principles for each phase will be covered in this section.

The oxidative energy system adaptation goals ultimately include increased oxygen availability, increased mitochondrial density, and improved efficiency of the body. As described previously, these adaptations allow the body to recover faster, leading to the ability to compete at higher intensities for a greater duration. The training methods, which will be described entirely in section four of this manual, include low-intensity, high-volume training. Adaptations to this energy system are maximized in a reduced glycogen state. This has commonly been termed the "train low" strategy. This low glycogen state can be achieved by reducing carbohydrate intake, particularly prior to oxidative training sessions. Notice this statement says reduce, not remove. There are major implications of attempting to completely remove carbohydrate from an athlete's diet. Each athlete must be considered as an individual throughout this nutritional approach, as each will require different amounts of carbohydrate to function appropriately in everyday activities. This aspect absolutely cannot be overlooked. For this reason, coaches should always err on the side of caution while implementing this nutritional strategy.

By reducing the carbohydrate intake of an athlete while they train, the body is required to rapidly mobilize and then utilize stored energy substrates within the body, thus increasing the efficiency of the body when using these sources at low-intensities. However, it is important for coaches to understand this training method will reduce an athlete's ability to produce repeated, high-intensity bouts. Therefore, the "train low" strategy should only be implemented on training days in which oxidative adaptations are the top priority. The appropriate use of these energy sources through training will maximize the ability of the oxidative energy system adaptations and increase efficiency to the highest extent, which will play a vital role during the brief recovery periods seen in lacrosse late into competition.

The glycolytic energy system, as the name implies, requires glycogen as an energy substrate. As the goal adaptation of this energy system is the "tolerance" of produced metabolites, the "train low" strategy would be inappropriate. This is because the glycolytic energy system would never be activated to the fullest extent, and therefore never produce extreme levels of metabolites.

Proper stores of muscle and liver glycogen, through the consumption of carbohydrate, allow the glycolytic energy system to be activated to the fullest extent, ensuring metabolites are produced and then "tolerated" to the highest extent. It is important to not underestimate the ability of an athlete to utilize glycogen in high-intensity situations. An elite athlete has the ability to burn up to 100 grams of glycogen in a single 400 meter, all-out sprint, with the body only having the storage capacity of 400 grams of glycogen at one time. At this rate of utilization, an athlete would only be capable of completing two or three quality 400 meter runs per day before the body began to feel sluggish due to low glycogen stores. For this reason, the importance of carbohydrate, as well as the timing of intake are critical for the maximal improvement of this energy system. Athletes with the goal of increasing their glycolytic energy system to the highest extent must ensure they are consuming high-levels of carbohydrate, especially prior to training. This will allow the body to activate this pathway to the fullest extent, leading to optimal adaptations to this energy system and the ability of the body to "tolerate" metabolites.

As the ATP/Cr-P energy system training is completed at the highest intensities, it is again critical the athlete has enough stored substrate to continue to produce these efforts. The ultimate adaptation goal of this energy system is the resynthesis of Cr-P at a high-rate after its utilization to create a usable energy source for the body (ATP). For this reason, the adaptations are achieved through appropriate work:rest ratios, rather than nutritional supplementation. Even though the ATP/Cr-P energy system is only capable of supplying energy for a short amount of time, this energy system, as described earlier, still requires significant recovery time to be repeatedly utilized to a high extent. It should be noted again that this energy system is improved to the greatest extent by maximizing the oxidative energy system, as recovery time and oxygen availability will be increased.

Many coaches and athletes supplement the ATP/Cr-P energy system through the addition of creatine. Creatine is well documented as a performance enhancer in short, high-intensity situations and has the potential to fit into this training phase. Through the addition of creatine, an athlete has the ability to increase storage levels. The increase in creatine levels will allow an athlete to produce greater power in short, high-intensity bouts. However, the supplementation of creatine will not necessarily increase the rate at which creatine is paired with phosphate. These adaptations to the ATP/Cr-P energy system occur due to the repeated, high-intensity bouts completed in training, which will be shown in section four of this manual.

Ultimately, coaches must ensure each athlete has the appropriate stores of energy substrates depending on the adaptation goal of the current training phase. Only when this level of detail is considered is true, optimal performance possible from each of the three energy systems.

Nutritional strategies must also be applied during competition. As lacrosse is played at high-intensities and utilizes each of the three energy systems, all three must be fueled appropriately. Glycogen loading and resynthesis are the primary methods implemented in order to prevent performance decrements during competition [(26)]. This can include halftime nutritional strategies to improve second half intensities during play. This simple method can make a large impact on the outcome of a competition, as players in a reduced state of glycogen covered significantly less distance than those with an appropriate nutrition halftime approach [(26)]. It is important to not overlook these potential performance boosters, as they may determine the outcome.

2.7 The Combination of the Three Energy Systems

When the three energy systems are each adapted to the highest level, performance in the sport of lacrosse, which requires the ability to repeatedly produce sprint efforts, can be optimized. Any athlete training and competing in a repeat-sprint sport must have the ability to both produce high-power outputs, while also recovering from them in the most rapid fashion.

On one hand, studies have shown a strong positive correlation between initial, high-level outputs and repeat-sprint performance. However, others have shown that athletes with extremely high-level outputs in the first sprint show the largest reduction in later sprints [(26)]. It is important for athletes to be capable of producing high-level outputs, or “turn up” their ATP/Cr-P and glycolytic systems, but it is also important the athlete is able to recover quickly from this output. Put simply, some of your most explosive, or twitch, type II athletes have trouble producing in the fourth quarter due to their inability to recover from these high-level outputs. Consider the difference between an elite level 100m sprinter and a marathon runner. The sprinter is good for one extremely high-level bout, while the marathoner is

capable of maintaining his speed for an entire 26.2 miles. The goal of a performance coach for a lacrosse athlete is to create an athlete that can produce the explosive, high-output efforts of a sprinter, while also having the capability of recovering and repeating those speeds continuously, like a marathoner. To create an elite level repeat-sprint, or hybrid athlete, a coach must create the appropriate mixture of these two elite level athlete types.

When an athlete has appropriately trained each of the three energy systems, which is programmed specifically in the Triphasic Lacrosse Training Model, the specific sprint requirements described earlier (sprint duration, number, and recovery time) are able to be met and surpassed by every athlete for both practice and competition.

A repeat-sprint athlete's energy systems can be broken down simply into a "sink and drain" concept. With every high-intensity effort complete, the "sink" is filling up; the amount the sink is filled depends upon the intensity and duration of the effort. This represents the accumulation of metabolites. As the sink continues to fill up, the body will reduce its ability to produce high-intensity efforts to prevent an overflow. The sink also has a drain, which represents the ability to clear the accumulated metabolites and produce energy from them. The "tank" represents ability of an energy system to produce energy. Clearly each of the three energy systems are represented within this simple example, along with the potential adaptations from training when programming is implemented as laid out in this manual.

Figure 2.4 below represents the pre- and post-training adaptations of each energy system when programmed according to their layout described above. By training the oxidative system, oxygen utilization, mitochondrial density, metabolite clearance, and efficiency are improved to the highest extent. These adaptations through the training of the oxidative training increase the "tank" size for the aerobic energy systems, or the ability to produce energy via the oxidative system. This training also increases the ability to clear accumulated metabolites, or increases the size of the "drain" and the ability to produce energy from them, which allows repeat-sprint efforts to be completed.

Glycolytic training improves the tolerance of the accumulated metabolites, or the "sink" is increased in size. An athlete has the ability to produce a greater number of intense efforts prior to his sink filling up. The body does have the ability to increase its "tank" size, although this is completed through nutritional strategies more than specific training adaptations with this energy system.

Through increasing the abilities to complete repeat-sprint efforts, the resynthesis of the ATP/Cr-P energy system can then be improved. When the energy systems are trained and work in combination, all athlete will have the capabilities to produce greater amounts of energy by increasing their "tank" size, "tolerate" increased levels of metabolite by increasing their sink size, and finally increase their clearance of those metabolites by increasing their "drain." Ultimately, this leads to the ultimate goal of repeat-sprint sports, which is to produce high-power outputs while also having the ability to recover at the highest rate possible.

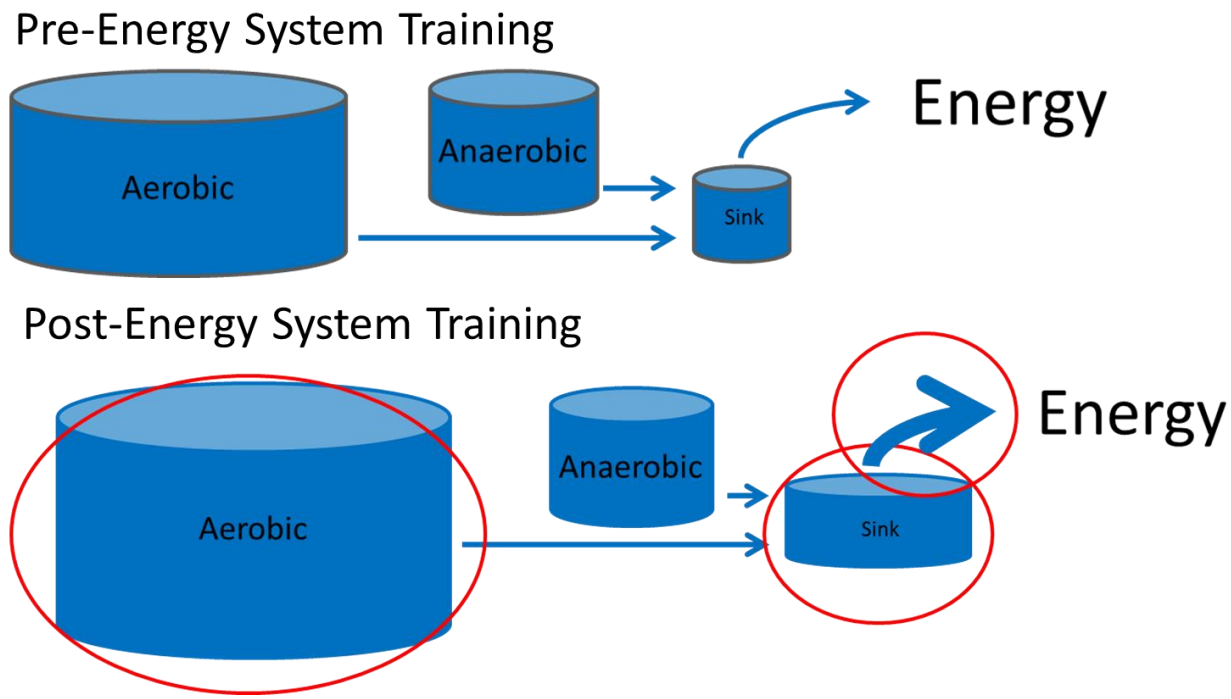

Figure 2.4 - The Effects of the Triphasic Lacrosse Training Model on Energy System Development

Ultimately, all coaches must work to understand the requirements of the sport of lacrosse to the finest details. As the knowledge and understanding of these specific energy system requirements of this sport continue to grow, the ability to periodize and program an optimal training plan is improved. Each of these systems play a vital role in lacrosse and must be trained appropriately before other performance qualities, such as strength, power, and speed can be improved to the greatest extent. With the training of the energy systems as laid out in the Triphasic Lacrosse Training Model, athletes will be able to perform with a higher quality (faster sprinting speeds, more accurate shooting, improved cognitive functioning) for a greater duration of time. The Triphasic Lacrosse Training Model considers each of these energy systems and appropriately trains them according to their needs based on the most up-to-date research and data.

2.8 Biomechanical Requirements of Lacrosse

As a performance coach, the goal remains to prepare every athlete for the sport being completed, in this case lacrosse. The specific requirements of lacrosse have been considered in regards to energy system development, which must be completed first, as an athlete must be capable of providing the body with the energy required to be successful in sport. This is a requirement of any repeat-sprint sport. However, lacrosse also has biomechanical requirements that must be trained for and improved in a highly specific manner. These biomechanical requirements include acceleration and sprinting, along with the skills of shooting, passing, and checking must all be maintained at a high-level, as they are the most specific skills to the sport. Each of these skills will be broken down into their basic components and described according to how they are trained in the Triphasic Lacrosse Training Model.

It is important every coach remember the goal of this training manual is to prepare an athlete for the physical aspects of lacrosse, not necessarily the skill learning involved in these sport specific tasks. For example, a performance coach must prepare the athlete's body to complete the repetitive skills of

sprinting and/or shooting. However, it is not the objective of this manual to improve an athlete's shooting efficiency, which remains the job of the sports coach.

These primary biomechanical skills must be applied at nearly all times throughout training, progressing from general to more specific as the lacrosse competition season approaches. This once again returns to the principle of transfer of training, described in section one. Select specific desired skills, or the six physical performance qualities along, and maximize them according to their requirements in lacrosse.

2.81 Acceleration, Max Velocity, & Change of Direction

Just as the energy system training laid the foundation for high-quality work, the ability to accelerate, sprint, and change direction in the most powerful, efficient manner is required before an athlete can utilize any other skill on the lacrosse field. That does not mean an athlete cannot improve other skills such as shooting or checking, which are important for high-level performance. However, an athlete will not be able to utilize these skills of shooting or checking to the greatest possible extent if they are not able to move efficiently on the field.

The skills of accelerating, max velocity, and change of direction require intricate, constant coaching. That being stated, this manual will cover only a few of the basic requirements to coach these to a high-degree. At the most foundational level, an athlete must be able to maintain appropriate body position and transfer high-amounts of force into the ground.

Acceleration, is ultimately based around the ability to maintain a forward angle while keeping the hips from falling behind. This position, displayed in Figure 2.5 below, will look like a falling plank, with the body in a straight line from the extended back leg up through the hips to the neutral position head. By keeping the hips in proper position, power and transfer of force is optimized throughout the kinetic chain used in sprinting by allowing maximal knee drive to be achieved. Knee drive action should work in a piston motion with the ball of the foot striking behind the hip at full extension. An understanding of simple biomechanics proves the behind the hip ground contact propels the athlete forward while maintaining the desired acceleration angle. Training of acceleration is associated typically with 10 yard bursts and is highly related to starting strength of the athlete. These short distance bursts are used to ensure acceleration is the only quality being focused on during the session. As an athlete improves his ability to transfer force into the ground, an appropriate angle can be maintained, which maximizes the acceleration phase of running.

Figure 2.5 - Proper position of the hips "locked in" during acceleration vs. improper position with the "hips breaking"

As described above, the ability to transfer high amounts of force into the ground allows the hips to be locked into a good position while "falling" forward. This angle training is crucial to maximizing knee drive, thus increasing ground reaction forces. When the hips "break," force is lost by the increased vertical output needed to maintain the position. This leads to less force production and less distance being covered with each step. Training examples for acceleration angle, such as broad jumps and wall-drills will be provided in section four of this manual. Elite sprinters can accelerate with a greater angle because they have learned the skill of applying more force to support that angle. A coach must be careful when coaching this angle specific training that the hip positioning of an athlete is not "breaking." If the hips are breaking the athlete does not currently have the force producing capabilities to support running at that angle.

Maximum velocity training is the ability to maintain proper posture and technique once the acceleration phase has been successfully completed. The ability of the foot to strike directly beneath the hip is of upmost importance to ensuring minimal breaking force is applied through the ground. Throughout technique work shin angle can be used to determine much of the force application direction. If the shin is angled back toward the hip, the athlete is reaching rather than cycling through. This will not only create a braking force, but also increases the likelihood of a hamstring injury occurring.

It is important that coaches realize the amount of time spent for most team sports in maximal velocity running is relatively small compared to the time spent in the acceleration and change of direction phases of running. Even though this skill is not used often it is important to not overlook the importance of its training. Teaching an athlete how to properly cycle while maintaining an upright posture and strike directly below the hip has the potential to make the difference on an explosive play in any game. Maximal speed is dictated not only by ground reaction forces, but by the ability to produce that force rapidly. It is important to realize speed is a learned quality and must be trained appropriately to see improvements.

An example of cycling the leg through to ensure foot strike is below the hip can be seen below in Figure 2.6. The understanding of shin angle and its correlation to force application direction is vital to cueing athletes through these first two phases of running.

Figure 2.6 - Proper position of the foot strike beneath the hip vs. reaching with a "braking force"

Change of direction training is improving the ability of athletes to decelerate, or absorb force as they come to a stop, and then reapply that absorbed force in the desired direction, all while utilizing safe mechanics to reduce the likelihood of injury. The eccentric method of training will work in conjunction to improve this ability as no athlete can produce what he cannot absorb in regards to force. Even with this specific training block in the weight room, it is important the skill of absorbing force is applied to the specific means each sport requires. These specific means can range from sprinting and changing direction, shuffling, cross-over running, etc. Ultimately, the ability to control your body and the forces

while decelerating, and then redirecting those forces through the use of proper edge work of the foot in the desired direction will determine the success of this ability in sport.

Clearly, the shin angle of an athlete determines the direction of force an athlete produces. This can be seen in acceleration, sprinting, and the ability to change direction. Body positioning is critical in achieving these appropriate angles. However, the commonly overlooked ankle plays the biggest role in the ability of an athlete to achieve these positions. The ankle absolutely cannot be overlooked in training a lacrosse athlete. The ability of an athlete to dorsiflex, evert, and invert through his foot and ankle creates the possibilities of driving shin angle to accelerate, sprint at high velocities, and change direction while maintaining a low hip angle. The movement of the ankle in these different planes of motion are improved through the implementation of 3-D training, discussed in an earlier section.

The ankle must not only have the appropriate range of motion in all three planes, but it must also be trained to optimize the transfer force through the body. As described in section one, the foot plays a vital role in ensuring the loading of the glute with every step. Only when an athlete achieves appropriate dorsiflexion, subtalar eversion, and tibial rotation can the glute be loaded to the highest extent, leading to powerful and efficient movement.

All coaches understand the basic premise that increased force production in the lower limbs is correlated with power production and improved running speeds. This idea is well accepted because it is absolutely true. Rapid force absorption, redirection, and production through the lower limbs are vital for the majority of athletic competition movements, particularly in sprinting and change of direction. However, this mentality commonly leads to an oversimplified view of the forces occurring within an athlete's body. It is more important to realize that the legs function as a chain system, each relaying force from one link to the next. Regardless of how strong some of the links may be, the maximal force producing capability will always be determined by the weakest link. This principle is well understood throughout the training world, yet the ankle and foot are commonly left untrained, even as the muscles around the hip and knee are continuously trained. Ankle and foot training must be completed appropriately to guarantee maximal force production capabilities are achieved in competition.

It is well understood, discounting inefficient technique, the athlete who is able to produce the highest forces into the ground will cover the greatest distances in the shortest amount of time. Simply put, increasing power means increasing velocity and ability to change direction, which is the ultimate goal of many athletic events. This simple idea has been applied by performance coaches for many years and forms the foundation of many training principles. Running at maximal speeds is a simple example that requires forces to be translated from the hip down through the knee and finally through the ankle and foot before it is applied into the ground, which leads to the propulsion forward in running. These aspects of the legs (the hip, knee, ankle, and foot) form a chain of force production, with any "weak link" leading to a reduction in the force production capabilities.

Through the use of well-rounded training tactics, the force-producing capabilities of the major muscle groups, specifically those correlated with the hip and knee, are typically well trained. Particularly in Triphasic Training these major muscles are well trained in the actions of eccentric, isometric, and concentric means. This training strengthens the major force-producing muscles of the legs in the most efficient way possible, leading to maximal force absorption and production capabilities. However, the majority of training programs leave the training of both the ankle and the foot in an untrained, or at

least less than optimal, state. This lack of training or mobility, based on the lower limb chain, could lead to loss in overall power development as the ankle or foot are not capable of absorbing and applying the high levels of forces produced by the now trained hip and knee.

Based on the requirements of lacrosse, specifically the distance covered with each high-intensity effort, the ability to accelerate, run at high-speeds, and change direction at a high-rate is imperative to being successful on the field. By training every athlete to maintain proper position and transfer the greatest amount force through his kinetic chain, the power produced and efficiency of running is maximized.

Each of these skills, acceleration, max velocity, and change of direction, require high-quality training, which allows an athlete to learn each to the highest extent. The programming implemented for each of these aspects required, as well as the specific ankle training completed, in the sport of lacrosse will be provided in section four of this manual.

2.82 Shooting

The skill of shooting and stick work should remain a top priority for all lacrosse athletes as this is a primary ability that determines success on the field. However, as a performance coach, one must focus on the muscular requirements of every shot and prepare every athlete for the high-volume of shooting. Athletes must be capable of producing high force levels from their hips and then transfer it through their kinetic chain to their trunk and finally shoulders where the ball is released. Every athlete must also be capable of decelerating this violent movement safely and appropriately to reduce injury likelihood. When the biomechanics of the lacrosse shot are well understood, programming can be completed to increase both the velocity of the shot as well as the ability to safely execute the increased volume of shooting that occurs in practices and competition.

Coaches must also understand that shooting remains an open-skill. This means the shooting motion is constantly slightly changed according to the current situation, such as a defender being in front of the shot, the goalie positioning, or body contact occurring. A player must be able to adjust his shot to his current situation. This fact only reiterates the fact that a performance coach must focus on the biomechanical requirements of the shot in lacrosse, and not attempt to train an athlete's exact shot.

The lacrosse shot can be completed in an overhand, sidearm, and underhand shot [(39)] and consists of six phases. These phases include the approach, crank-back, stick acceleration, stick deceleration, follow through and recovery [(40)]. Although the lacrosse shot is an open-skill, these six phases remain relatively consistent during the completion of this skill. However, the exact completion, duration, and position and execution of the shot will change based on each situation encountered. The different shot types available to an athlete, as described above, include the overhand, which is the most common shot performed, sidearm, and underhand shot. These different shot types may not all follow each of the six phases laid out above exactly as listed, thus the phases of shooting should be used merely as a guideline for coaches [(40)].

The approach phase in a lacrosse shot begins with the athlete taking several steps towards the goal with the intent of shooting [(41)]. Once again the skill of shooting is an open-skill, meaning these steps can be taken in almost any fashion at any position on the field, such as off of a dodge, running ahead at the goal, or even while running laterally across the goal. These different approaches and positions on the field lead to these steps completed in the initial phase of the lacrosse shot to be completed in a straight

ahead, laterally, or even a cross-over hopping motion [41]. This first phase concludes when a player plants his “drive leg,” or the back leg that pushes the body forward, into the ground [41]. For example, in a right-handed shot, the drive leg is the right leg. It is this drive leg that is responsible for the creation of power through the extension of the back hip, knee and ankle, leading to the transfer of force through the trunk of the athlete in a rotational pattern. This is the force-producing leg in the lacrosse shot and plays a major component in producing high-velocity shooting. Once again the force producers are the hips, with energy being transferred outwards. This returns to the principles of Be-Activated and the creation of explosion rather than implosion in athletes. However, this first phase ends as the drive leg is planted. Thus, the power creation, transfer, and deceleration will be described in the remaining phases.

The second phase of a shot in lacrosse is the crank-back phase, but it has also been termed the wind-up or cocking phase [41]. This phase consists of the movements required in order to prepare for stick acceleration [41]. These preparation movements ultimately begin with the planting of the drive leg and end with the top arm reaching maximal elbow flexion [41]. However, for simplicity, this phase has been subdivided in phases A and B [41]. Phase A deals with the lower extremities while Phase B deals with the upper extremities.

As Phase A of the crank-back phase in the lacrosse shot deals with specifically the lower body actions, it begins with the drive leg contacting the ground and is terminated when the lead leg makes ground contact [41]. As described earlier, it is the drive leg which creates the rotational power produced from the hips and is translated through the kinetic chain up to the arms ultimately dictating the velocity of a shot. The lead leg is also critically important for the velocity of a lacrosse shot. As the drive leg produces the power through extension of the hip, knee, and ankle, the body begins to rotate. However, it is the planting of the lead leg that is responsible for the absorption of this produced force of the drive leg and ultimately creates the rotation of the hips, trunk, and upper body in the shot. The greater the ability of the lead leg to rapidly absorb the hips, the greater the shot velocity. Think of a shooter like a whip, the drive leg produces high levels of force that the lead leg must decelerate as rapidly as possible. This leads to a greater differentiation between the hips and the trunk and thus greater transfer of energy. The greater force a shooter is capable of producing from the drive leg and then immediately decelerating with the lead leg, the greater the velocity of the shot. The lead leg sets the stage for the trunk to rotate through at the highest velocities. More force absorbed through this leg allows more force to be transferred through the body, leading to a greater shot velocity.

Phase B in the crank-back phase deals with the upper extremities and their placement into a wind up position to prepare for the acceleration of the stick [41]. This phase begins with the lead leg ground contact and finishes when maximum elbow flexion is achieved by the top arm [41]. When utilized correctly by an athlete a stretch-shortening cycle (SSC) response will be achieved in this phase, leading to a maximal and efficient transfer of force through the kinetic chain.

Stick acceleration is the third phase of the lacrosse shot and is an extremely short occurring phase [41]. This phase begins with maximal elbow flexion of the top arm and finishes with the release of the ball. During this briefly occurring phase, the athlete experiences a rapid extension of the elbow and forward acceleration of the stick. The trunk will execute a rotational pattern based on the hand an athlete is shooting with and then finishes with the ball being released [41].

At this point a coach may consider the lacrosse shot to be completed, as the ball has been released. However, as the athlete has just produced a large amount of power through his body. It is critical he has the ability to decelerate. The stick deceleration phase begins with the release of the ball and will vary in

technique based on the type of shot utilized by the athlete [41]. It is in this phase that the ability to decelerate the stick and shoulder safely play important roles. Just as a pitcher in baseball must slow his arm down, a shooter must do the same. However, in the case of the shooter, he must also be capable of decelerating his lacrosse stick, which adds even more toque on the shoulder joint.

The follow through phase also deals with deceleration, in this case the slowing down of the body. This phase terminates with the completion of trunk rotation [41]. Once an athlete has slowed down the head of his stick, he must then be capable of dissipating the forces experienced throughout his body. In order for an athlete to compete safely in the sport of lacrosse, he must be capable of decelerating his body rapidly. This task of slowing the body down is completed in the follow through phase.

Finally, the lacrosse shot ends with the recovery phase [41]. It is during this phase the shooter is preparing to complete his next task. It is hopefully celebrating as a goal has been scored from the executed shot. However, it could be running, shuffling, or other methods to either continue the offensive set or get into position to prevent the clearing of the ball by the opposition. As the sport of lacrosse is a constant reaction to players on the field, this phase will never look the same as an athlete prepares to complete his next movement in competition [41].

Many coaches will argue the importance of the “core” in the lacrosse shot. The core is important for rotational movement [42]. However, it is the hips that are the primary force producers in the shot, while the core acts as a translator of this power from the hips to the shoulders [42]. The primary role of the core is actually to “stiffen;” this can be seen as there is relatively zero rotation through the core during the lacrosse shot [42]. As the core stiffens and creates stability, higher levels of force are able to be transferred from the hips up to the shoulders, it is the serape core that assists with this force production and translation [42]. The serape core is also responsible for the deceleration of the rotation during the lacrosse shot [42]. This skill is critical in preventing injury from occurring during high-volume shooting periods and can be specifically trained. The core’s ability to stiffen is continuously fine-tuned to enhance the utilization of the SSC through its appropriate use and training, which is considered throughout the Trphasic Lacrosse Training Model [42].

The shot in lacrosse is highly technical and is a skill that must be executed to a high-degree if elite status is to be achieved by an athlete. As a performance coach in the sport of lacrosse, it is important to train specific requirements from this skill. These requirements include the ability to produce and decelerate high-levels of force throughout the entire kinetic chain utilized in the shot [43]. The drive leg and hips produce the power which is transferred through the core and up through the lacrosse stick. The lead leg, core, and shoulder musculature must then safely decelerate the athlete to prevent any possible overload injury [44].

The velocity of the shot is ultimately determined by sequential activation of the utilized segments [43]. The drive leg produces the force through the hips, which the lead leg then decelerates. That energy is transferred through the core musculature which begins to rotate. Then and only then does the shoulder and stick begin to move forward as the ball is accelerated toward the net. Energy must be efficiently transferred from the hips through the upper body and shoulder as it is this skill that limits the velocity of the shot [39,43]. As thoroughly presented in section one, the hips must serve as the primary force generators, creating an explosive, rather than implosive athlete [39]. It is also critical an athlete learns to shoot utilizing both hands. This will prevent one side of the body becoming over-developed, reduce injury likelihood, and will also allow an athlete to become more well-rounded in the sport [45].

This sequential pattern required in shooting can be seen as higher-velocity shooters had maximal pelvic rotation earlier in the shooting motion [39]. Therefore, there was a greater differentiation between the shoulders and hips, leading to an increased utilization of the SSC [39]. Think of the entire body functioning through a shot like a rubber-band. As stretch is placed on the rubber-band, the force produced is greater as it is released. The same applies to the body. As a tissue is capable of decelerating force and experiences stretch, the body is then capable of producing greater amounts of power as it is released and shortens. This forms the idea of the SSC, which is a foundational principle implemented in the Triphasic Lacrosse Training Model. This concept will be discussed in great detail in section three of this manual.

The greater power output an athlete shooting can generate, during the acceleration phase of training, and then decelerate almost immediately, the greater velocity that player will be capable of producing. It is for this reason lacrosse athletes must be trained to both accelerate and decelerate their motions at the highest velocities. Each of these aspects required in high-velocity shooting are considered tremendously throughout the Triphasic Lacrosse Training Model. Principles to develop a high-level of force, transfer it through the entirety of the utilized kinetic chain, and then decelerate safely is of the upmost importance for all skills in the sport of lacrosse. This skill and its implementation will be demonstrated in section three of this manual.

2.83 Passing

Passing is another skill critical for successful performance in lacrosse. Without the ability to pass effectively, a team will lack the ability to create quality-scoring chances or even clear the ball from its defensive end of the field. The pass, although it looks similar to the shot, only requires two phases. These two phases include the draw and the release [44]. In these two phases, the stick is drawn back and then accelerated forward to release the ball in the desired direction. Just like the shot, this is an open-skill that is constantly adjusted to the situation being experienced. Different passing methods include the overhand, underhand, side-arm, and backhand passes [44]. However, regardless of the technique utilized, the primary motion of the lacrosse pass is similar to the shot described above. The force to complete the pass is generated initially from the hips and transferred to the trunk, leading to a rotation and creating angular velocity as the ball is released. For this reason, every athlete must be trained to transfer energy through his chain as efficiently as possible.

2.84 Checking

The skill of checking is another aspect that every athlete must be capable of completing. Checking in lacrosse is a violent, physical force. Thus, athletes must be trained to withstand and deliver these body blows on a daily basis at practice and competition. Checking is utilized primarily in a defensive situation in order to prevent an attacking athlete from gaining a position in which scoring likelihood increases. At this point all coaches should understand the total body action of any movement must begin in the hips. Checking is no different as an athlete must utilize his hips to extend and transfer force up through his shoulders and arms. This skill requires both strength from the hips and legs to execute a check, while shoulder stability is also maintained to guarantee the safety of the athlete.

2.9 The Triphasic Lacrosse Training Model & The Biomechanics of Lacrosse

Each of these skills required to be successful in the sport of lacrosse are considered and trained to ensure every athlete will be equipped to compete at the most elite-level possible. An athlete's strength, utilization of the hips to produce force, and ankle capabilities will be improved through the Triphasic Lacrosse Training Model. When programmed correctly, this specific strength will allow greater acceleration, sprinting speeds, deceleration and change of direction ability. Specific strength also increases a lacrosse athlete's velocity of shooting and power produced during the execution of a check. Ultimately, this leads to a more powerful, efficient, and resilient lacrosse athlete, one that can produce extreme levels of power in the specific movements and skills required in lacrosse, while simultaneously executing these movements in the most efficient manner possible. Only when an athlete is trained in this manner is optimal performance possible.

2.10 Training Based on Position Specific Requirements

Each position in lacrosse is highly specialized, and therefore, requires individualized energy system, biomechanical, and other specific skill set training. The positions considered in this section will be the attack, midfielders, defensemen, face-off specialist, and goaltender. It is important to note there are also different styles of play even within the same position. There are attack players of both size and strength as well as athletes that rely on speed and explosiveness. The size-based attackman relies on his ability to power through a defender and physical presence to create scoring chances, while the smaller attack athlete must rely on speed and quickness to create offensive opportunities. Defenders can be of varied sizes as well. The smaller, more mobile defenseman is required to cover the explosive-type attack player, while the larger, strength-based defender plays directly against the more physical attack athlete. Each of these players would require slightly different training methods to maximize his individual needs. However, as stated above, this individualization requires immense and intricate planning and execution at all times. As a performance coach, the goal is to create an optimal athlete based on his individual requirements in lacrosse. This section will present a few of the primary differences between each of these positions.

2.101 Attack

The attack position requires quick, explosive movements and efficient agility or change of direction. Athletes competing in this position tend to rest and recover between possessions and occasionally during the offensive set, depending on the scheme being executed. An attack athlete must be a skilled shooter with accurate passing. He must also have an improved ability to absorb body contact and continue to control his body. These requirements allow an attack player to focus more on production of force and rapid movements as he tends to receive more recovery than other positions. This fact should not diminish the importance of the oxidative energy system for the attack position, as attack athletes typically play the entire game and the ability to produce these high-intensity efforts late in a competition is vital for success. Strength is also an important quality for an attackman, as his ability to absorb body contact and execute repeated shots without placing his body at risk of an injury is of great importance. Strength also lays the foundation for speed, which is critical for an athlete to be successful in this position. The ability to beat a defender one-on-one in order to create a scoring chance or draw a slide to open up a teammate will separate the elite lacrosse athletes.

2.102 Midfielders

A midfielder requires significantly greater endurance and repeat-power than the attack position. This is due to a midfielder being responsible for covering much greater distances than any other position on the field. A midfielder will frequently cross midfield, can run the entire length of the field, and play both offense and defense. A feat no other position completes consistently. In a highly-specialized team, midfielders must also be prepared to run on and off the field immediately based on a transition from defense to offense, or vice-versa. Unlike the attack or defenders, a midfielder competes in shifts. Taking an average of nine to fourteen shifts per game [46]. For this reason, midfielders must achieve the highest levels of fitness and repeat-power. Their glycolytic energy system must allow them to tolerate the high-intensity metabolites produced during each shift, while their oxidative energy system must be maximized to allow the most rapid recovery possible between each shift. Their power production must also be high to match the demands of sprinting with an ability to repeat these efforts throughout every shift they complete. The midfield position is considered to be the most physically demanding and pivotal role due to its link between the attack and defenders.

2.103 Defenders

Defenders need size and strength more than either the attack or midfield positions. However, these athletes must also be capable of producing rapid movements in order to prevent a scoring chance from being created by the opposition. These athletes must also be highly reliable and capable of anticipating play as well as recovering from a defensive breakdown. Athletes playing the defensive positions are typically the largest and most physical on the field, relying on their footwork and checking abilities to prevent their opposition from creating a scoring chance. Strength and size also play important roles in the skill of picking up loose ground balls. An athlete that is able to absorb contact while maintaining focus on technique and the execution of picking up a ground ball will be a valuable asset to his team.

2.104 Face-Off Specialist

The face-off specialist is one of the most overlooked yet important positions in the sport of lacrosse. Possession time commonly dictates the winner in competition, and this position has the ability to affect the amount of possessions in the most direct manner. The team with an exceptional face-off specialist will have a clear advantage as possession time will increase dramatically [46]. The face-off athlete requires quickness, explosiveness, strength, and the ability to recover quickly. Quickness is required to execute the clamp maneuver, which is the most successful and widely utilize method [46]. Explosiveness and strength are required in a scrum and breaking away from the group if possession is achieved. Another important aspect commonly overlooked for the face-off specialist is the ability to recover quickly, particularly in a high-scoring competition. This athlete must have the ability to repetitively produce quick and explosive efforts in an attempt to guarantee possession for his team.

Each face-off is essentially a three on three battle including the face-off man and the two wings from each team. Until possession is achieved by one of these battling athletes, the attack and defenders must remain on their respective side of the restraining line. Ultimately, the goal of the face-off specialist and two wings should be to either gain possession or create room for a teammate to achieve possession of the ball.

2.105 Goaltender

The goaltender is much different from the other four described positions. This position still requires the six physical performance qualities, but to a much different extent. Although he does not cover the same distances as a field player, a goaltender must still have the physical capabilities to produce high levels of power to move explosively in order to save potential goals from being scored. The mental focus and reactive abilities of the goaltender are critical for success in a game setting. Appropriate energy system training will allow a goalie the ability to continue to mentally focus and execute rapid, explosive movements throughout the entire duration of the competition. As saves are executed in extremely brief time periods, the ATP/Cr-P energy system is critical, as well as the oxidative energy system to maximize recovery abilities. As goaltenders commonly end up in awkward positions, proper mobility and range of motion are also important in order to reduce any injury likelihood. Each of these required aspects to be successful at the goaltender position is covered through the Triphasic Lacrosse Training Manual.

2.11 The Combination of Energy System and Biomechanical Training to Create the Triphasic Lacrosse Training Model

Although there are differences in the requirements of each position, it should be noted that the individualized training based on position requires significant planning and proficient execution. For this reason, the programming presented in section four will represent a model from which all lacrosse athletes, playing any position, will achieve performance improvements. The program demonstrated follows the Triphasic Lacrosse Training Model, which considers each of the six physical performance qualities required of elite performance in lacrosse.

Ultimately, the job of the performance coach is to prepare athletes for the rigors experienced in the sport of lacrosse. This can be completed by carefully considering and implementing the stress applied and sound injury reduction protocols, and by creating a high-level of transfer of training. Each of these principles are discussed in section one of this manual. However, these can only be accomplished when the energy system and biomechanical demands of the sport of lacrosse, and even those of each position, are understood to the highest extent.

By considering each of the energy systems' roles in a repeat-sprint sport, such as lacrosse, the number of sprints, their duration, and typical rest time a protocol can be created to maximize these specific energy systems. Once these needs have been met, biomechanical requirements including sprinting, shooting, passing, and checking can all be maximized to the greatest levels through programs completed in training. The Triphasic Lacrosse Training Model considers each of these requirements specific to lacrosse to create the most systematic training program available. The Triphasic Lacrosse Training Model takes into account multiple programming aspects and is designed to train each of the six physical performance qualities to the highest extent without negatively affecting any of the other five. Application of these principles allows optimal performance to be attained and maintained by every athlete. Each of these applied principles of training will be described in the upcoming section.

SECTION 3

TRIPHASIC LACROSSE MODEL TRAINING COMPONENTS

3.1 The Triphasic Lacrosse Training Model Components

The Triphasic Lacrosse Training Model is created based on the application of specific stress. At the elite lacrosse level, each of the six physical performance qualities, along with the biomechanical considerations specific to the sport, must be accounted for to the highest extent. The concept of appropriate stress within this training model was already covered in the opening section of this manual. It will not be covered again here. However, it is vital every coach understands this idea and how specific stress must be applied to each of the six physical performance qualities. Once again, stress is the signal to the body that something has to change; something must adapt to reduce the amount of stress exerted by that stressor on the body if it were to ever come across the stressor a second time. It must be applied specifically and systematically for optimal performance to occur. The goal of training remains to create the graphic shown in Figure 3.1 below for each of the six physical performance qualities. This is achieved through training philosophies such as the block training model, modified weekly undulation training, and specific muscle action training. The training philosophies and programs implemented to create the Triphasic Lacrosse Training Model consider the specific stressors required to cause a physiological adaptation to each of the physical performance qualities. Only when this method is utilized can an appropriate annual cycle that leads to optimal performance in the sport of lacrosse be created.

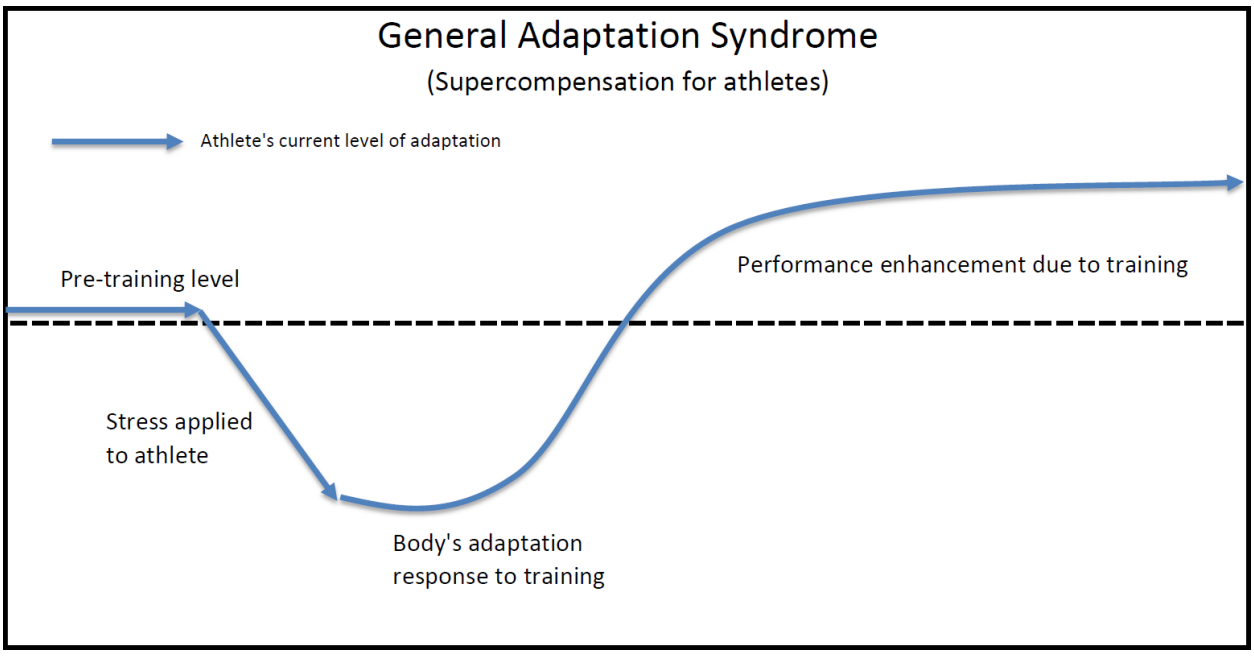

Figure 3.1 - Adaptation Response with Appropriate Stress in Training (Desired Adaptation)

3.2 Block Training Model

These specific stressors required in training to improve each of the six physical performance qualities (three energy systems, strength, repeat-power, and speed) must be completed in a systematic fashion. The block training model allows for the systematic training laid out in this manual to be completed in the most efficient and effective method possible. Only when specific stress through the block training model is applied to each of the six physical performance qualities can optimal performance be achieved at the desired times of the annual plan.

Achieving optimal performance for all athletes in the most efficient manner, concerning both time and energy expenditure, must remain a top priority for all performance coaches. This goal is exceeded in importance only by reducing injury during training and competition. The implementation of efficient training methods to gain and maintain optimal performance for an elite level lacrosse athlete is vital for success.

It is important that coaches also realize and understand that the perfect training model for any given individual exists only in theory. This is due to the dynamic systems theory and the realization that in order for a "perfect training model" to be executed all systems of the body, along with their reactions to each stressor, would need to be accounted for in a real-time setting. The effects of stressors, such as those in academia, personal life, monetary matters, or any other task or situation viewed as stressful to an athlete, alter his physiology in some way. A coach simply cannot account for all of these factors in an immediate fashion. Even though the perfect training model only exists in a completely controlled and understood world, an attempt should still be made by all coaches to create the ideal model for each individual athlete. The Block Training Model utilized throughout the Triphasic Lacrosse Training Manual is the clearest model available to ensure optimal performance whenever the call to action is needed.

3.21 Specific Stress

The Block Training Model of periodization is ultimately based on the principle of supercompensation, which is discussed in section one and is shown again above in Figure 3.1. To reiterate, stress is the signal to the body that something has to change; something must adapt to reduce the amount of stress exerted by that stressor on the body if it were to come across the stressor a second time. All athletes will respond to the stressors applied to them. The key is to provide the appropriate type and amount in order to drive a specific desired adaptation. Early in an athlete's training, he is capable of adapting to multiple physical performance qualities at one time. This is due to his low ability to complete any of the six physical performance qualities to a high-caliber. However, as an athlete progresses and develops these performance qualities through training, the ability to adapt to multiple qualities is diminished. This is because higher levels of stress are now required to achieve changes in each physical performance quality.

This concept is demonstrated below in Figures 3.2 and 3.3. As a lacrosse athlete begins training, he is capable of developing each quality simultaneously. This is possible because each of these physical performance qualities begin at such low-levels, as shown in Figure 3.2. However, as the novice athlete progresses in his training and reaches the advanced stage, Figure 3.3, more specific stress must be applied to each of the performance qualities. Once an athlete reaches the advanced level, his qualities have all gained adaptations required of lacrosse to the point that they will not continue to improve without increased concentrated stress application to each of the six physical performance qualities on an individual basis.

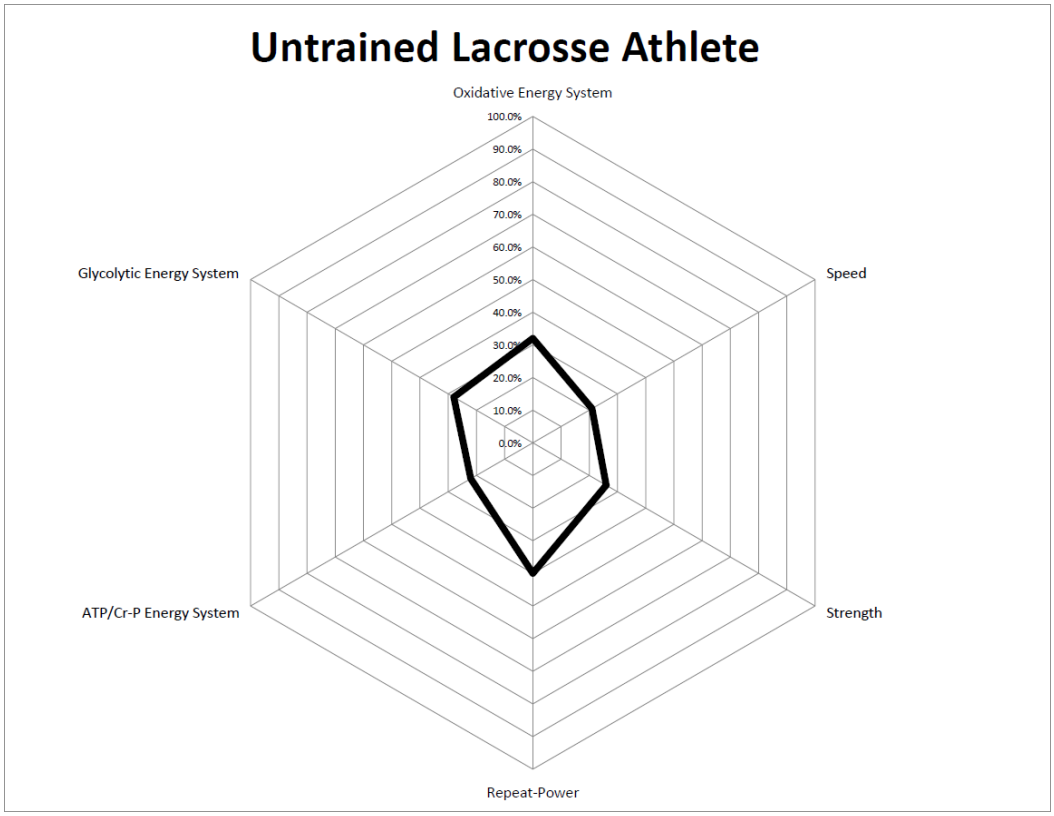

Figure 3.2 - The Six Physical Performance Qualities in an Untrained Lacrosse Athlete

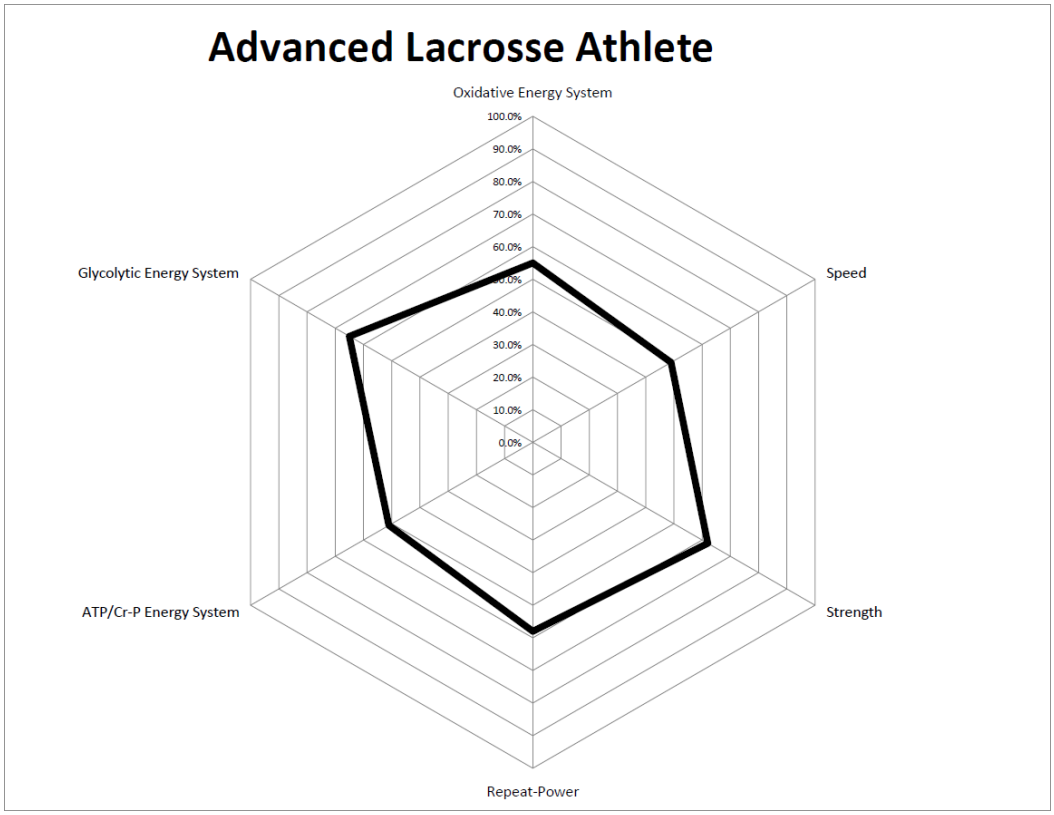

Figure 3.3 - The Six Physical Performance Qualities in an Advanced Lacrosse Athlete

It is this moment, the progression from untrained to advanced, that the concept of specific training through the Block Training Model should be implemented. As an athlete progresses in his training, more specific methods are required in order to achieve improvement in the six physical performance qualities. Rather than using multiple forms of stress and applying stress to multiple parameters at once, known as mixed training, the Block Training Model uses specific concentrated loads and focuses on one specific training parameter at a time. This concentration of stress based on the specific desired parameter allows the athlete's body to place focus on a single adaption, which greatly reduces the required time to maximize the adaption. Once the desired adaption is acquired, a new stimulus is implemented to improve a new, specifically chosen physical performance quality according to the systematic annual plan. This approach by block training allows all adaptions to be realized with the least amount of required volume, which means the individual will not experience as much "wear and tear" throughout training.

It is this idea that is a primary principle of the Block Training Model: stress the athlete specifically in order to elicit the maximal adaptations required for optimal performance for one physical performance quality, and then systematically train each of the six physical performance qualities. Only when these performance qualities are individually maximized due to the implementation of specific stress can an advanced lacrosse athlete truly become an elite level lacrosse player.

3.22 Residual Training Effects

Specific stress is one of the two primary concepts implemented in the Block Training Model. The other concept applied strategically within this model is the implementation of stress according to the residuals, or retention length, of each physical performance qualities. This concept of residuals allows a systematic approach to the training of each physical quality based on the duration at which the adaptation remains in a trained state once training is ceased for that specific quality.

Each of the physical performance qualities residuals are listed below in Figure 3.4. Through this figure, it becomes clear the oxidative energy system and strength performance qualities retain their adaptations for the greatest length of time. The glycolytic energy system and the repeat-power qualities have intermediate lasting residuals, with the ATP/Cr-P energy system and the speed performance qualities having the shortest residual lengths. The understanding of these residuals allows for a systematic program to be implemented, such as the Triphasic Lacrosse Training Model, which leads to optimal performance as each of the six physical performance qualities are improved to its required extent and then retained for specific competition periods.

DURATION OF RESIDUAL TRAINING EFFECTS (RTE) ON MOTOR ABILITIES			
MESOCYCLE	MOTOR ABILITY	RTE (DAYS)	PHYSIOLOGICAL BACKGROUND
ACCUMULATION	OXIDATIVE ENERGY SYSTEM	30±5	INCREASED NUMBER OF AEROBIC ENZYMES, MITOCHONDRIA, CAPILLARY DENSITY, HEMOGLOBIN CAPACITY, GLYCOGEN STORAGE, HIGHER RATE OF FAT METABOLISM
	STRENGTH	30±5	IMPROVEMENT OF NEURAL MECHANISM MUSCLE HYPERTROPHY
TRANSMUTATION	GLYCOLYTIC ENERGY SYSTEM	18±4	INCREASED ANAEROBIC ENZYMES, BUFFERING CAPACITY, AND GLYCOGEN STORAGE, HIGHER POSSIBILITY OF LACTATE ACCUMULATION
	REPEAT-POWER	15±5	IMPROVED AEROBIC/ANAEROBIC ENZYMES, IMPROVED LOCAL BLOOD CIRCULATION AND LACTATE TOLERANCE, REPEAT SPRINT ABILITY
REALIZATION	ATP/CR-P	5±3	ENHANCED RESYNTHESIS OF CR-P
	SPEED	5±3	IMPROVED NEUROMUSCULAR INTERACTIONS AND MOTOR CONTROL, INCREASED ANAEROBIC POWER

Figure 3.4 - Residual Lengths of the Six Physical Performance Qualities [38,47]

The knowledge of these residual training effects allows for a systematic approach to training that results in the simultaneous peaking of the six physical performance qualities to their appropriate amounts, which must be the goal for all coaches seeking optimal performance in lacrosse. By stressing and adapting these qualities with longer residuals first, the qualities with shorter residual training effects, such as speed, can be improved later on in the training cycle while the oxidative energy system and strength qualities remain elevated due to their long training residual effects. Performance coaches must also understand the importance previous training plays in regards to determining the length of time each quality is stressed. If a specific quality has been trained to a great extent previously, it will be regained by an athlete more rapidly than if it has not been previously trained. This consideration is critical for in-season training as each quality is re-introduced in training to ensure optimal performance is possible for post-season play.

3.23 Accumulation, Transmutation, & Realization

The consideration of residuals allows the Block Training Model to be broken down into three specialized training phases. These three phases have been termed accumulation, transmutation, and realization. Each phase is designed to build upon the adaptions from the previous phase and ultimately leads to the simultaneous peaking of all physical performance qualities as each progresses from general to specific training adaptations. Returning to Figure 3.4 above, the six physical performance qualities and how they fit into these three training phases can be seen. When applied to the sport of lacrosse, this progression allows an athlete to progress through the off-season training protocol beginning with more generalized training and finishing with the most-specific training just prior the competition season.

The accumulation phase can be thought of as the base phase, as its main goal is to build a solid foundation of the oxidative energy system and strength. The accumulation phase of training in the Triphasic Lacrosse Training Model consists of the energy system and strength qualities being maximized. This may seem confusing as Figure 3.4 shows the glycolytic and ATP/Cr-P energy systems as fitting into the transmutation and realization phases, respectively. However, this returns to the concept that without the improvement to each energy system, the other three qualities are not capable of being

trained to the highest extent. Coaches should also understand the glycolytic and ATP/Cr-P energy systems will also be re-addressed in their respective training phases as they experience a smaller residual time than the oxidative energy system. Figure 3.5 below represents the residual training effects of the oxidative energy system and the strength physical performance qualities which are 30±5 days once specific training is ceased.

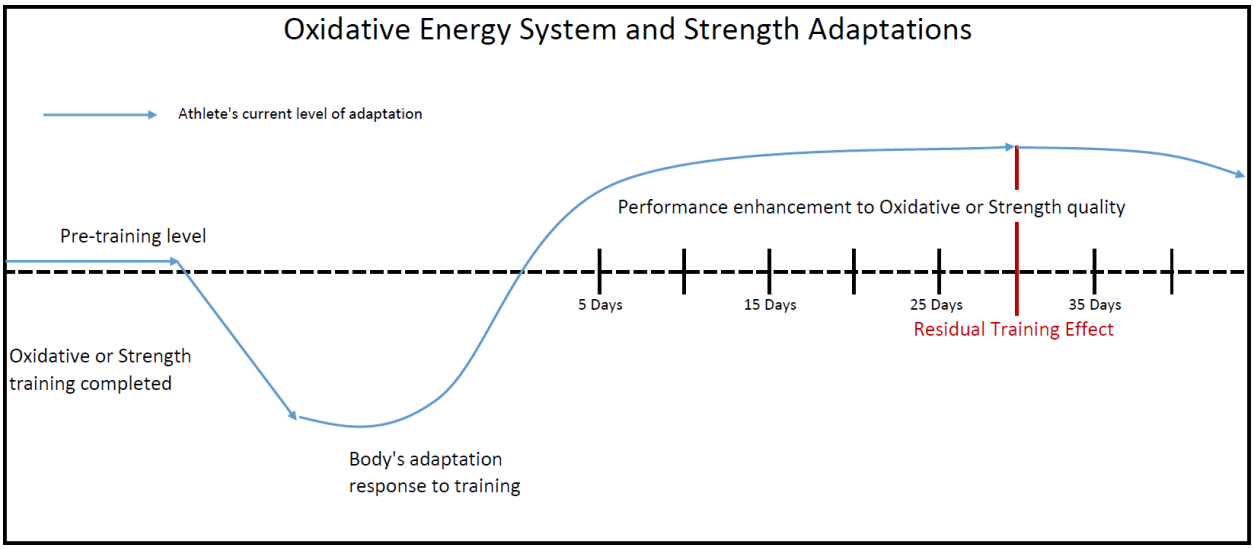

Figure 3.5 - Residual Training Effects of the Oxidative Energy System and Strength Physical Performance Qualities

These four qualities, the three energy systems and strength, form the foundation of all other abilities for a lacrosse athlete. That being said, the greatest amount of training time within the annual cycle is spent on developing these qualities to the highest extent. The development of basic abilities such as the ability to complete repeat, high-intensity efforts, general movement pattern learning, and muscular strength are all established during this phase.

Once an athlete has improved his foundational qualities in the accumulation phase, the transmutation phase is entered. During the transmutation phase, repeatable power becomes the primary adaptation goal of training. However, the glycolytic energy system required to repeatedly produce high-levels of power is also trained in this phase. Ultimately, an athlete utilizes his newly developed energy systems and strength, which were improved in the accumulation training phase, and learns to apply force repeatedly. This is an important skill as a lacrosse athlete must not only produce high-levels of force (strength), but he must be capable to produce these high-intensity efforts for the entire duration of the competition. Figure 3.6 shown below displays the residual training effects for these qualities, which are close to fifteen days.

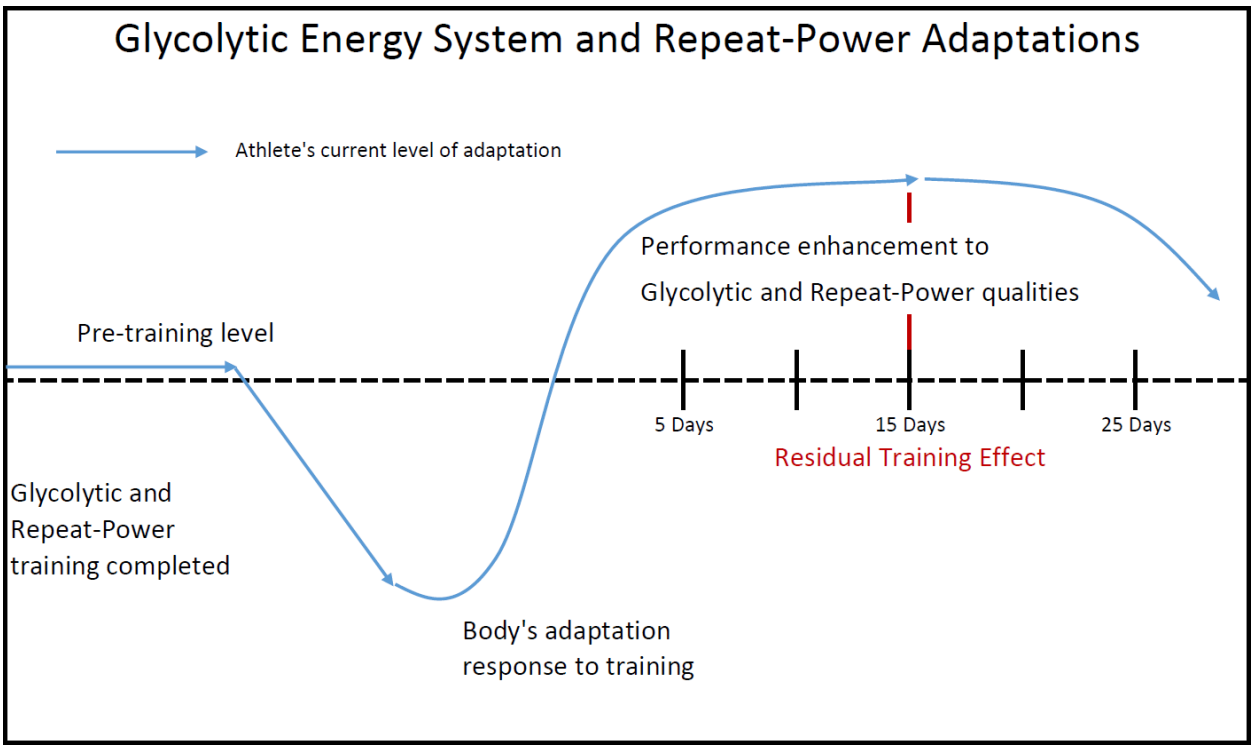

Figure 3.6 - Residual Training Effects of the Glycolytic Energy System and Repeat-Power Physical Performance Qualities

Finally, only when the other two phases have been completed, is the realization phase implemented. This phase can also be considered the peaking phase for an athlete as he trains in the most similar manner to the sport of lacrosse. In this training phase light-loads are utilized at the highest speeds possible. This is necessary as the sport of lacrosse is played at low-loads (body weight) and high-velocities. Through the implementation of this specific training, an athlete is trained to utilize his new force-producing capabilities (from accumulation and transmutation) in the most rapid, explosive manner possible. Figure 3.7 below demonstrates the extremely short residual training effects of these two qualities. With training adaptations maintained for a mere 5±3 days, these qualities must be trained near competition time to ensure they are applied in the game.

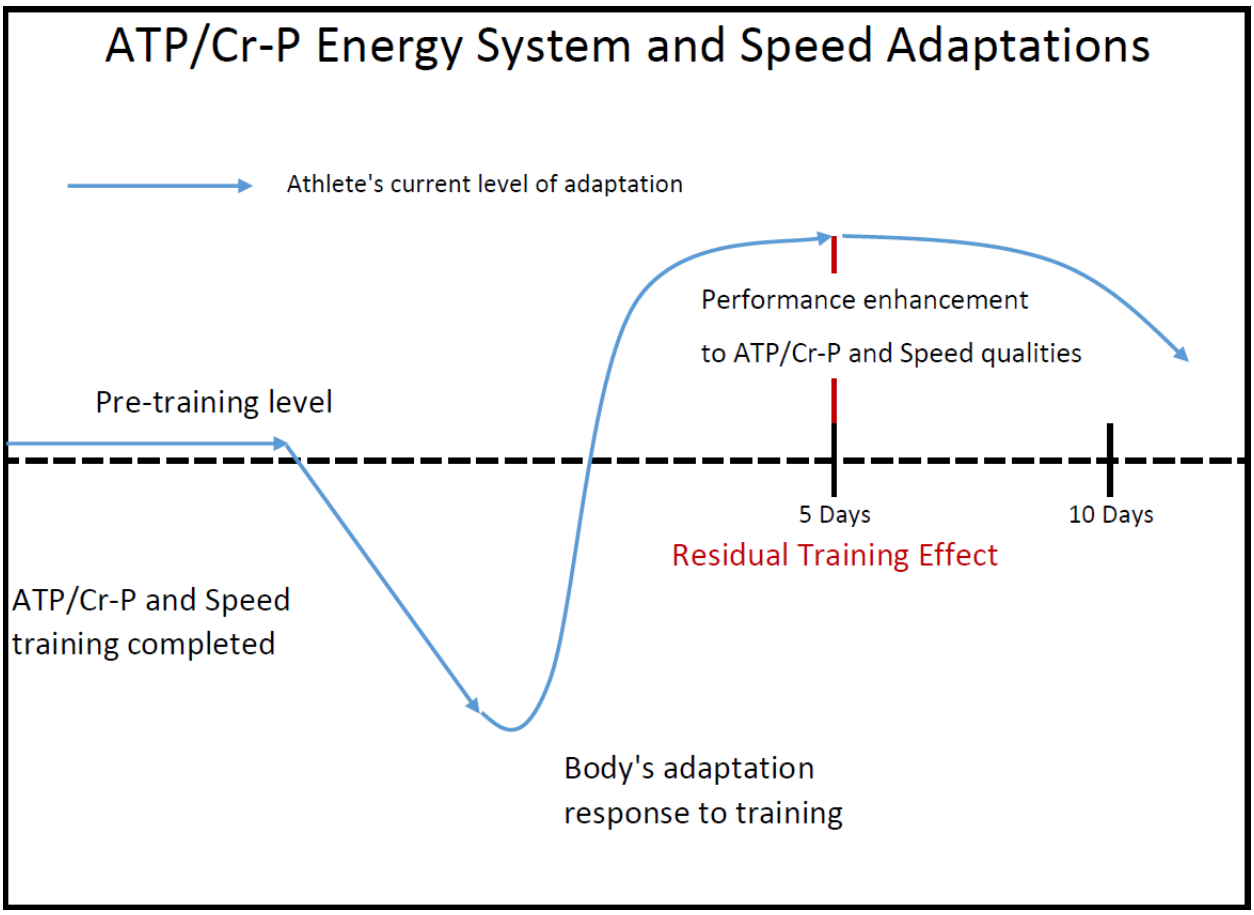

Figure 3.7 - Residual Training Effects of the ATP/Cr-P Energy System and Speed Physical Performance Qualities

3.24 The Force-Velocity Curve, RFD, and the Three Block Model Phases

It is clear that these three phases function in a systematic manner in which the most general adaptations occurring in the accumulation phase become more specific as training progresses through the transmutation phase and finally to the realization, or peaking, phase. Many coaches implement a form of strength testing prior to the competitive season. However, the force-velocity curve, as shown in Figure 3.8, demonstrates that maximal strength is actually the furthest skill from performing at an elite level in lacrosse. As force, or the load an athlete is lifting, increases, the speed of the movement decreases. An athlete will never complete a true one-rep max at high speeds, as this is simply not possible. The inverse also applies; as load is decreased closer to body weight, the speed a movement is executed at increases. This is why a bodyweight movement is completed at much higher velocities than a 90% back squat.

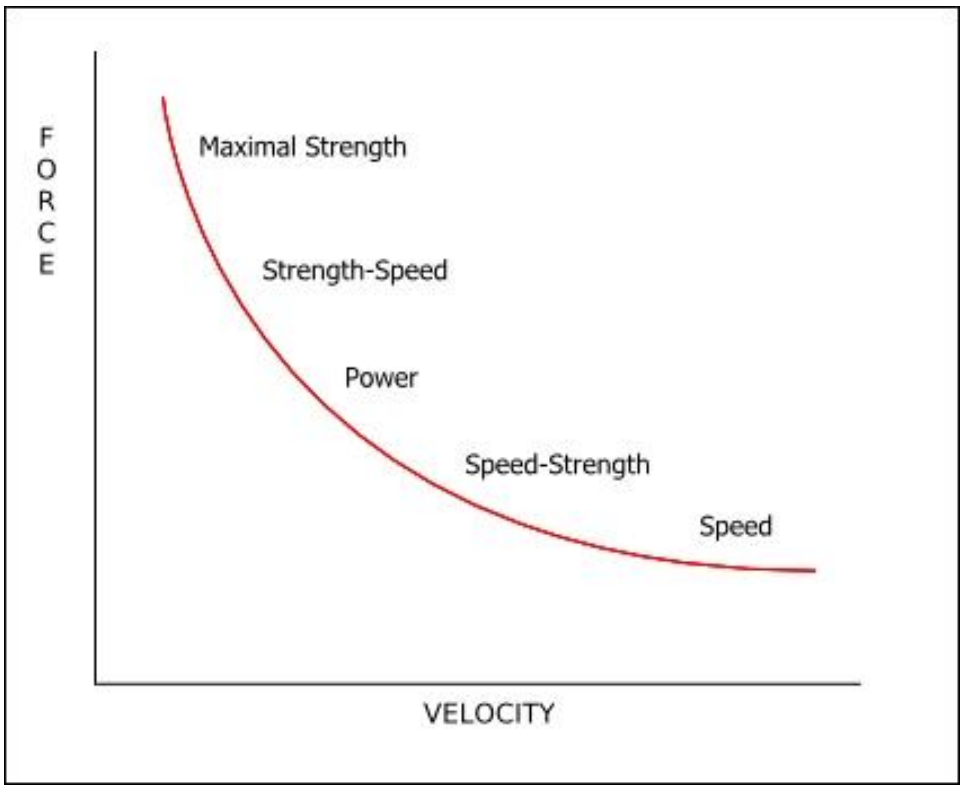

Figure 3.8 - The Force-Velocity Curve

As all coaches for lacrosse are aware, the game is played at extremely high speeds with relatively no increased weight, as only light gear is worn. This statement makes the speed component the most specific skill available for a performance coach to improve. This brings up the concept of rate of force development (RFD). RFD is critical for a lacrosse athlete and highly predictive of success [49-55]. RFD becomes important in the sport of lacrosse due to the limited time an athlete has to produce force. Sprinting as well as shooting are both simple examples to demonstrate the importance of RFD in lacrosse. During every stride taken while sprinting an athlete must apply high levels of force in an extremely brief amount of time. The ability to apply force through the foot rapidly is a crucial skill that must be maximized for a lacrosse athlete to experience success. The same principle can be applied to a shot. An athlete that attempts to produce maximal force levels during a shot will take far too long and will never get a shot off before a defender disrupts the play. An elite lacrosse player must be capable of generating high amounts of force in an extremely brief time period [2]. It is this skill that separates an advanced athlete from an elite one.

Virtually all athletic movements in sport are completed in under 250 ms. However, peak force is not typically achieved until sometime between 300 and 400 ms [50-53]. This means during any action completed in the sport of lacrosse, an athlete simply does not have enough time available to produce maximal force, or strength levels. This fact does not mean the quality of strength is not important, though. Every coach must remember strength lays the foundation for the speed/RFD quality, but strength cannot be the ultimate goal to create an elite lacrosse athlete.

The physical performance quality of speed or RFD cannot be increased to the fullest extent without first improving strength and power levels. The Block Training Model considers this and creates a systematic

program, laying the foundation with strength, progressing to repeat-power, and then peaking an athlete with speed just prior to competition.

3.25 The Adaptations Realized in the Block Training Model

The adaptations to RFD realized by athletes through the implementation of these three phases of the Block Training Model are demonstrated below in Figure 3.9. The three lines depicted represent the RFD displayed as an average by a group of 40 athletes through a vertical jump test after different training phases. The time axis in this figure is intentionally cut at 250 ms, as virtually all lacrosse movements are completed in under this amount of time. By ending the axis at this time, the true performance ability of the RFD can be measured for a large group of athletes.

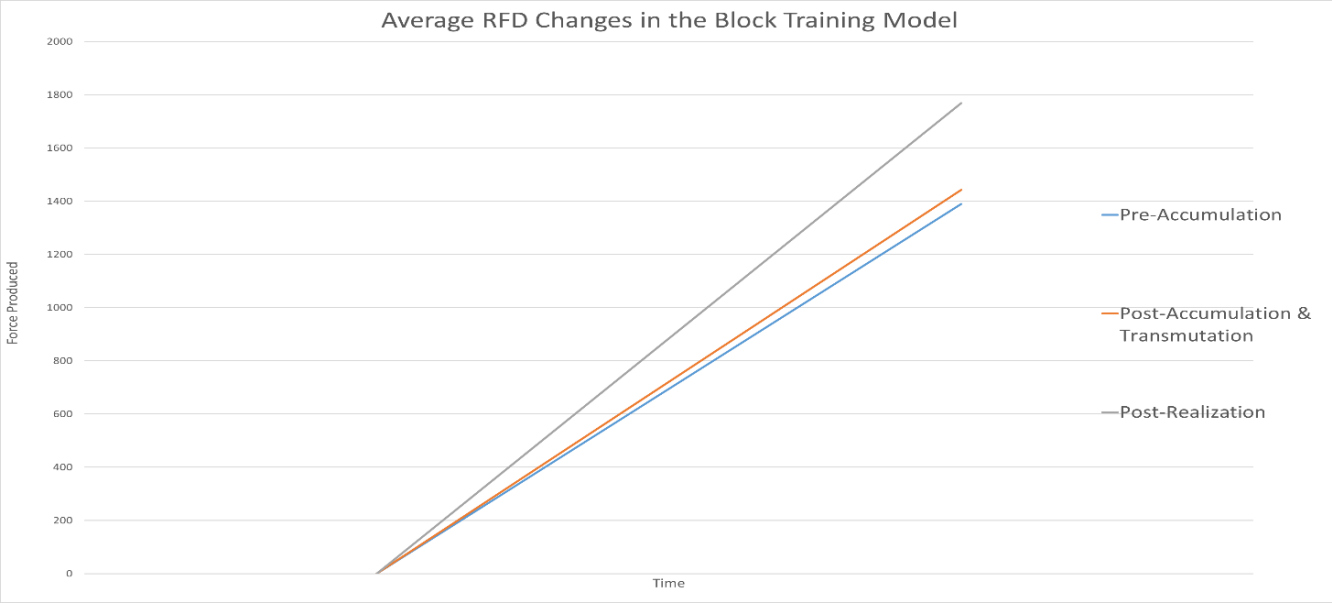

Figure 3.9 - RFD Adaptations Due to the Three Phases of the Block Training Model

The blue line at the bottom represents the “Pre-Accumulation” test. This vertical jump was completed prior to the training of any phase and should be utilized as a true baseline of performance.

The orange line represents the “Post-Accumulation & Transmutation” test. This test was executed after the three energy systems, strength, and repeat-power physical performance qualities were trained. This test was completed after a long duration of training. It is important to remind coaches again that the time axis is cut off at 250 ms. Athletes are capable of producing much higher levels of absolute force after the training of these performance qualities. However, they are not able to translate them as rapidly as required in the sport of lacrosse.

Finally, the grey line represents the “Post-Realization” test. This test was implemented a mere three weeks after the “Post- Accumulation & Transmutation” vertical jump test. Through the specific training at low-loads and high velocities, it becomes apparent an athlete “learns” the ability to produce high-levels of force in extremely brief periods of time. This is the most specific training possible to be completed for lacrosse, other than practicing the sport itself.

It is critical all coaches understand the importance of each physical performance quality in regards to lacrosse. Based on the adaptations presented in Figure 3.9, a few key concepts become clear. First of all, the realization that these results represent the adaptations to a large scale group of athletes must be made. These results do not demonstrate the adaptation of a single athlete to a program, these are proven results on a continual basis. Some athletes may respond to a greater or lesser extent to this program and require minor tweaking to achieve optimal performance. However, every athlete will demonstrate adaptations to the specific physical performance quality being targeted in training. The second important takeaway from this graphic is the implementation of all three phases to optimize performance. Based on Figure 3.9, some coaches may consider jumping straight to the realization training phase and skipping over the accumulation and transmutation phases. This is the biggest mistake one could make. The realization phase adaptations are only capable of being attained when the other two phases have been trained to the highest extent. This returns to the pyramid demonstrated in previous sections, with strength laying the foundation to repeat-power, and then finally speed. The realization phase is just the icing on the cake to "peak" an athlete for competition. Without the other two phases optimal performance will never be possible.

The concept that all three phases, accumulation, transmutation, and realization, play an important role in RFD has been consistently stated throughout this section. The importance of each phase of the Block Training Model becomes apparent when the "biphasic" manner of RFD as well as the specific physiological adaptations required to achieve maximal RFD abilities are understood.

The biphasic manner of RFD means two phases or components are required to maximize the ability of an athlete to produce the highest levels of force in minimal time. RFD is broken down into the early and late phases. The early phase occurs in an extremely brief time period and relies on the drive of the central nervous system (CNS). The late phase of RFD is dictated by the production of force and is more closely related to the maximal force production capabilities of the athlete.

The early phase of RFD is improved through neural improvements to the body. These adaptations include motor learning, the reduction of co-activation, recruitment, rate coding, and muscular synchronization. When all of these nervous system qualities improve, athletes are better able to coordinate the activation of fibers in single muscles as well as in muscle groups, leading to maximized RFD abilities [51,56-61].

The late phase of RFD is improved through the improvement of maximal force production. Specific adaptations to this phase include improvements in the contraction steps, the training of the muscle spindles, golgi tendon organs (GTO's), and renshaw cells, as well as the increased functioning of the sarcoplasmic reticulum [50,51,62].

Each of these two phases of RFD are affected by different training methods. The early phase of RFD achieves the highest adaptation levels through explosive, high-velocity training, which increases the neural drive of an athlete [49,50,52,54,63]. Training which implements the use of high-loads leads to the increase in maximal strength or force production. These movements are completed slower and allow enough time for high levels of force to be achieved, which improves the late phase of RFD [52,53,63]. Although higher load training improves the late phase of RFD, the early phase of RFD can also see improvement when the load is accelerated and moved as rapidly as possible. This is due to the high neural drive created in this technique. For this reason an athlete should always attempt to move the bar concentrically as rapidly as possible, regardless of the load utilized. Although improvements are seen to

the early phase of RFD when high loads are moved as rapidly as possible, the highest adaptations to the early phase will not be realized unless low loads and high velocities are implemented in training.

Clearly, RFD is the product of many adaptations including neural, strength, and muscular activation patterns and also co-activation. However, this section is simply an introduction to the adaptations achieved through different training methods implemented within the Triphasic Lacrosse Training Model. If you wish to read more into these specific adaptations in greater detail, utilize the link provided: vandykestrength.com/files/RFD_Adapt.pdf. Only when these adaptations are accounted for at the appropriate times can optimal performance by a lacrosse athlete be produced.

Each of the three phases in the Block Training Model leads to necessary adaptations; if left untrained, RFD to the highest extent would not be possible. The accumulation phase trains an athlete to generate the highest levels of force production as loads of greater than 80% are implemented. The transmutation phase then teaches an athlete to produce power outputs continuously, as 55-80% is utilized in training. Finally, the realization phase implements low loads at the highest velocities. Training implemented is below 55% of one-rep max with the goal of completing repetitions as rapidly and explosively as possible.

The Triphasic Lacrosse Training Model, through the implementation of the Block Training Model, considers both the early and late phase of RFD and individually enhances them through strength and speed training to maximize performance in each of both of these phases. Each of these adaptations required to maximize RFD are considered in a systematic fashion according to its residual training effects described above. This specific order begins with muscular improvements and then translates those adaptations so they can be applied rapidly in the early phase of RFD. As the competition period approaches, focus of training must be shifted to the early phase in order to optimize transfer of training and performance.

Ultimately the goal of every performance coach returns to three concepts. These include appropriate stress, injury reduction/prevention, and transfer of training. When each of these are applied in a training program optimal performance in the sport of lacrosse is possible. The Block Training Model considers and implements appropriate transfer of training to a greater extent than any other model available currently. The Block Training Model progresses from general to the most specific physical performance qualities required in lacrosse, all while considering their residual training effects.

3.3 Modified Undulated Training Model

The Modified Undulated Training Model represents a smaller scale of the Block Training Model. The Block Training Model considered training completed based on specific desired adaptations on a large-scale basis. This model builds from The Block Training Model in that it focuses on providing a specific stimulus, or stress, on a daily basis. The Modified Undulated Training Model takes the stressors placed on each athlete in training on a daily basis into account based on the intensity and volume. By considering these factors an athlete experiences, an optimal weekly training model can be created and implemented.

The Modified Undulated Training Model has been created based on the Classic Undulated Training Model, which progressed in intensity and decreased in volume throughout the training week. This periodization model is shown below in Figure 3.10 and allowed great success within Bulgarian users in the past. However, this model is not feasible for a lacrosse athlete. The athletes seeing tremendous

results while implementing this method demonstrated in Figure 3.10 were also utilizing anabolic steroids. This enhanced their recovery time, allowing them to recover at much faster rates than non-performance enhancing drug users.

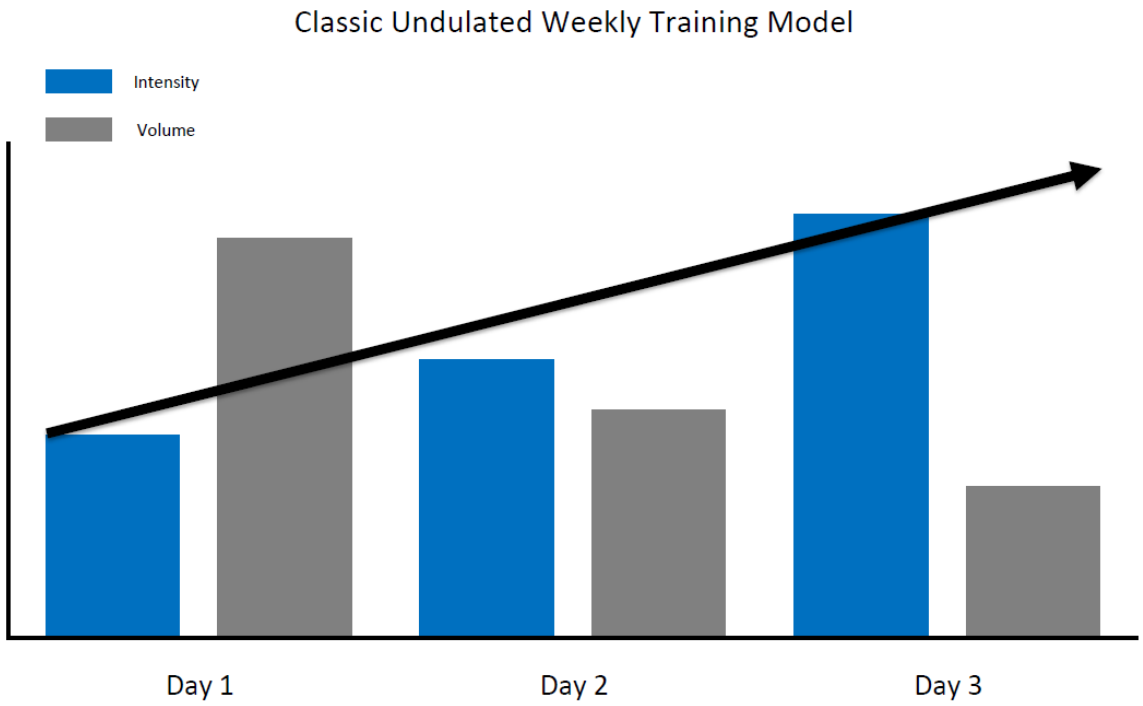

Figure 3.10 - The Classic Undulated 3-Day Training Model

Athletes not utilizing drugs simply cannot recover from the high-volume training at the beginning of the week and be capable of performing at high-levels for the remainder of the week. In other words, the Classic Undulated Training Model over trains drug-free athletes and leads them to decreased sport performance. Returning to section one, this is a scenario where excessive stress is applied and an athlete is never allowed to recover. This ultimately leads to a decrease in lacrosse performance.

As all performance coaches have the common goal of creating the most powerful and efficient athlete possible, the Classic Undulated Training Model is clearly not appropriate. For this reason, the Modified Undulated Training Model was created and implemented. This modified model takes each of the days from the Classic Undulated Model and shifts them one day to the left. Figure 3.11 below demonstrates the weekly loading of the Modified Undulated Training Model.

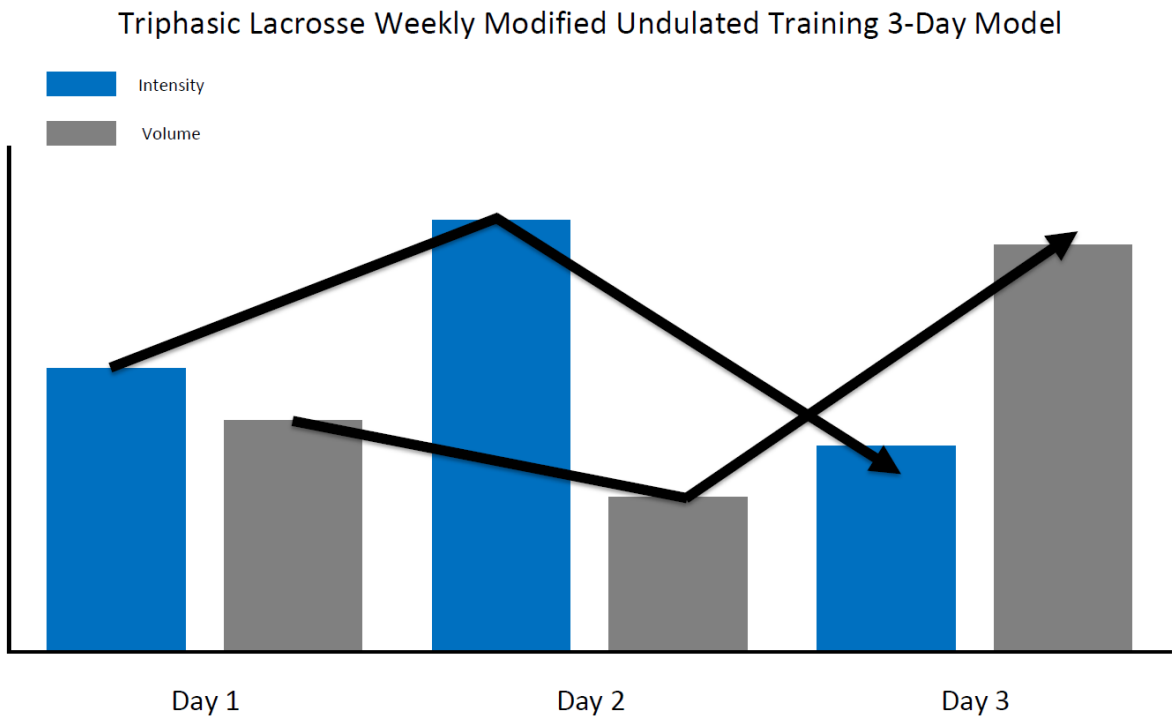

Figure 3.11 - The Modified Undulated 3-Day Training Model

By shifting the days in this fashion, the high volume work is pushed to the end of the training week, (Day 3). This allows sufficient recovery time over the weekend prior to training beginning the following week. This recovery time is critical as volume is the most difficult training aspect an athlete is required to overcome. This model further allows high-quality training to be completed as the highest intensity training day is placed in the middle of the week (Day 2 in Figure 3.11). By placing the high-intensity, low-volume training in the middle of the week, athletes take advantage of the neural priming that takes place due to the moderate-intensity completed on Day 1.

As shown above in Figure 3.11, the Modified Undulating Training Model implements a weekly program in which the first training day of the week is a moderate-intensity, moderate-volume day. The second training day is a high-intensity, low-volume day, and the final training day of the week is a low-intensity, high-volume day. By taking the two factors of intensity and volume into account, the overall load placed on an athlete can be controlled and programmed for according to the body's response to stress within each weekly cycle. By considering the hormonal response and change in readiness to every athlete throughout the week, due to the idea that remaining stress from a previous training session plays a role in future training and the body's response, The Modified Undulating Training Model is able to increase quality of training to the fullest extent.

As an athlete progresses through the weekly training cycle, the more likely his ability to perform high-quality work will be diminished due to the accumulation of fatigue. High-quality work and its importance is a concept that will be discussed in greater detail in the upcoming section. However, it should be understood that the goal of training must be to improve the amount of quality work that can be completed by each athlete. The longer an athlete can maintain and complete high-quality efforts, the greater the likelihood that improvements will be seen in performance.

Returning to the concept that volume, due to the tissue stress, is more difficult to overcome than intensity, the Modified Undulated Training Model creates a minimum of 72 hours between volume-based training days (Days 1 and 3 in Figure 3.11). The Modified Undulated Training Model can be easily implemented in a 5-Day weekly training model and is demonstrated below in Figure 3.12.

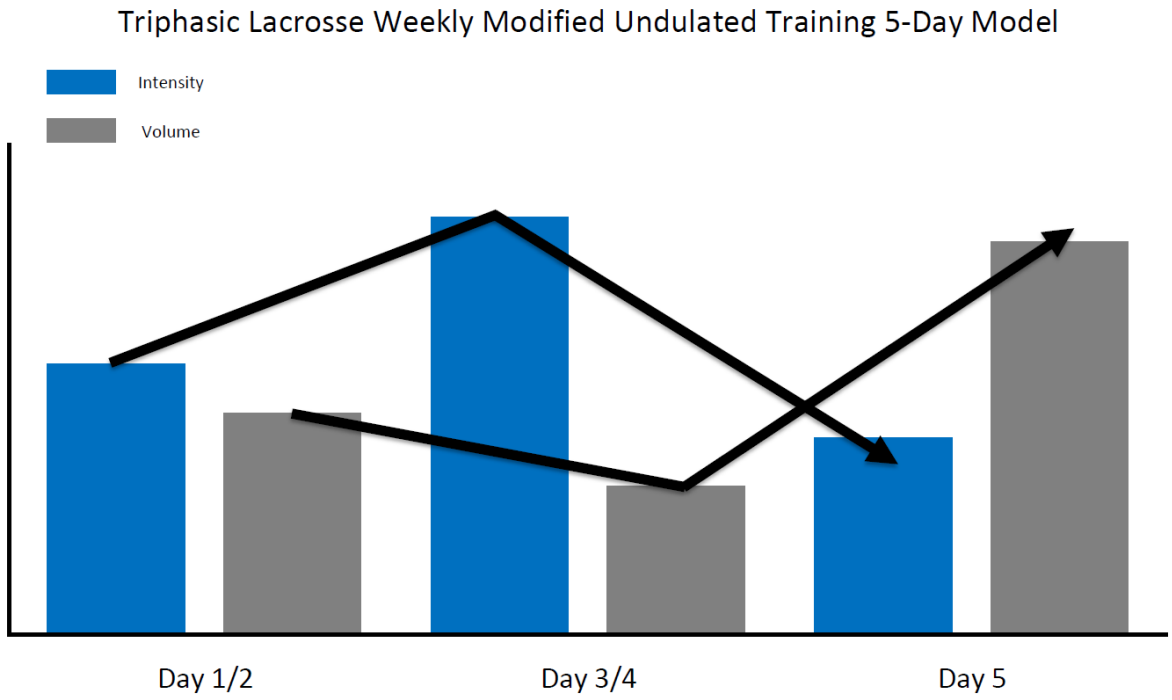

Figure 3.12 - The Modified Undulated 5-Day Training Model

By modifying the classic undulated program and shifting the highest volume day to Friday had enormous benefit for two very important reasons. First, the higher volume at the end of the week took on a small role as an active recovery day, forcing blood and nutrients into the muscles to help speed recovery. Secondly, and more importantly, it allows for individuals to be pushed a little past their physical limits. With 72 hours to rest before the next training session on Monday, an even higher level of stress can be implemented than that seen with the classic model. This allows individuals to overreach each week, leading to supercompensation at a level not seen in any other model, all while considering the quality available to an athlete. It is important to note this model is only implemented in the Triphasic portions of training. This model allows the most specific stress possible to an athlete, thus it is implemented in training as the season approaches. As outlined in section one earlier, the appropriate application of stress is necessary to elicit supercompensation, and supercompensation is a key component of achieving optimal performance in the most efficient manner.

3.4 High-Quality Training Model

Based on the requirements of the sport of lacrosse described in sections one and two, all performance coaches should understand the importance of both capacity and quality training. Every athlete must be capable of producing repeated bouts of high-intensity of work in order to improve his odds of being successful in competition. Much of the energy system training implemented in the Triphasic Lacrosse Training Model is executed to improve the capacity of the athlete. This can be seen in the fact that

athletes, upon completion of this block, have the ability to complete a greater number of repetitions before great performance decrements are seen. However, the ability of that athlete to produce higher power levels, or quality, has not been improved to a great extent. Once training of the energy systems has been completed, the majority of training should be implemented to improve the quality an athlete is capable of producing. Ultimately, the energy system training has improved the efficiency of the athlete, but the remainder of training must be focused on improving the power output of the athlete. Only when these are both considered individually, as the Block Training Model allows, can optimal performance in lacrosse be possible.

The Modified Undulated Training Model, described above, accounts for some of this quality of training through the consideration of specific training intensities and volumes and their placement within the weekly cycle. However, other methods are implemented within the Triphasic Lacrosse Training Model to ensure training of the highest-possible quality is completed. These other methods include the utilization of timed sets and the implementation of drop-off sets.

In the High-Quality Training Model utilized throughout the Triphasic Lacrosse Training Model, sets are no longer defined by a number of prescribed reps. Instead, the athlete performs as many reps as possible in a specified time frame. This allows for a greater density of training, as well as energy specific training based on the requirements of the sport. As described in section two, lacrosse consists of short, intense work bouts followed by moderate rest periods. By manipulating timing parameters rather than reps, it is possible to train the energy systems specifically to those required of a lacrosse athlete while also improving force production [64].

For the highest quality of training timed sets of no greater than ten seconds are utilized, with brief rest periods given between all sets. Timed sets greater than this ten second duration lead to reductions in ATP/Cr-P energy system availability, which reduces training quality. Timed sets of this time also maximize neural drive and force an athlete to accelerate the load as rapidly as possible, leading to adaptations to the early phase of RFD. Brief rests in between sets reduce energy utilization by allowing the ATP/Cr-P energy system to recover slightly while also enhancing muscle building properties. These brief rests allow high-quality training to be maintained for the duration of the training session.

In order to train for max speed, which is the highest quality skill, training must be done at, or near, maximal speed. For this reason, excessive volume can become a negative transfer to the quality of training [64,65]. Any increases in volume should come from increasing work rate within the set rather than an increase in time. For example, if an athlete gets seven repetitions in five seconds in the first week and then gets nine repetitions in five seconds in the second week, it is clear that the athlete has progressed. Progression during timed sets is derived from increasing work rate, or the density, within the set rather than altering the specified reps.

Hormonal responses of athletes can also be accounted for by utilizing timed sets in the High-Quality Training Model. By keeping all sets under ten seconds and allowing for brief rests between sets, an athlete can be kept below his lactate threshold and avoid high-levels of cortisol release. This goes hand in hand with energy system specific training seen in The High-Quality Training Model. It is important to note an athlete will absolutely cross the threshold and begin cortisol production throughout a training session. However, if an athlete can train at the highest qualities for a greater amount of time, his adaptations specific to the sport of lacrosse will be maximized in a fashion similar to the requirements of competition.

This training model can be applied directly to the Modified Undulated Training Model described above, with Day 1 sets being completed at seven seconds each, Day 2 sets being five seconds, and Day 3 sets being completed at ten seconds. This follows the guidelines of the Modified Undulated Weekly 3-Day model laid out in Figure 3.11.

The second concept applied within the High-Quality Training Model is the idea of drop-off sets. Those familiar with any velocity based training techniques may understand this method. However, if you are not, this is the concept that an athlete complete a movement, or series of movements, until a specific drop-off in speed is achieved. To put this into perspective, if a 10% drop-off is being applied and an athlete is moving a load at 1.0 m/s, they will continue to complete the movement as programmed until they can no longer execute the load at 0.9 m/s. That change in 0.1 m/s represents a 10% change in the velocity of the load being moved by the athlete, thus the exercise is completed.

Many coaches do not have the budget available to track bar speed for multiple athletes. In this instance a countermovement jump with no arm swing can be applied to measure the drop-off of the athlete's nervous system after each set. The same principles of the drop-off can be applied to this jump method as above. If an athlete's maximal vertical jump is measured at 24.0 inches, they have completed the exercise, or set of exercises, when they can no longer jump above 21.6 inches. This again represents a 10% drop-off in performance.

Drop-off sets are critical to prevent excessive training volume, which reduces quality and blunts the desired adaptations [(65)]. When two groups of athletes completed identical training programs, other than the drop-off required prior to the cessation of training, major differences in desired adaptations were seen [(65)]. One group completed a 20% drop-off, while the other continued to train until a 40% drop-off was achieved [(65)]. Although these two groups achieved similar strength gains, the explosive type IIX muscles of the 40% drop-off group were decreased [(65)]. These explosive type IIX fibers remained unchanged in the 20% drop-off training group [(65)]. Excessive volume has the ability to negatively affect the ability to produce explosive movements, such as those required in lacrosse [(65)].

In this training manual the greatest drop-off implemented is 10%. Although it is not always apparent that the drop-off method is being implemented, it is critical to note that in the many years of implementing the Triphasic Training System, four sets of a major mover and French contrast methods have proven to achieve the 10% drop-off in almost every athlete tested. These methods will be shown and described in the upcoming section.

Many other programs utilize excessive volume in training, such as sets of eight, or even ten repetitions. These programs are not focused on the quality of training the athlete achieves and place a greater emphasis on the capacity aspect. There are times to utilize these higher repetition schemes for motor learning and general strength, as demonstrated in the early phases of the Triphasic Lacrosse Training Model. However, as competition time approaches, athletes must be trained according to the specific desired adaptations. Remembering the goal of achieving optimal performance for a lacrosse athlete in the most efficient manner possible, the Block, Modified Undulated, and High-Quality Training Blocks must be implemented by performance coaches.

3.5 Triphasic Muscle Action Training Model

The final training model implemented in the Triphasic Lacrosse Training Model is the individual training of the three muscle actions. These three phases form the origination of the term “Triphasic.” These muscle action phases, the eccentric, isometric, and concentric, are present in all dynamic movements. This means that every action completed in the sport of lacrosse requires each of these three movements to some extent. This concept was demonstrated back in section one of this manual in the multi-dimensional training section. With every stride taken, whether that is completed in a walking or running fashion, the glute should experience eccentric loading, an isometric transition, and then a concentric push-off. The ability to utilize each of these muscle action phases becomes even more critical in high-speed movements, as seen in lacrosse. When each of these movements are utilized, they create the SSC. The SSC, which was described earlier in the shooting portion of section two, is utilized during every movement in lacrosse and is one of the most important abilities any athlete can improve. This skill is critical as it is both a source of power production, and also efficiency for the lacrosse athlete. For this reason, one of the primary goals of Triphasic Training is to optimize the SSC through the individualized training and improvement to each of the three muscle actions.

Prior to the specific implementation of muscle action training implemented in the Triphasic Lacrosse Training Manual, every coach must fully understand what an eccentric, isometric, and concentric muscle action truly represents. An eccentric muscle action is one in which the muscle is forcefully lengthened. On the other hand, a concentric muscle action is one in which the muscle is shortened while overcoming force. Between these two phases is the isometric phase of dynamic movement. This phase can be thought of as the transition phase between an eccentric and concentric muscle action and occurs extremely briefly. For this reason, the isometric phase is commonly overlooked.

As described above, every movement completed on the lacrosse field requires these three muscle actions to be completed in an explosive manner. The ability to change direction represents a simple example of the implementation of these three phases in action. For example, an attack athlete catches a pass running downhill toward his defender at near maximal speed. This attackman then executes a dodge by planting his right foot into the ground and the crossing the defender’s face to create a prime scoring chance.

During this maneuver that all lacrosse players learn at some point, each of the three muscle actions are not only demonstrated, but completed at a high-velocity. As the attackman plants his right foot into the ground it must absorb the high-force levels due to the speed of the completed dodge. This force should be absorbed through the entire kinetic chain up to the hips and glutes, as described previously in both sections one and two. The athlete must then be capable of transferring these high-force levels in the new desired direction, in this case, across the defender’s face and toward the goal. Finally, the athlete must apply this “stored” force concentrically in order to drive out of this position and blow past the defender. The training and utilization of these three phases has allowed this attackman to create a high-percentage scoring opportunity.

If this athlete did not have the eccentric ability to absorb the high-levels of force or the isometric strength to transfer this force in the new direction, he would have been slower out of his dodge. The athletes that lack these two phases of training are the ones who get “stuck in mud” as they complete an explosive movement. Their bodies are not able to absorb and transfer the high-force levels required. Thus, they must dissipate this energy in another manner throughout their kinetic chain. This refers back

to the ankle example in section two. If one link within the kinetic chain is not able to absorb, transfer, or apply high-levels of force, energy will "bleed" through this weak portion of the body. Ultimately, this leads to inefficient movement and increased injury risk. The importance of these muscle action phases cannot be overlooked in training.

As stated in section two, the athlete's body, when utilizing the SSC to the highest extent, functions as a rubber-band. As his body absorbs force in any action he experiences a stretch. If he is able to absorb and transfer this stretch across his kinetic chain, he is able to produce greater amounts of force by "snapping" his stretched rubber-band back to its resting position. This is demonstrated above in the dodging example that all lacrosse athletes complete at some point in their career. However, these muscle action phases are utilized in every movement on the lacrosse field, as shown with the shooting example in section two, and must be trained for accordingly. This is not new information to many coaches; however, the individualized training of the eccentric and isometric phases is typically left out in so-called "specific" training programs.

In programs that do not train the eccentric and isometric muscle action phases specifically the concentric phase gets all the glory in training. This occurs in many programs as it is the concentric phase that is utilized to determine an athlete's RFD capabilities. However, the importance of the eccentric and isometric phases in training cannot be overstated, as without the ability to absorb and transition high-levels of force, an athlete will execute movements inefficiently and with a reduced power output. This ultimately leads to suboptimal performance in lacrosse.

Figure 3.13 below depicts these three phases of dynamic movement. The line on the left side of the "V" represents the eccentric phase, where the athlete is absorbing force. On the right side of the "V" is the concentric phase, or the force-producing phase of movement. The isometric phase occurs briefly at the very bottom of the "V," as it is the moment of transition between the eccentric and concentric muscle action phases. As already hinted, when these three phases are combined a "V" is formed. Performance coaches must understand the steeper the "V," the greater RFD produced by an athlete, as he is producing greater amounts of force in a smaller amount of time. However, the aspect commonly missed is the fact that the concentric portion of the "V" will never occur at a steeper slope than that of the eccentric. An athlete will never be capable of producing what he cannot absorb. By improving an athlete's ability to absorb high levels of force eccentrically, his ability to produce power concentrically is maximized. This directly causes an improvement in RFD, which is vital in the sport of lacrosse.

In Figure 3.13, it becomes clear the elite athlete, or the athlete dodging in the example above, has an advantage based on his ability to absorb and produce force in a much more rapid fashion. This elite athlete does not get "stuck in mud" and is ultimately able to demonstrate a greater RFD due to his ability to absorb higher force levels. This athlete will also execute every movement with greater efficiency as he is capable of producing more power from his SSC. By training the muscle action phases individually and specifically, an athlete not only produces greater power outputs, but he does so all while expending less energy than a non-Triphasic trained athlete.

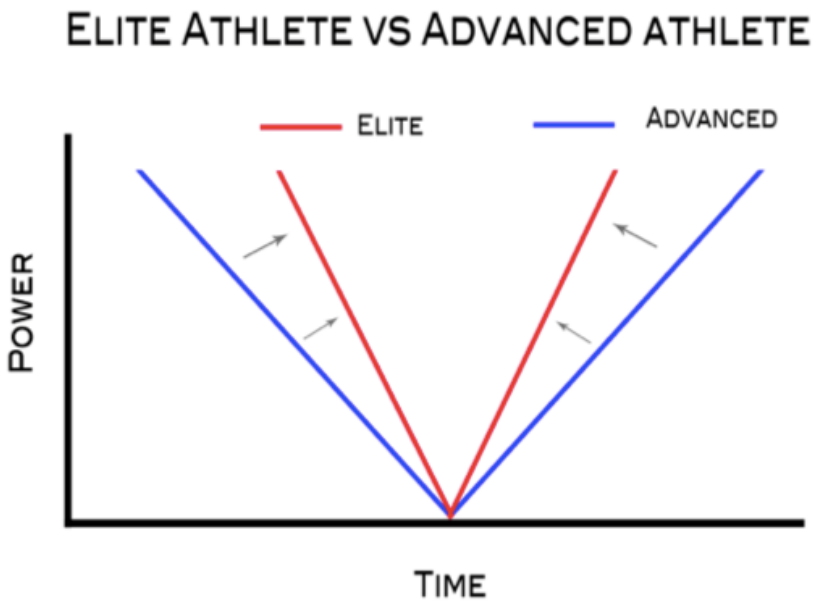

Figure 3.13 - Force Absorbing and Producing Capabilities of an Elite and Advanced Athlete

The ability of an athlete to absorb, transfer, and re-apply maximal force efficiently through every dynamic movement completed is critical for elite-level performance in lacrosse. Only when the eccentric, isometric, and concentric muscle action phases are trained individually can the greatest improvements be achieved. The Triphasic Lacrosse Training Model takes each of these muscle action phases into account and trains them to the highest extent. Only when these are trained individually, is optimal performance possible.

3.51 Eccentric Muscle Action Training

As described above, each of the three phases of every dynamic movement are trained individually within the Triphasic Lacrosse Model. Not only does the improvement of the eccentric muscle action phase improve the SSC, but it also improves the stretch-reflex and trains explosive muscle specifically, when implemented appropriately. Each of these adaptations leads to an improved ability of an athlete to absorb high-levels of force.

The stretch-reflex is a powerful reflex within the body. It is composed of two proprioceptive sensory signals: muscle spindles and golgi tendon organs (GTOs). Muscle spindles are responsible for sensing a length change within the muscle, while the GTOs sense changes in muscle tension [(66)]. As a muscle experiences a change in length, the muscle spindle, which is located within the muscle, relays the position of the limb CNS and is then responsible for regulating the contraction force produced by the muscle. Ultimately, as the muscle experiences a stretch, the muscle spindle must activate the appropriate number of muscle fibers in order to create and apply the required amount of force.

GTOs, which are located on the origin and insertion of the muscle and into the tendon, then sense this tension change throughout the muscle. If the tension experienced by the muscle is determined to be too high, the GTOs relay information for the muscle to relax [(66)]. This act is completed to prevent any potential injury, as the GTOs feel the muscle is not capable of producing enough force to overcome the

stretch being experienced. In section one, the importance of rate of force acceptance was introduced for injury reduction. This concept relates directly to the muscle spindles and GTOs. As an athlete's body experiences an eccentric muscle action, particularly at a high velocity as seen in lacrosse, the muscle spindles must be activated rapidly to a high extent in order to overcome this stretch. However, the GTOs must remain in a "deactivated" state if the athlete is to produce the movement as powerfully and efficiently as possible.

As GTOs are commonly overprotective of the force experienced by the body, it is imperative a training program is implemented to "teach" the GTOs that the muscles are truly capable of overcoming these high forces successfully. Through the implementation of eccentric training, the inhibitory effect of the GTOs is decreased, while the response of the muscle spindles is increased [(67)]. This leads to improved neuromuscular synchronization between these two aspects of the stretch-reflex and the CNS, allowing an athlete to eccentrically absorb increased force levels in movement. This is critical as the athlete capable of absorbing higher force levels will be able to produce higher levels of concentric force through the use of the SSC. Ultimately this leads to maximal levels of force production in the most efficient manner by every athlete.

Eccentric training is also vital as the muscle action is completed differently on a physiological level. The majority of performance coaches understand the size principle in regards to muscle recruitment patterns. This principle states that the body will only activate the muscles required in order to complete the task at hand. As the required force levels increase, whether that be through increased load or velocity, a greater number of muscles are recruited in order to execute the movement. This allows every action to be completed in the most efficient manner possible, as unnecessary, powerful muscle fibers are not recruited and utilized unless absolutely necessary.

However, the eccentric muscle action utilizes a different strategy of muscle recruitment and does not follow the size principle as described above. During eccentric movement even fewer muscles are recruited, meaning there is greater stress being placed on those activated muscles than during the isometric and/or concentric phases [(67-69)]. Although fewer muscles are being utilized during this muscle action phase, the eccentric component of movement has a much greater force producing capability than both the isometric and concentric muscle action phases. This is because the explosive, type II muscle fibers are selectively recruited prior to the weaker, more aerobic muscle fibers [(68,69)]. Eccentric muscle actions take the size principle and reverse it as the most explosive fibers are recruited first, rather than last [(68,69)]. Performance coaches witness this in training every day. An athlete is capable of using much more weight if he is only required to slowly, eccentrically lower a squat down to the bottom position, than if he is required to concentrically stand back up with the load.

This is demonstrated in Figure 3.14 below. The force-velocity curve was shown earlier in this section during the Block Training Model portion. However, that figure demonstrated only the concentric muscle action phase, which is now shown in green in Figure 3.14. Clearly, the eccentric (red) and isometric phases are able to produce significantly higher force levels than the concentric muscle action phase.

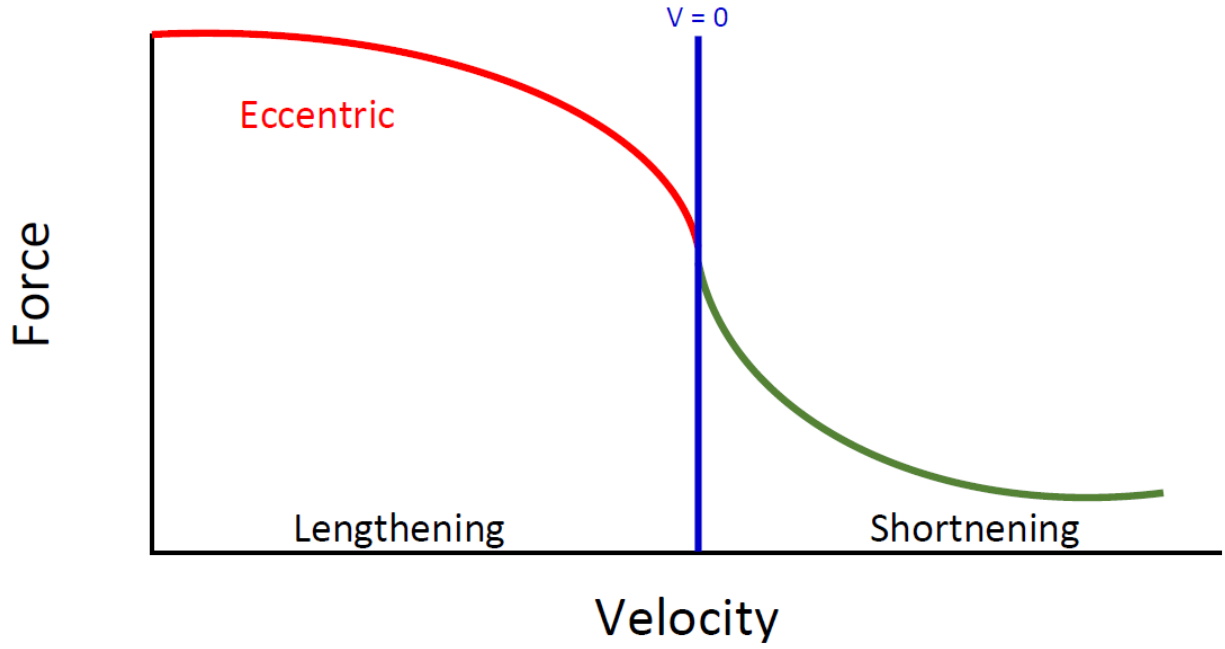

Figure 3.14 - The Force-Velocity Curve of a Muscle through All Three Muscle Action Phases

Figure 3.14 represents another crucial reason the three muscle action phases must be trained on an individual basis. As the eccentric and isometric phases are able to produce significantly greater levels of force, they must be trained with extremely high loads to achieve the greatest stress, and thus, adaptation [67].

The most effective method to applying stress and improving the eccentric phase of movement is through the completion of a slow, muscle-lengthening movement at a high-load. The training of this muscle action fits both the Modified Undulated and High-Quality Training Models as times of either seven or ten seconds are utilized for eccentric training. This extended time under tension allows both the muscle spindles and GTOs to adapt to the highest level, as they experienced increased stress. As fewer muscles are recruited in eccentric movements, these recruited muscles also experience greater stress, leading to increased adaptations realized within the muscles themselves. This is especially important as it is the explosive, type II fibers that are recruited first in the eccentric phase [68,69].

It is important to note eccentric training, due to its nature and implementation, is both extremely taxing and damaging. The fatigue is experienced by the CNS to a great extent as high-loads with increased time under tension are experienced, while muscle damage is also induced. For this reason, eccentric training methods are only implemented at specific times of the annual training cycle. However, each of these stressors, when applied appropriately as laid out in this manual, will maximize an athlete's ability to absorb high levels of force in an extremely brief time period. This ability to absorb force rapidly is a critical skill in the fast-paced game of lacrosse, which requires constant deceleration and re-acceleration.

3.52 Isometric Muscle Action Training

Following the pattern of the SSC, the isometric training phase is implemented after the eccentric muscle action has been specifically improved. This second training phase is designed to continue the

optimization of both power and efficiency of the SSC in lacrosse specific movements. As stated previously, the isometric phase functions as the transfer of force between the eccentric and concentric muscle actions [64]. Due to the brief nature of its occurrence in dynamic movement it is the most commonly overlooked muscle action, yet its role in efficient transfer of high-forces cannot be overstated. When this phase is not trained specifically, an athlete will "bleed" potential free energy at this weak link during SSC utilization, leading to inefficient movement and reduced power production.

The isometric phase, when implemented appropriately, causes an adaptation in two nervous system processes. These two include muscle recruitment and rate coding [64]. The importance of both of these are demonstrated in the RFD portion of this section. However, as a brief reminder, muscle recruitment refers to the number of muscle fibers in an activated state. This also returns to the size principle introduced above in the eccentric section. Rate coding is the rate at which the activated fibers fire. As rate coding increases, tension is increased in the muscle, leading to increased force production. Through specific training, the nervous system can be adapted to increase the frequency of rate coding. An explosive athlete must be able to both activate his explosive muscle fibers, while also increasing his rate coding to the highest extent [64]. Clearly these are important as they play critical roles in an athlete's RFD capabilities.

Although the isometric muscle action is weaker than the eccentric phase, it is still able to produce higher force levels than the concentric phase. This is demonstrated in Figure 3.14. The most effective method to improve the isometric muscle action phase, like the eccentric phase, is to complete movements specifically with holds. To complete an isometric exercise, an athlete will hold the load at a specified position, typically a mid-range or disadvantageous position. For the greatest improvements to be realized, an athlete must focus on pulling themselves into the position at a high-rate and then immediately stopping the load. This leads to maximal recruitment and rate coding [64].

All performance coaches must understand that improvements in isometric strength only transfer about ten degrees in either direction from the position trained [64]. In other words, if an athlete trains an isometric squat position at 45°, transfer of this improvement is only experienced between the knee angles of 35 and 55°. That being said, if the majority of competition movements are outside of this range, the athlete will not be capable of implementing this specific strength in the action being completed [64]. For this reason it is imperative coaches understand the specific joint angles at which movements are executed on the lacrosse field in order for optimal transfer of training and utilization of the SSC to occur.

Through increased time under tension and high-quality training, isometric training is implemented to increase motor unit recruitment at high loads as well as rate coding, which are both important for improving the RFD of an athlete. The improvement of the isometric phase will enhance the capability of the muscles and tendons utilized to transfer higher levels of force throughout the entire kinetic chain. The eccentric phase was improved specifically to allow the safe absorption of increased levels of force throughout the body. This increased force absorption allows the SSC to experience a greater "stretch," and thus, increased stored energy. The isometric phase is then trained to the highest level to allow this increase in stored energy to be transferred into the concentric phase of movement. If the isometric phase is not trained appropriately, the body will be unable to transfer force appropriately. This lack of efficient force transfer is clearly visible to every coach with an athlete that gets "stuck in mud."

3.53 Concentric Muscle Action Training

Only when both the eccentric and isometric phases have been improved individually can the concentric muscle action phase be enhanced to the fullest extent. This power-producing muscle action is viewed as the "sexy phase" of the three muscle actions. This phase is the measuring stick utilized to evaluate nearly every movement in athletic performance. Whether the test completed is lifting a weight, jumping, or running, the measurements being considered are based on force production through the concentric phase. It is from this phase of movement that RFD is calculated.

For this reason, many performance coaches place a primary emphasis on this one movement. However, this leads to an inefficient functioning of the other two muscle action phases. The importance of each phase in regards to lacrosse performance should be well understood at this point.

As stated previously, the concentric phase is defined as a muscle producing a level of force to overcome the load placed upon it. The ability to produce the highest levels of force in the concentric phase is dependent on the SSC and the athlete's ability to absorb and transfer forces in an eccentric and isometric fashion, respectively. When the role this final muscle action phase plays is considered with the previous two phases, it is becomes clear why the concentric phase is also imperative for maximizing explosive strength. An athlete who can quickly build and absorb energy is nothing if that energy cannot be used to concentrically rapidly produce force.

When training the concentric phase of movement, it is important for coaches to think in terms of whole neuromuscular systems. The true importance of training the concentric phase is the synchronization of the entire triphasic muscle action – maximizing the energy transfer from the preceding eccentric and isometric phases into a unified, explosive, dynamic movement. For this reason, the concentric phase trains two categories of muscular coordination: intramuscular coordination and intermuscular coordination [(64)].

Intramuscular coordination is the coordination of fibers within the same muscle group [(64)]. This takes into account the same neurological process as previously discussed in the isometric phase, motor unit recruitment and rate coding. Intermuscular coordination, on the other hand, is the coordination between different muscle groups, or the synchronization of the entire kinetic chain [(64)].

This takes into account inhibition/disinhibition and synchronization between muscle groups. Inhibition/disinhibition refers to the role that agonist and antagonist, or inhibitor and disinhibitor, muscles play in every muscular action. Every time a muscular contraction takes place, there is an agonist muscle concentrically contracting to produce force and an antagonist muscle eccentrically contracting to try to decelerate the speed and force of the concentric contraction to protect the joint. By training the concentric phase at high forces, an athlete creates a smaller inhibition of the antagonist muscle. Similar to the principles discussed during the eccentric phase regarding the muscle spindle and GTO, by training the inhibition of the antagonist muscle an athlete will be able to improve his intermuscular coordination, resulting in maximal RFD. However, these adaptations are not possible to the fullest extent without first training the eccentric and isometric phases. The concept and literature backing the agonist/antagonist training adaptation can be viewed at vandykestrength.com/files/RFD_Adapt.pdf.

Clearly there is more to training the concentric phase than just improving the contractile mechanism. An athlete who can generate more explosive force in less time, or increase his RFD, will only have a decisive

advantage over his competition if he can unleash that power in a manner that gives him a performance edge.

The concentric phase of dynamic movement is a much more complicated motor task than the eccentric or isometric phases. The concentric phase, just like all other acts completed within the body, is a learned, trainable skill. For an athlete to develop maximal RFD, he must be able to efficiently and rapidly perform a concentric contraction through the use of his stretch-reflex and SSC.

The synchronized ability of an athlete to utilize his stretch-reflex and SSC throughout a dynamic movement has been termed "reactive ability." The synchronization and efficiency, or lack thereof, of these processes will ultimately lead to an optimal or suboptimal RFD by an athlete. For this reason, the concentric phase cannot be taken for granted, as it is the final phase completed in all movements on the lacrosse field. An athlete can spend weeks learning how to eccentrically and isometrically absorb energy, but if he fails to teach his body how to unleash that power, it is all for nothing.

The most effective means for training concentrically is fairly straightforward and simple – train fast! The goal of concentric training is to maximize intermuscular coordination, increase motor unit recruitment, and maximize force production. Concentric means will look very familiar to most strength coaches and trainers because they are the predominant form of stress used in training. However, after previously building a solid foundation of eccentric and isometric strength using triphasic means, an athlete will be able to move loads at much higher velocities. The most important thing to remember when performing dynamic, concentric focused work is to push against the bar as hard as possible, driving the bar all the way through its entire range of motion. The focus should be on developing a synchronized, powerful concentric contraction.

With the agonist/antagonist training adaptations being a primary goal within this training phase, The Triphasic Lacrosse Training Model also implements oscillatory (OC) movements throughout the annual program. This method is implemented throughout multiple training blocks and serves a specific purpose in the continued improvement of RFD. OC training methods involve a rapid "push-pull" motion in an attempt to maximize the ability of an athlete to reverse the muscle action phase at a high-velocity.

To the untrained eye, these brief, 3-4 inch movements applied with well-trained athletes, can appear as gimmicky and useless. This could not be further from the truth. In reality, the OC methods implemented improve strength within specific movement ranges, continue to increase motor learning of skills, and lead to further adaptations in the three muscle actions required in all dynamic movements.

It is shown in Russian literature that the separation between a level four, or advanced athlete, and a level five, or truly elite athlete, is not the ability to contract their muscles at a high rate, although this is a requirement of both levels, but rather the ability relax their antagonist muscles at a high-velocity. Consider level four to represent an average NBA athlete, highly skilled in his sport, while level five represents a Michael Jordan-caliber athlete. In the five level system, the major difference between these athletes is the ability to relax the antagonist muscles during a rapid movement. This ability to contract and then relax muscles at the highest speeds represents the skill of rapid change of direction in the muscle required in all dynamic movements.

The OC training method is implemented with these specific adaptation goals throughout each of the training blocks shown in Figure 3.15 and 3.16, as well as in-season for RFD maintenance. It should be noted OC methods are also implemented in the glycolytic training block. However, the goal adaptation

in this phase is the accumulation of metabolites rather than the improvements described in this section.

Through the individual training of these three phases the athlete will have the ability to absorb, transfer, and produce higher levels of force throughout his entire body. This training enhances the kinetic chain to ensure there is no “weak link” and allows force to be transferred throughout the entire SSC, or “rubber-band,” of the athlete’s body, ultimately allowing maximal force production while also completing movements with the highest efficiencies possible.

3.6 Application Within the Triphasic Lacrosse Training Model

The 3- and 5-Day training programs shown below in Figures 3.15 and 3.16, respectively, represent the application of each of the training models presented above in the Triphasic Lacrosse Training Model. The Block Training Model is applied through the accumulation, transmutation, and realization training phases, which all lead to specific adaptations within the six physical performance qualities, ultimately leading to the maximization of RFD. The Modified Undulated Training Model is utilized as intensity and volume are specifically programmed within each day according to their layouts described above. The High-Quality Training Model is implemented through the timing of sets. This method allows the highest quality to be maintained, as this is a primary goal of these high-intensity training phases. Finally, the implementation of muscle action specific training is utilized in the strength training blocks. By training all athletes to absorb and re-direct high levels of force their injury likelihoods are decreased while their performances are drastically improved. Clearly each of these four training models play a critical role in the improvement of the physical capabilities of a lacrosse player. When even one of these is not implemented in training, optimal performance will never truly be achieved by an athlete.

TRIPHASIC LACROSSE TRAINING MODEL

3-DAY TRAINING MODEL

ACCUMULATION	ECCENTRIC TRAINING BLOCK		
	DAY 1 - TOTAL	DAY 2 - TOTAL	DAY 3 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	ECCENTRIC TRAINING	REACTIVE/OC TRAINING	ECCENTRIC TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	82.5-87.5%	85-90%	80-85%
	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	5 SECONDS	10 SECONDS
	ISOMETRIC TRAINING BLOCK		
	DAY 1 - TOTAL	DAY 2 - TOTAL	DAY 3 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	ISOMETRIC TRAINING	REACTIVE/OC TRAINING	ISOMETRIC TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	82.5-87.5%	85-90%	80-85%
	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	5 SECONDS	10 SECONDS
	REACTIVE TRAINING BLOCK		
	DAY 1 - TOTAL	DAY 2 - TOTAL	DAY 3 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	REACTIVE TRAINING	REACTIVE/OC TRAINING	REACTIVE TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	82.5-87.5%	85-90%	80-85%
	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	5 SECONDS	10 SECONDS
TRANSMUTATION	REPEAT-POWER TRAINING BLOCK		
	DAY 1 - TOTAL	DAY 2 - TOTAL	DAY 3 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	REACTIVE/AFSM TRAINING	REACTIVE/OC TRAINING	REACTIVE/AFSM TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	65-70%	75-80%	55-60%
	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	5 SECONDS	10 SECONDS
REALIZATION	SPEED TRAINING BLOCK		
	DAY 1 - TOTAL	DAY 2 - TOTAL	DAY 3 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	REACTIVE/AFSM TRAINING	REACTIVE/OC TRAINING	REACTIVE/AFSM TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	35-40%	45-55%	25-30%
	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	5 SECONDS	10 SECONDS

Figure 3.15 - The 3-Day Training Model Implemented in the Triphasic Lacrosse Training Model

TRIPHASIC LACROSSE TRAINING MODEL

5-DAY TRAINING MODEL

ACCUMULATION	**ECCENTRIC TRAINING BLOCK**				
	DAY 1 - LOWER	DAY 2 - UPPER	DAY 3 - LOWER	DAY 4 - UPPER	DAY 5 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	ECCENTRIC TRAINING	ECCENTRIC TRAINING	REACTIVE/OC TRAINING	REACTIVE/OC TRAINING	ECCENTRIC TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	82.5-87.5%	82.5-87.5%	85-90%	85-90%	80-85%
	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	7 SECONDS	5 SECONDS	5 SECONDS	10 SECONDS
	ISOMETRIC TRAINING BLOCK				
	DAY 1 - LOWER	DAY 2 - UPPER	DAY 3 - LOWER	DAY 4 - UPPER	DAY 5 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	ISOMETRIC TRAINING	ISOMETRIC TRAINING	REACTIVE/OC TRAINING	REACTIVE/OC TRAINING	ISOMETRIC TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	82.5-87.5%	82.5-87.5%	85-90%	85-90%	80-85%
	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	7 SECONDS	5 SECONDS	5 SECONDS	10 SECONDS
	REACTIVE TRAINING BLOCK				
	DAY 1 - LOWER	DAY 2 - UPPER	DAY 3 - LOWER	DAY 4 - UPPER	DAY 5 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	REACTIVE TRAINING	REACTIVE TRAINING	REACTIVE/OC TRAINING	REACTIVE/OC TRAINING	REACTIVE TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	82.5-87.5%	82.5-87.5%	85-90%	85-90%	80-85%
	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	7 SECONDS	5 SECONDS	5 SECONDS	10 SECONDS
TRANSMUTATION	**REPEAT-POWER TRAINING BLOCK**				
	DAY 1 - LOWER	DAY 2 - UPPER	DAY 3 - LOWER	DAY 4 - UPPER	DAY 5 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	REACTIVE/AFSM TRAINING	REACTIVE/AFSM TRAINING	REACTIVE/OC TRAINING	REACTIVE/OC TRAINING	REACTIVE/AFSM TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	65-70%	65-70%	75-80%	75-80%	55-60%
	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	7 SECONDS	5 SECONDS	5 SECONDS	10 SECONDS
REALIZATION	**SPEED TRAINING BLOCK**				
	DAY 1 - LOWER	DAY 2 - UPPER	DAY 3 - LOWER	DAY 4 - UPPER	DAY 5 - TOTAL
	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED	MUSCLE ACTION COMPLETED
	REACTIVE/AFSM TRAINING	REACTIVE/AFSM TRAINING	REACTIVE/OC TRAINING	REACTIVE/OC TRAINING	REACTIVE/AFSM TRAINING
	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED	PERCENTAGE IMPLEMENTED
	35-40%	35-40%	45-55%	45-55%	25-30%
	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS	TIME OF SETS
	7 SECONDS	7 SECONDS	5 SECONDS	5 SECONDS	10 SECONDS

Figure 3.16 - The 3-Day Training Model Implemented in the Triphasic Lacrosse Training Model

3.7 Adaptations Realized Due to the Triphasic Lacrosse Training Model

When each of the four training models described above are implemented into a system, such as the Triphasic Lacrosse Training Model, the adaptations and results speak for themselves. Below is a vertical jump completed on a force plate for a single athlete as he progresses through the training model presented in this manual. In Figures 3.17-3.19 below the phases of training and the adaptations they create become clearly visible. Each of these adaptations will be described throughout the remainder of this section.

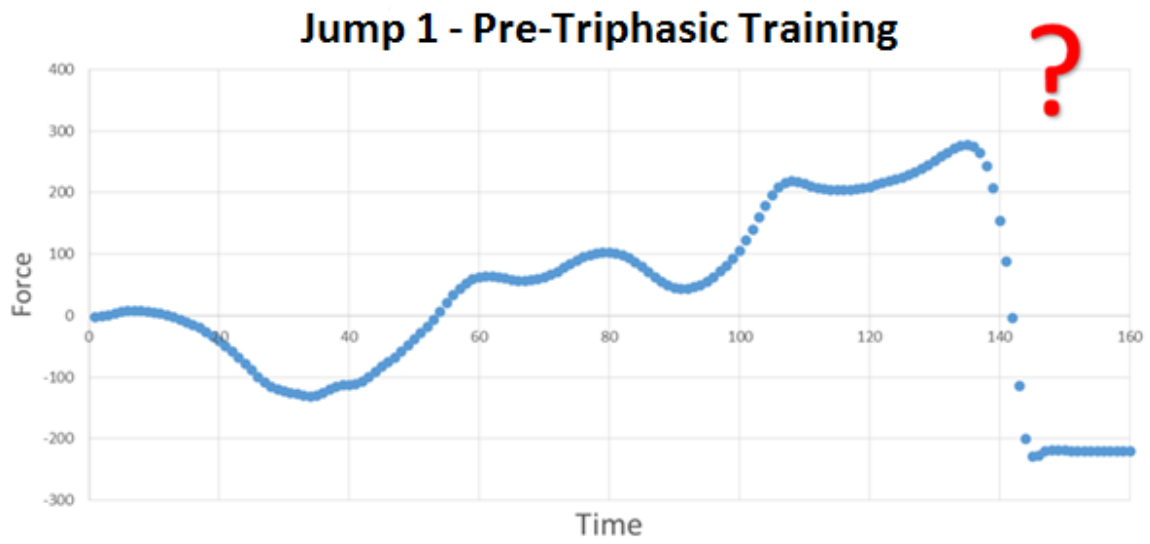

Figure 3.17 - Pre-Triphasic Training

Figure 3.17 above depicts the athlete's RFD pre-training. Based on the amount of force produced, as well as the time it takes for the athlete to produce it, this athlete would be considered extremely weak and slow. The "?" represents the fact that this athlete never produces 300 lbs. of force during a single impulse. Any explosive athlete will generate much higher levels of force than this. Ultimately, this athlete requires training in multiple physical performance qualities.

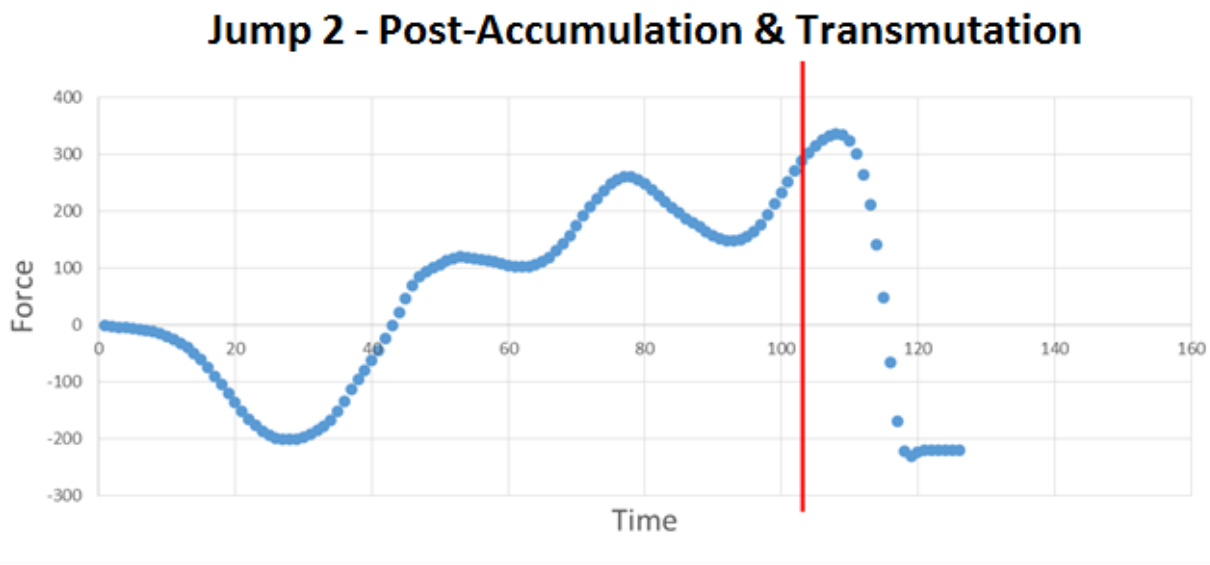

Figure 3.18 - Post-Accumulation and Transmutation Training (12 Total Weeks, 9 High-Intensity & 3 Downloads)

Figure 3.18 above demonstrates an athlete that has completed the accumulation and transmutation phases of training, meaning the muscle action phases described above, along with the Repeat-Power Training Block have been implemented for this athlete. There are noticeable differences in this athlete now compared to just twelve weeks before (Figure 3.17). First of all, this athlete now achieves the 300 lbs. of force through a single impulse while jumping. This is a critical adaptation, as strength lays the foundation for all other force-producing physical performance qualities. Secondly, and more commonly missed, there is a significant adaptation to the athlete's jump in the early stages. This early phase represents the eccentric and isometric phases of the athlete jumping, as he must lower himself prior to completing the jump. The athlete now reaches the -200 lbs. of force in a single impulse during the jump in Figure 3.18. In his first jump, Figure 3.17, he only reaches about -120 lbs. of force. This decrease in force represents an active "pulling" of the jumping athlete. This athlete has learned to utilize his SSC to a higher extent and can now absorb and then re-apply much higher levels of force. He has created the "V" of an elite athlete, one who can absorb, transfer, and re-apply the highest levels of force. This skill not only improves power production but also movement efficiency. Although these adaptations are excellent and exactly what every athlete's goal should be for these phases, there is one issue. This athlete still takes about 1.05 seconds to achieve his 300 lbs. of force threshold. Ultimately, this athlete would be considered strong but slow. He has made considerable improvements to his force production, but he must continue to improve his early phase of RFD to maximize performance on the lacrosse field.

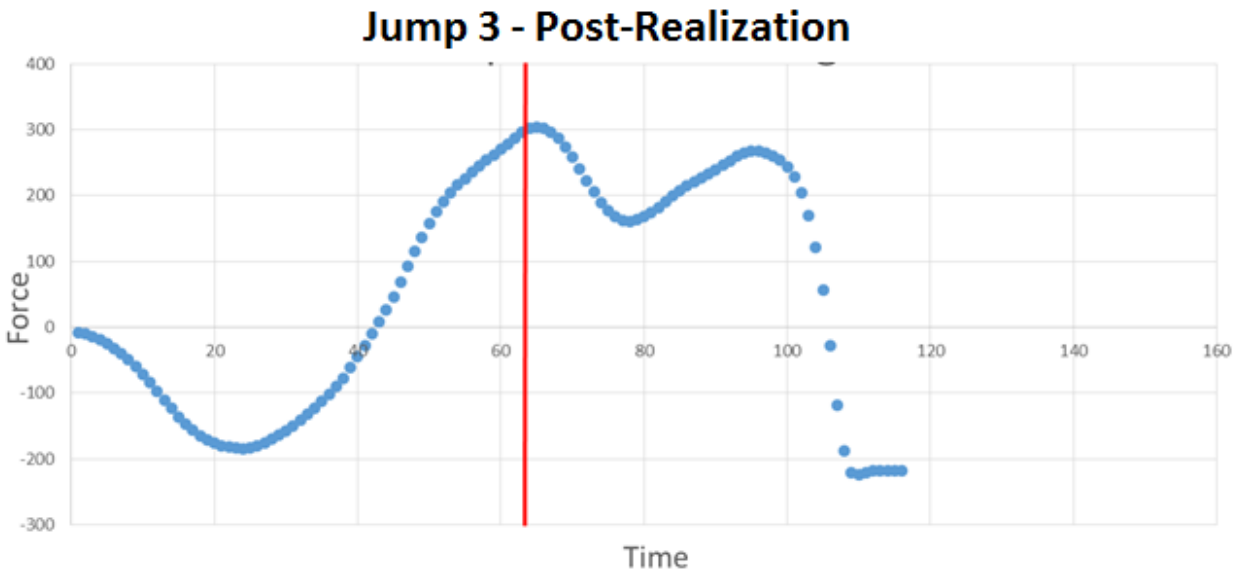

Figure 3.19 - Post-Realization Training (3 Total Weeks, 3 High-Velocity & 1 Download)

Finally, Figure 3.19 above represents the adaptations experienced in the realization training phase, or the speed training block. This jump was executed a mere four weeks after jump two shown in Figure 3.18. By training with high velocities and low loads, this athlete has increased his neural drive, which is critical for the early phase of RFD. The jumping athlete still produces high levels of force, as 300 lbs. of force is achieved in a single impulse; however, this athlete is now producing that force level in 0.65 seconds. Just four weeks before this test that feat required 1.05 seconds, almost double the amount of time. The athlete that has progressed through each of the phases of the Triphasic Lacrosse Training Model is now not only strong but also fast. Optimal athletic performance on the lacrosse field is now possible with the addition of appropriate on-field skills due to his physical preparation.

SECTION 4

THE TRAINING & IMPLEMENTATION OF THE ELITE TRIPHASIC LACROSSE TRAINING MODEL

4.1 The Triphasic Lacrosse Training Model in Action

Throughout this section every training program implemented with the Triphasic Lacrosse Training Model will be demonstrated in its entirety. Once again, this program has been developed for elite lacrosse athletes at the collegiate and professional level. However, the concepts demonstrated throughout this manual can be implemented at any training age. There are specific regressions possible that make this program valuable for lacrosse players at all ages and skill levels which have demonstrated extreme success. If you wish to request consultation for these programs for younger training age lacrosse players, please contact triphasiclacrosse@gmail.com with any questions.

4.2 Triphasic Lacrosse Training Model Annual Plan

Figure 4.1 below represents the annual plan design for the Elite Triphasic Lacrosse Training Model. This annual plan displays the calendar and week number. It is this week number that is utilized throughout this section as different blocks are demonstrated. Use these week numbers provided to follow the progression throughout the year as the exact order shown in Figure 4.1 is followed in this section. The school calendar is also given, remembering academic stress must also be considered, this schedule is critical for optimal performance. Other stressors, such as off-season, practice, in-season, and tournament time are all shown, which allows training stress to be applied appropriately throughout the annual cycle. The six physical performance qualities and their implementation within the annual plan are also demonstrated according to their color utilized throughout this manual. This allows a visual representation of when each of the six physical performance qualities are being stressed in training. This is built from the Block Training Model and the consideration of the residual training effects of each quality. The name of each phase is also given according to its label throughout this section to allow easy following of the progressions implemented in this systematic training program. The number of training days for each week are given, along with practice days per week. This is one of the most variable parameters within the Triphasic Lacrosse Training Model and coaches can easily make changes here. However, as this is programmed for an elite-level lacrosse athlete, high-levels of stress must be applied. Finally, a graph of the volume, intensity, and “peaking” of the athlete completing this program is demonstrated. In this graph it must be understood “intensity” does not necessarily equate to load. Load is just one of the many factors intensity is dependent upon. Through the progression of muscle action training, power training and high-velocity training, the intensity experienced by the athlete’s CNS is increased dramatically, even though the load implemented is decreased. The “intensity” demonstrated in this graph represents a summation of each of these factors. It is also important to note this graph considers both total volume and intensity, from both training and practice. A performance coach is ultimately a “stress manager” and must understand all aspects of stress an athlete experiences, just as academia was considered. As the season begins and continues, coaches must consider the volume and intensity implemented from each of these factors. For this reason, the training days are lowered while the peaking of an athlete continues to increase, as his physical skills continue to be developed in the most specific manner, on the lacrosse field.

Each of the blocks shown in Figure 4.1 will be shown throughout the remainder of this section. Through the understanding of the previous three sections of this manual, each of the concepts demonstrated should be visible in their implementation throughout the systematic Triphasic Lacrosse Training Model.

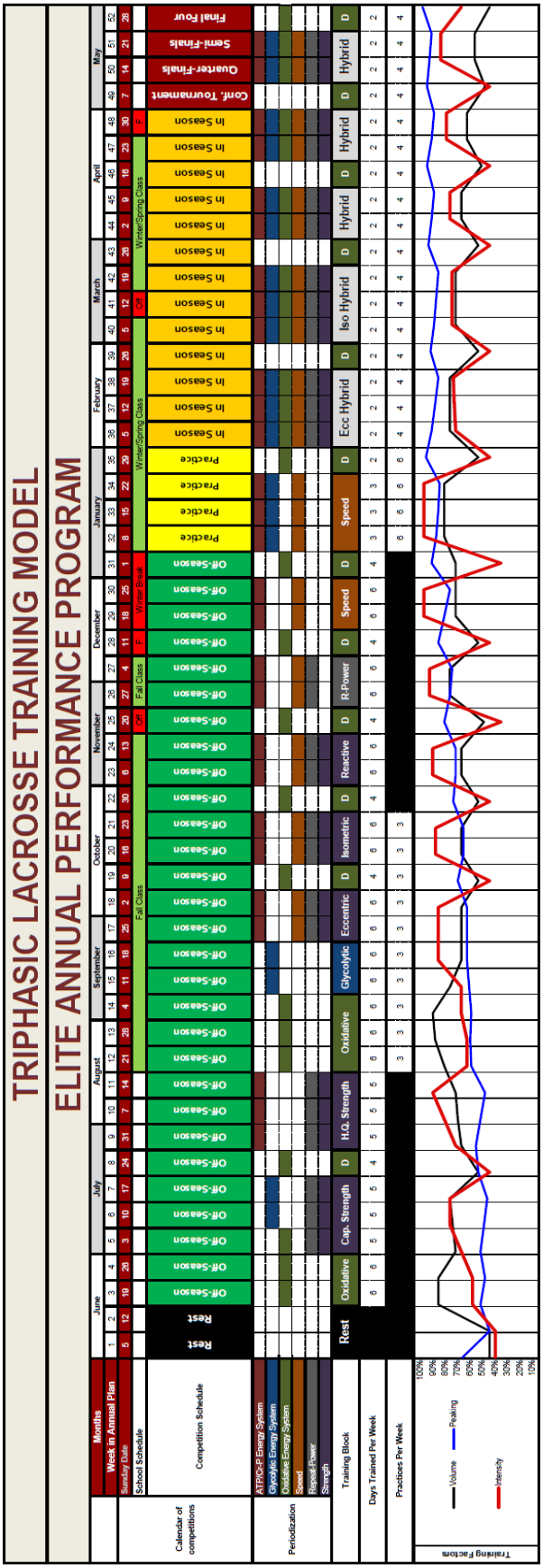

Figure 4.1 - The Annual Plan of the Triphasic Lacrosse Training Model

4.3 Multi-Dimensional Warm-Up

The multi-dimensional warm-up is provided below for both training and running days in the following pages. This warm-up demonstrates a specific Reflexive Performance Reset to lacrosse, a general dynamic, multi-dimensional, and neural preparation sequence. This is simply an example of the utilization of these systems within daily training. The movements provided here can be changed to fit every program's individual needs. However, as covered in section one, the implementation of multi-dimensional movements allows tissues and joints to experience greater lengths, relative ranges of motion that may not be achieved in other warm-up protocols.

Triphasic Lacrosse Training Manual

Pre-Training, Multi-Dimensional Warm-Up

Block 1 — RPR Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	PNF Hip Diagonols	1	x	5 EA		Toe-Out to Toe-In, & Toe-In to Toe-Out
B	Bottom Edge of Ribs	1	x	10s		Diaphragm-Inverted "Y"
C	Lower Belly	1	x	10s		Psoas-Between Navel and Hip Pointer
D	Behind Ear	1	x	10s		Glute 1-Push Jaw Forward
E	Base of Skull	1	x	10s		Glute 2-All Edges
F	Edge of Sacrum	1	x	10s		Hamstring
G	Top of Hip Bone	1	x	10s		Quad-Same Side Thumb
H	Inner Hip	1	x	10s		Lateral Sling-Finger Hook
I	Lower Ribs	1	x	10s		Lat-Work Back to Front
J	Inner Thigh	1	x	10s		Core-Vigorous Rub
K	Collar Bone	1	x	10s		Neck-One inch below
L	Shoulder/Armpit	1	x	10s		Supraspinatus-Between Pec and Delt

Perform A-L as an Activation Warm-Up Series

Block 2 — General Dynamic Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Jog w/ Arm Circles	1	x	10Y		
B	Shuffle w/ Arm Circles	1	x	10Y EA		
C	Carioca	1	x	10Y EA		
D	Skipping for Height	1	x	10Y		

Perform A-D as a General Dynamic Warm-Up Series

Block 3 — Multi-Dimensional Movement Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Spiderman-Reach-Hamstring	1	x	5 EA		Eyes Follow Reach
B	Kneel. 3-Way Hip Flex + OH Reach	1	x	5 EA		Max Hip ROM
C	Standing T-Up Rotation	1	x	5 EA		Max Hip ROM, Knee Locked Out
D	Staggered Stance Squat	1	x	5 EA		Toes Straight Ahead, Drive Back Knee
E	Staggered Stance 3-Way RDL	1	x	3 EA		3-FWD, 3-RT, 3-LT, EA Leg
F	Lateral to Cross-Under Lunge	1	x	5 EA		Keep Feet Flat, Hips Square
G	45° Glute Hydrant	1	x	30s EA	Green/Blue	Glutes in all three planes

Perform A-G as a Multi-Dimensional Movement Warm-Up Series

Block 4 — Neural Prep. Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Tuck Jump	1	x	5		Max Height

Perform A as a Neural Prep. Warm-Up Series Prior to Training

Triphasic Lacrosse Training Manual

Pre-Running, Multi-Dimensional Warm-Up

Block 1 — RPR Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	PNF Hip Diagonols	1	x	5 EA		Toe-Out to Toe-In, & Toe-In to Toe-Out
B	Bottom Edge of Ribs	1	x	10s		Diaphragm-Inverted "Y"
C	Lower Belly	1	x	10s		Psoas-Between Navel and Hip Pointer
D	Behind Ear	1	x	10s		Glute 1-Push Jaw Forward
E	Base of Skull	1	x	10s		Glute 2-All Edges
F	Edge of Sacrum	1	x	10s		Hamstring
G	Top of Hip Bone	1	x	10s		Quad-Same Side Thumb
H	Inner Hip	1	x	10s		Lateral Sling-Finger Hook
I	Lower Ribs	1	x	10s		Lat-Work Back to Front
J	Inner Thigh	1	x	10s		Core-Vigorous Rub
K	Collar Bone	1	x	10s		Neck-One inch below
L	Shoulder/Armpit	1	x	10s		Supraspinatus-Between Pec and Delt

Perform A-L as an Activation Warm-Up Series

Block 2 — General Dynamic Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Jog w/ Arm Circles	1	x	10Y		
B	Shuffle w/ Arm Circles	1	x	10Y EA		
C	Carioca	1	x	10Y EA		
D	Skipping for Height	1	x	10Y		

Perform A-D as a General Dynamic Warm-Up Series

Block 3 — Movement Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Inchworm	1	x	10y		Eyes Follow Reach
B	Spiderman	1	x	5 EA		Max Hip ROM
C	Lunge to High Knee Pull Across	1	x	5 EA		Max Hip ROM, Knee Locked Out
D	Rev. Lunge to High Knee Pull Open	1	x	5 EA		Toes Straight Ahead, Drive Back Knee
E	Ankle Tug	1	x	3 EA		3-FWD, 3-RT, 3-LT, EA Leg
F	Quad Ham	1	x	5 EA		Keep Feet Flat, Hips Square

Perform A-F as a Movement Warm-Up Series

Block 4 — Multi-Dimensional Movement Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Spiderman-Reach-Hamstring	1	x	5 EA		Eyes Follow Reach
B	Kneel. 3-Way Hip Flex + OH Reach	1	x	5 EA		Max Hip ROM
C	Standing T-Up Rotation	1	x	5 EA		Max Hip ROM, Knee Locked Out
D	Staggered Stance Squat	1	x	5 EA		Toes Straight Ahead, Drive Back Knee
E	Staggered Stance 3-Way RDL	1	x	3 EA		3-FWD, 3-RT, 3-LT, EA Leg
F	Lateral to Cross-Under Lunge	1	x	5 EA		Keep Feet Flat, Hips Square
G	45° Glute Hydrant	1	x	30s EA	Green/Blue	Glutes in all three planes

Perform A-G as a Multi-Dimensional Movement Warm-Up Series

Block 5 — Neural Prep. Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Skip and Scoop	1	x	10Y		Maintain Body Position
B	Rev. Skip and Scoop	1	x	10Y		Maintain Body Position
C	High Knee Heel Up	1	x	10Y		Drive Knee Up, Heel to Glute
D	Straight Leg Pull Thru	1	x	10Y		Pull Directly Under Hip
E	Build Up Sprint-Stride 20	1	x	30Y	50%	10 Yard Build Up, 20 Yard Stride
F	Backwards Run	1	x	30Y		Reverse Cycle Motion
G	Build Up Sprint-Stride 20	1	x	30Y	75%	10 Yard Build Up, 20 Yard Stride
H	Backwards Run	1	x	30Y		Reverse Cycle Motion

Perform A-H as a Neural Prep. Warm-Up Series Prior to Training

4.4 Glute Isometric Training Protocols

The glute isometric protocols, which are implemented throughout the glute layering system provided in section one are shown in the following pages. Each of the first three levels increases in intensity as the duration of isometric training is increased. Level four trains the glute isometrically in a shortened state, while level five implements training with the glute in a lengthened state. By training the mid-range, shortened, and lengthened glute positions, the neural drive to these primary movers is enhanced to the fullest extent. Each of these levels are shown in the order of their utilization. Each of these are available in their hyperlinked version at vandykestrength.com/pages/blog.

Triphasic Lacrosse Training Manual

Glute Activation

Block 1 — **Level 1 Progression**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DL DA Band Iso with Focal Point	1	x	2m	Green/Blue	
B	Band Clamshell	1	x	1m EA	Green/Blue	
C	Forward Cross-Crawl	1	x	1m EA	Green/Blue	
D	Straight Leg BW Raise	1	x	1m EA	Green/Blue	
E	Cross-Under Lunge	1	x	1m EA	Green/Blue	
F	Fire Hydrant @ 45^{0} BW	1	x	1:30 EA	Green/Blue	
G	Crss-Under Lunge Crawl	1	x	1m EA	Green/Blue	
H	DL DA Band Iso with Focal Point	1	x	Max	Green/Blue	
Perform A-H as the Level 1 Glute Activation Series						

Triphasic Lacrosse Training Manual

Glute Activation

Block 1 **Level 2 Progression**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DL DA Band Iso with Focal Point	1	x	2m	Green/Blue	
B	Fire Hydrant @ 45^{0} BW	1	x	1:30 EA	Green/Blue	
C	Quadruped Straight Leg SL Glute Iso	1	x	1m EA	Green/Blue	
D	Straight Leg BW Raise	1	x	1m EA	Green/Blue	
E	Cross-Under Lunge	1	x	30s EA	Green/Blue	
F	SL Hip Bridge	1	x	1m EA	Green/Blue	
G	SL Glute Wind-Up Iso	1	x	1m EA	Green/Blue	
H	Band Clamshell	1	x	1m EA	Green/Blue	
I	Forward Cross-Crawl	1	x	30s EA	Green/Blue	
J	Fire Hydrant @ 45^{0} BW	1	x	1m EA	Green/Blue	
K	DL DA Band Iso with Focal Point	1	x	Max	Green/Blue	
Perform A-K as the Level 2 Glute Activation Series						

Triphasic Lacrosse Training Manual

Glute Activation

Block 1 **Level 3 Progression**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Fire Hydrant @ 45^{0} BW	1	x	2m EA	Green/Blue	
B	SL Hip Bridge	1	x	1:30 EA	Green/Blue	
C	Band Clamshell	1	x	2m EA	Green/Blue	
D	Quadruped Straight Leg SL Glute Iso	1	x	2m EA	Green/Blue	
E	SL Glute Wind-Up Iso	1	x	1:30 EA	Green/Blue	
F	Straight Leg BW Raise	1	x	2m EA	Green/Blue	
G	Fire Hydrant @ 45^{0} BW	1	x	2m EA	Green/Blue	
Perform A-G as the Level 3 Glute Activation Series						

Triphasic Lacrosse Training Manual

Glute Activation

Block 1 **Level 4 Progression**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	1/2 Kneeling Lunge Abduction	1	x	1m EA	Green/Blue	
B	Fire Hydrant @ 45^{0} BW	1	x	1m EA	Green/Blue	
C	Forward Cross-Crawl	1	x	30s EA	Green/Blue	
D	Standing Band + Ext. Rotation	1	x	1m EA	Green/Blue	
E	Band Clamshell	1	x	1m EA	Green/Blue	
F	Cross-Under Lunge	1	x	30s EA	Green/Blue	
G	Quadruped Kick Back + Ext. Rotation	1	x	1m EA	Green/Blue	
H	Side Plank Abduction	1	x	1m EA	Green/Blue	
Perform A-H as the Level 4 Glute Activation Series						

Triphasic Lacrosse Training Manual

Glute Activation

Block 1 — **Level 5 Progression**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Glute Wind-Up Iso	1	x	1m EA	Green/Blue	
B	90/90 Glute Bridge	1	x	1m EA	Green/Blue	
C	Forward Cross-Crawl	1	x	30s EA	Green/Blue	
D	Cross-Under Lunge Iso	1	x	1m EA	Green/Blue	
E	SL Step Down Iso	1	x	1m EA	Green/Blue	
F	Cross-Under Lunge	1	x	30s EA	Green/Blue	
G	SL Skater Squat Iso	1	x	1m EA	Green/Blue	
H	Lateral Lunge + Int. Rotation	1	x	1m EA	Green/Blue	

Perform A-H as the Level 5 Glute Activation Series

4.5 3-D Contralateral Training & Metabolic Sandbell Circuit

The 3-D contralateral and metabolic sandbell circuits implemented throughout the oxidative training blocks and download weeks are demonstrated in the pages to follow, respectively. These are again available in their hyperlinked version at vandykestrength.com/pages/blog.

Triphasic Lacrosse Training Manual

Aerobic Block Contralateral 3-D Circuit

Block 1 — **3-D Training Circuit**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	L Step Up to R Band Row	1	x	25-35s		
B	R Step Up to L Band Row	1	x	25-35s		
C	L Split Squat to R DB OH Press	1	x	25-35s		
D	R Split Squat to L DB OH Press	1	x	25-35s		
E	L Piston Squat to R Band Row	1	x	25-35s		
F	RDL to Viper OH Rot. Press	1	x	25-35s		
G	L Lateral Lunge to R Band Row	1	x	25-35s		
H	R Lateral Lunge to L Band Row	1	x	25-35s		
I	L SL RDL to Viper Press	1	x	25-35s		
J	R SL RDL to Viper Press	1	x	25-35s		
K	L Cross-Under Lunge with L Band Row	1	x	25-35s		
L	R Cross-Under Lunge with R Band Row	1	x	25-35s		
M	L Step Up to R DB OH Press	1	x	25-35s		
N	R Step Up to L DB OH Press	1	x	25-35s		
O	L Rot. Lunge with R Band Press	1	x	25-35s		
P	RDL to Band Row	1	x	25-35s		
Q	L FWD Lunge with Viper Rot. Press	1	x	25-35s		
R	R FWD Lunge with Viper Rot. Press	1	x	25-35s		
S	RDL to L Band Rotational Row	1	x	25-35s		
T	RDL to R Band Rotational Row	1	x	25-35s		
U	L Piston Squat to Viper Press	1	x	25-35s		
V	R Piston Squat to Viper Press	1	x	25-35s		
W	L Lateral Lunge to R DB OH Press	1	x	25-35s		
X	R Lateral Lunge to L DB OH Press	1	x	25-35s		
Y	L SL Deadlift to R DB Row	1	x	25-35s		
Z	R SL Deadlift to L DB Row	1	x	25-35s		
AA	RDL to Band Face Pull	1	x	25-35s		
AB	L Split Squat with R Band Row	1	x	25-35s		
AC	R Split Squat to L Band Row	1	x	25-35s		
AD	L SL Deadlift to R Plate Press	1	x	25-35s		
AE	R SL Deadlift to L Plate Press	1	x	25-35s		
AF	RDL to Viper OH Press	1	x	25-35s		
AG	L Rev. Lunge to R Band Row	1	x	25-35s		
AH	R Rev. Lunge to L Band Row	1	x	25-35s		
AI	Staggered RDL to L Band Press	1	x	25-35s		
AJ	Staggered RDL to R Band Press	1	x	25-35s		

Perform A-AJ as the 3-D Aerobic Contralateral Training Circuit

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Metabolic Sandbell Circuit

Block 1 — **Metabolic Sandbell Circuit**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Deadlift	1	x	25-35s	6-10 lbs	
B	Squat to OH Press	1	x	25-35s	6-10 lbs	
C	Lateral Lunge - Left	1	x	25-35s	6-10 lbs	
D	Lateral Lunge - Right	1	x	25-35s	6-10 lbs	
E	SL RDL to Hip Flexion - Left	1	x	25-35s	6-10 lbs	
F	SL RDL to Hip Flexion - Right	1	x	25-35s	6-10 lbs	
G	Front Plank with FWD Reach - Left	1	x	25-35s	6-10 lbs	
H	Front Plank with FWD Reach - Right	1	x	25-35s	6-10 lbs	
I	SL Skater Squat - Left	1	x	25-35s	6-10 lbs	
J	SL Skater Squat - Right	1	x	25-35s	6-10 lbs	
K	External Feet Deadlift	1	x	25-35s	6-10 lbs	
L	Rotational Lunge - Left	1	x	25-35s	6-10 lbs	
M	Rotational Lunge - Right	1	x	25-35s	6-10 lbs	
N	Deadlift to Rotational Press - Left Press	1	x	25-35s	6-10 lbs	
O	Deadlift to Rotational Press - Right Press	1	x	25-35s	6-10 lbs	
P	RDL with FWD Reach	1	x	25-35s	6-10 lbs	
Q	Side Plank with Stability Press - Left	1	x	25-35s	6-10 lbs	
R	Side Plank with Stability Press - Right	1	x	25-35s	6-10 lbs	
S	Cross-Under Lunge - Left	1	x	25-35s	6-10 lbs	
T	Cross-Under Lunge - Right	1	x	25-35s	6-10 lbs	
U	Split Squat to OH Press - Left	1	x	25-35s	6-10 lbs	
V	Split Squat to OH Press - Right	1	x	25-35s	6-10 lbs	
W	Ankling to SA Punch - Left	1	x	25-35s	6-10 lbs	
X	Ankling to SA Punch - Right	1	x	25-35s	6-10 lbs	
Y	OH Squat	1	x	25-35s	6-10 lbs	
Z	Glute Wind-Up - Left	1	x	25-35s	6-10 lbs	
AA	Glute Wind-Up - Right	1	x	25-35s	6-10 lbs	
AB	Front Plank "Around the World" - Left	1	x	25-35s	6-10 lbs	
AC	Front Plank "Around the World" - Right	1	x	25-35s	6-10 lbs	
AD	SL RDL Position SA Y - Left	1	x	25-35s	6-10 lbs	
AE	SL RDL Position SA Y - Right	1	x	25-35s	6-10 lbs	
AF	FWD Lunge with Rotational Press - Left	1	x	25-35s	6-10 lbs	
AG	FWD Lunge with Rotational Press - Right	1	x	25-35s	6-10 lbs	
AH	SL Ankling with Punch - Left	1	x	25-35s	6-10 lbs	
AI	SL Ankling with Punch - Right	1	x	25-35s	6-10 lbs	
AJ	OH Reverse Lunge - Left	1	x	25-35s	6-10 lbs	
AK	OH Reverse Lunge - Right	1	x	25-35s	6-10 lbs	

Perform A-AK as the Metabolic Sandbell Circuit

4.6 The Implementation of the Triphasic Lacrosse Training Model

The remainder of this section demonstrates every program implemented throughout the Triphasic Lacrosse Training Model. These programs demonstrate each of the concepts described throughout the entirety of this manual. Every new heading represents a new training block being utilized. A brief overview of each block is given, along with the goal adaptations of each of these training blocks. Every performance coach should now understand each of the concepts implemented in this training manual. Now these concepts are shown in their application within the Triphasic Lacrosse Training Model.

4.7 Rest (Weeks 1-2)

Two weeks of rest are allotted for athletes immediately following post-season. This allows an athlete to recover both physically and mentally from the taxing season. This time period is critical for every athlete as the season is extremely fatiguing.

Goal Adaptations of Block:

- Rest and Recover, both physically and mentally

4.8 Oxidative Training Block (Weeks 3-4)

Two weeks of oxidative training are completed as the first block of the Triphasic Lacrosse Training Model. It is this physical performance quality that lays the foundation for all other qualities and skills to be built upon. For this reason, the specific training of this energy system must be improved prior to any other quality required in the sport of lacrosse. Training and running days are all completed in an oxidative fashion. This training in this block includes the glute layering system, described in section one, and other circuit style methods.

Goal Adaptations of Block:

- Learn how to, and then utilize glutes as primary drivers of movement
- Increase oxygen availability
- Enhance blood flow and efficiency
- Increase mitochondrial density
- Increase oxidative enzymes
- Improve clearance of metabolites
- Ultimately improve the athlete's "drain"

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 3 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

Block 3	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Injury Prevention Running	2	x	5m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 2 Sets of 5 min; 1:30 rest between rounds						

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 3 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2 — Oxidative Energy System Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Wall Sit	1	x	5m		5 minute Isometric
B	DB Bench	1	x	5m	25-30%	5 minute Isometric
C	Supine Glute Ham Back	1	x	5m	25-30%	5 minute Isometric
D	Left Leg Lunge	1	x	5m		5 minute Isometric
E	DB Prone Row	1	x	5m	25-30%	5 minute Isometric
F	Right Leg Lunge	1	x	5m		5 minute Isometric
Perform A-F for 5 minutes Each; 3:00 Rest Between Exercises						

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Oxidative 6-Day Elite Training Block Week 3 - Wednesday

Pre — **Pre-Running, Multi-Dimensional Warm-Up**

Block 1 — **Glute Function Series Warm-Up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — **Oxidative Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	4	x	4m		Running at Max Heart Rate

Perform A for 4 Sets of 4 min; 2:30 rest between rounds

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 3 - Thursday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						
Block 3	**Oxidative Energy System Conditioning**					
A	Metabolic Injury Prevention Running	2	x	6m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 2 Sets of 6 min; 1:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 3 - Friday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Oxidative 6-Day Elite Training Block Week 3 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Oxidative Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Cardiac Output	1	x	35m		Heart Rate Between 135-155

Perform A for 1 Set for 35m; Can Be Completed Through Running, Biking, or an Elliptical

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Oxidative 6-Day Elite Training Block Week 4 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	30s		Complete As Many Reps As Possible
Perform A for 1 Set @ 30s on 10s off						

Block 3	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Injury Prevention Running	3	x	5m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 3 Sets of 5 min; 1:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 4 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Sit	1	x	5m		5 minute Isometric
B	DB Bench	1	x	5m	25-30%	5 minute Isometric
C	Supine Glute Ham Back	1	x	5m	25-30%	5 minute Isometric
D	Left Leg Lunge	1	x	5m		5 minute Isometric
E	DB Prone Row	1	x	5m	25-30%	5 minute Isometric
F	Right Leg Lunge	1	x	5m		5 minute Isometric
Perform A-F for 5 minutes Each; 2:30 Rest Between Exercises						

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Oxidative 6-Day Elite Training Block Week 4 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Oxidative Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	4	x	6m		Running at Max Heart Rate

Perform A for 4 Sets of 6 min; 2:30 rest between rounds

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Oxidative 6-Day Elite Training Block Week 4 - Thursday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	30s		Complete As Many Reps As Possible
Perform A for 1 Set @ 30s on 10s off						
Block 3	**Oxidative Energy System Conditioning**					
A	Metabolic Injury Prevention Running	3	x	6m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 3 Sets of 6 min; 1:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 4 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	30s		Complete As Many Reps As Possible
Perform A for 1 Set @ 30s on 10s off						

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Oxidative 6-Day Elite Training Block Week 4 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	45m		Heart Rate Between 135-155
Perform A for 1 Set for 45m; Can Be Completed Through Running, Biking, or an Elliptical						

4.9 Capacity Strength Training Block (Weeks 5-7)

Once an oxidative foundation is built, strength becomes the training goal for the next two weeks. The strength quality lays the foundation for all force producing capabilities. By training this physical performance quality in a capacity fashion, an athlete continues to build a strong foundation. The generalized strength and force producing capabilities improved in this block play a key role in athletic advancement throughout the off-season. Training days are completed to improve the strength of an athlete while running days are implemented to improve the glycolytic energy system. Due to the capacity nature of training in this block, these skills can be trained simultaneously. However, if quality training is completed this would not be possible.

Goal Adaptations of Block:

- Increase general force production capabilities
- Improve tolerance of metabolites
- Ultimately improve an athlete's "sink" size

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Cap. Strength 5-Day Elite Training Block Week 5 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	15	x	3	65%	
B	Ankle Wipers	7	x	10 EA		Max ROM, No Knee Mvmt
C	Kneel. 3-Way Hip Flex	7	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-C Simultaneously for 15 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	10	x	3 EA	55%	3 Sec Ecc, Max Speed
B	Glute Wind-Up	5	x	4 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	4	x	8 EA	65%	
B	Bench Glute	4	x	10 EA		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SE Glute Bar Lift	3	x	8	65%	
B	Hip Flex Prone	3	x	10 EA		
C	Nordic Ham	3	x	6		5 Sec Ecc, Drive Hips FWD
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 5 - Tuesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	15	x	3	65%	
B	Cuban Press	7	x	8		5 LB Plate
Perform A-B Simultaneously for 15 Sets						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	10	x	3 EA	55%	3 Sec Ecc, Max Speed
B	DB Reverse Fly	5	x	8		
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Shoulder Press	4	x	8	65%	
B	Swiss Ball Roll-Out	4	x	10		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	8		Add Wt. If Possible
B	Palloff Press	3	x	8 EA		Athletic Stance
C	JM DB Press	3	x	8	65%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 5 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	3	x	9m		Running at Max Heart Rate
Perform A for 3 Sets of 9 min; 2:30 rest between rounds						

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Cap. Strength 5-Day Elite Training Block Week 5 - Thursday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	15	x	3	65%	
B	SL Squat	7	x	10 EA		Drive Knee FWD
C	Common Lunge Matrix	7	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT
Perform A-C Simultaneously for 15 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Rear Foot Elevated Split Squat	10	x	3 EA	55%	3 Sec Ecc, Max Speed
B	Banded Lying Hip Flexor	5	x	10 EA		3 Sec Iso-10 EA Leg
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Goblet Rotational Lunge	4	x	8 EA	65%	
B	Bench Groin	4	x	10 EA		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	8	65%	
B	Body Weight Plank	3	x	1:00		
C	DB Lateral Step Up	3	x	8 EA	65%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 5 - Friday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	1,1,1	x	5,3,3		Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	15	x	3		Add Wt. If Possible
B	Plate A Raise	7	x	8		5 LB Plate
Perform A-B Simultaneously for 15 Sets						
25 Seconds Rest Between Exercises; 1:00 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	10	x	3	55%	3 Sec Ecc, Max Speed
B	Cable Face Pull	5	x	8		1 Sec Iso
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Inverted Row	4	x	8		Add Wt. If Possible
B	3 Way DB Raise	4	x	8 EA		8 Front, 8 Lateral, 8 Rev. Fly
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench Press	3	x	8	65%	Alternating Arms
B	Cable Walkout	3	x	3 EA		Athletic Stance, 3 Steps Out, 3 EA
C	BB Shrug	3	x	10	60%	1 Sec Iso
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 6 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	15	x	2	70-80%	7 sets @ 70%, 2 sets @ 72.5%, 2 sets @ 75%, 2 sets @ 77.5%, 2 sets @ 80%
B	Ankle Wipers	7	x	10 EA		Max ROM, No Knee Mvmt
C	Kneel. 3-Way Hip Flex	7	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-C Simultaneously for 15 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	10	x	3 EA	60%	3 Sec Ecc, Max Speed
B	Glute Wind-Up	5	x	4 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	4	x	8 EA	70%	
B	Bench Glute	4	x	12 EA		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SE Glute Bar Lift	3	x	8	70%	
B	Hip Flex Prone	3	x	12 EA		
C	Nordic Ham	3	x	6		5 Sec Ecc, Drive Hips FWD
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 6 - Tuesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	15	x	2	70-80%	7 sets @ 70%, 2 sets @ 72.5%, 2 sets @ 75%, 2 sets @ 77.5%, 2 sets @ 80%
B	Cuban Press	7	x	8		5 LB Plate
Perform A-B Simultaneously for 15 Sets						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	10	x	3 EA	60%	3 Sec Ecc, Max Speed
B	DB Reverse Fly	5	x	8		
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Shoulder Press	4	x	8	70%	
B	Swiss Ball Roll-Out	4	x	12		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	8		Add Wt. If Possible
B	Palloff Press	3	x	10 EA		Athletic Stance
C	JM DB Press	3	x	8	70%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 6 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Glycolytic Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Lactic Capacity Training	3	x	3x1:30		Sprinting at Max Speed
Perform A for 3 repetitions of 1:30 Sprint; 1:00 rest between repetitions; Complete 3 Total Sets with Rest 3:00 between Sets						

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Cap. Strength 5-Day Elite Training Block Week 6 - Thursday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	15	x	2	70-80%	7 sets @ 70%, 2 sets @ 72.5%, 2 sets @ 75%, 2 sets @ 77.5%, 2 sets @ 80%
B	SL Squat	7	x	10 EA		Drive Knee FWD
C	Common Lunge Matrix	7	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT
Perform A-C Simultaneously for 15 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Rear Foot Elevated Split Squat	10	x	3 EA	60%	3 Sec Ecc, Max Speed
B	Banded Lying Hip Flexor	5	x	10 EA		3 Sec Iso-10 EA Leg
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Goblet Rotational Lunge	4	x	8 EA	70%	
B	Bench Groin	4	x	12 EA		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	8	70%	
B	Body Weight Plank	3	x	1:15		
C	DB Lateral Step Up	3	x	8 EA	70%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 6 - Friday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	1,1,1	x	5,3,3		Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	15	x	2		Add Wt. If Possible
B	Plate A Raise	7	x	8		5 LB Plate
Perform A-B Simultaneously for 15 Sets						
25 Seconds Rest Between Exercises; 1:00 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	10	x	3	60%	3 Sec Ecc, Max Speed
B	Cable Face Pull	5	x	8		1 Sec Iso
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Inverted Row	4	x	10		Add Wt. If Possible
B	3 Way DB Raise	4	x	8 EA		8 Front, 8 Lateral, 8 Rev. Fly
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench Press	3	x	8	70%	Alternating Arms
B	Cable Walkout	3	x	3 EA		Athletic Stance, 3 Steps Out, 3 EA
C	BB Shrug	3	x	10	65%	1 Sec Iso
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 7 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	15	x	1	82.5-92.5%	7 sets @ 82.5%, 2 sets @ 85%, 2 sets @ 87.5%, 2 sets @ 90%, 2 sets @ 92.5%
B	Ankle Wipers	7	x	10 EA		Max ROM, No Knee Mvmt
C	Kneel. 3-Way Hip Flex	7	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-C Simultaneously for 15 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	10	x	3 EA	65%	3 Sec Ecc, Max Speed
B	Glute Wind-Up	5	x	4 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	4	x	8 EA	72.5%	
B	Bench Glute	4	x	15 EA		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SE Glute Bar Lift	3	x	8	72.5%	
B	Hip Flex Prone	3	x	15 EA		
C	Nordic Ham	3	x	6		5 Sec Ecc, Drive Hips FWD
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Cap. Strength 5-Day Elite Training Block Week 7 - Tuesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	15	x	1	82.5-92.5%	7 sets @ 82.5%, 2 sets @ 85%, 2 sets @ 87.5%, 2 sets @ 90%, 2 sets @ 92.5%
B	Cuban Press	7	x	8		5 LB Plate
Perform A-B Simultaneously for 15 Sets						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	10	x	3 EA	65%	3 Sec Ecc, Max Speed
B	DB Reverse Fly	5	x	8		
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Shoulder Press	4	x	8	72.5%	
B	Swiss Ball Roll-Out	4	x	15		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	8		Add Wt. If Possible
B	Palloff Press	3	x	12 EA		Athletic Stance
C	JM DB Press	3	x	8	72.5%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 7 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Glycolytic Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Lactic Capacity Training	3	x	3x2:00		Sprinting at Max Speed
Perform A for 3 repetitions of 2:00 Sprint; 1:00 rest between repetitions; Complete 3 Total Sets with Rest 3:00 between Sets						

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Cap. Strength 5-Day Elite Training Block Week 7 - Thursday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	15	x	1	82.5-92.5%	7 sets @ 82.5%, 2 sets @ 85%, 2 sets @ 87.5%, 2 sets @ 90%, 2 sets @ 92.5%
B	SL Squat	7	x	10 EA		Drive Knee FWD
C	Common Lunge Matrix	7	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT
Perform A-C Simultaneously for 15 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Rear Foot Elevated Split Squat	10	x	3 EA	60%	3 Sec Ecc, Max Speed
B	Banded Lying Hip Flexor	5	x	10 EA		3 Sec Iso-10 EA Leg
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Goblet Rotational Lunge	4	x	8 EA	72.5%	
B	Bench Groin	4	x	12 EA		
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	8	72.5%	
B	Body Weight Plank	3	x	1:30		
C	DB Lateral Step Up	3	x	8 EA	72.5%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Cap. Strength 5-Day Elite Training Block Week 7 - Friday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	1,1,1	x	5,3,3		Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	15	x	1		Add Wt. If Possible
B	Plate A Raise	7	x	8		5 LB Plate
Perform A-B Simultaneously for 15 Sets						
25 Seconds Rest Between Exercises; 1:00 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	10	x	3	65%	3 Sec Ecc, Max Speed
B	Cable Face Pull	5	x	8		1 Sec Iso
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Inverted Row	4	x	12		Add Wt. If Possible
B	3 Way DB Raise	4	x	8 EA		8 Front, 8 Lateral, 8 Rev. Fly
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench Press	3	x	8	72.5%	Alternating Arms
B	Cable Walkout	3	x	3 EA		Athletic Stance, 3 Steps Out, 3 EA
C	BB Shrug	3	x	10	67.5%	1 Sec Iso
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.10 Download (Week 8)

The download week is implemented to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, their body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 8 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 8 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	2	x	4m		Running at Max Heart Rate
Perform A for 2 Sets of 4 min; 2:30 rest between rounds						

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Download 4-Day Elite Training Block Week 8 - Friday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**

Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Download 4-Day Elite Training Block Week 8 - Satuday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	30m		Heart Rate Between 135-155
Perform A for 1 Set for 30m; Can Be Completed Through Running, Biking, or an Elliptical						

4.11 High-Quality Strength Training Block (Weeks 9-11)

Training in this block now shifts to a high-quality focus. This can be seen in the ten sets now completed. An athlete achieves forty-five repetitions. However, by considering rest time and the low repetitions per set, the quality of training is increased. By training at high-qualities, an athlete is able to utilize increased training loads and maximize force production. Muscle action phases are also continued throughout this training block. Running during this week shifts to an ATP/Cr-P focus, which requires high-quality training.

Goal Adaptations of Block:

- Maximize general force production
- Continue muscle action phase training
- Improve ATP/Cr-P resynthesis

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Quality Strength 5-Day Elite Training Block Week 9 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	10	x	2	82.5-87.5%	5 sets @ 82.5%, 2 sets @ 85%, 2 sets @ 87.5%
B	Ankle Wipers	5	x	15 EA		Max ROM, No Knee Mvmt
C	Downhill Hip Flexor Stretch	5	x	6 EA		3 Sec Iso, 6 EA Leg
Perform A-C Simultaneously for 10 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	10	x	3 EA	55%	3 Sec Iso, Max Speed
B	Glute Wind-Up to Jump	5	x	4 EA		Wind-Up Around Glute, SL Land
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	4	x	6 EA	65%	3 Sec Ecc, 6 EA Leg
B	Bench Glute	4	x	8 EA		Add Wt.
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SE Glute Bar Lift	3	x	6	70%	
B	Hip Flex Prone	3	x	6 EA		3 Sec Ecc, 6 EA Leg
C	Glute Ham Raise	3	x	6		3 Sec Iso @ Mid-Position
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Quality Strength 5-Day Elite Training Block Week 9 - Tuesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	10	x	2	82.5-87.5%	5 sets @ 82.5%, 2 sets @ 85%, 2 sets @ 87.5%
B	Plate T Raise	5	x	8		5 LB Plate, Thumbs Down
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Upper Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	10	x	3 EA	55%	3 Sec Iso, Max Speed
B	DB Reverse Fly	5	x	6		3 Sec Iso
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SA DB Shoulder Press	4	x	6 EA	65%	
B	Swiss Ball Roll-Out	4	x	6		3 Sec Iso
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	6		3 Sec Ecc, Add Wt. If Possible
B	Palloff Rotational Press	3	x	6 EA		3 Sec Ecc, 6 EA
C	JM DB Press	3	x	6	70%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 9 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	5 Yard Square Drill	1	x	4 EA		Sprint All Directions
Perform A for 8 Total repetitions; Rest 45 seconds between repetitions						
Block 2	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running	1	x	4 EA		Focus on Body Angle
Perform A for 8 Total repetitions; Rest 45 seconds between repetitions						
Block 3	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	7 Second Sprint	12	x	7s		Sprint Maximal Distance
Perform A for 12 Total repetitions; Rest 40 seconds between repetitions						

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Quality Strength 5-Day Elite Training Block Week 9 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	10	x	2	82.5-87.5%	5 sets @ 82.5%, 2 sets @ 85%, 2 sets @ 87.5%
B	Toes Up-SL Squat	5	x	10 EA		Drive Knee FWD, Keep Foot Tripod
C	JOP Matrix	5	x	3 EA		Stick EA Rep, 3-FWD,3-LAT,3-ROT
Perform A-C Simultaneously for 10 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — Lower Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Rear Foot Elevated Split Squat	10	x	3 EA	55%	3 Sec Iso, Max Speed
B	Standing Hip Flexor	5	x	8 EA		3 Sec Iso w/ Arm Press-8 EA Leg
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Goblet Rotational Lunge	4	x	6 EA	65%	3 Sec Ecc, 6 EA Leg
B	Bench Groin	4	x	8 EA		Add Wt.
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	6	65%	3 Sec Ecc
B	SA/SL Plank Matrix	3	x	1:30		R. Arm-L. Arm-R. Leg-L. Leg, 15s EA
C	Cable Rotational Pull to Press	3	x	6 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 9 - Friday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	1,1,1	x	5,3,3		Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	10	x	3		Add Wt.
B	TRX Y Raise	5	x	8		
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 1:00 minutes between Rounds						

Block 3 — Upper Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	10	x	3	55%	3 Sec Iso, Max Speed
B	Cable Face Pull	5	x	6		3 Sec Ecc
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	TRX Inverted Row	4	x	6		Rotate Wrists, Add Wt. If Possible
B	Band Pull Apart	4	x	10		Thumbs Out
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench Press	3	x	6 EA	70%	Single Arm
B	Cable Walkout	3	x	4 EA		Athletic Stance, 3 Steps Out, 4 EA
C	DB SA Shrug	3	x	6	65%	3 Sec Iso
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 10 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	10	x	1	87.5-92.5%	5 sets @ 87.5%, 2 sets @ 90%, 2 sets @ 92.5%
B	Ankle Wipers	5	x	15 EA		Max ROM, No Knee Mvmt
C	Downhill Hip Flexor Stretch	5	x	6 EA		3 Sec Iso, 6 EA Leg
Perform A-C Simultaneously for 10 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — Lower Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	10	x	3 EA	60%	3 Sec Iso, Max Speed
B	Glute Wind-Up to Jump	5	x	4 EA		Wind-Up Around Glute, SL Land
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	4	x	6 EA	70%	3 Sec Ecc, 6 EA Leg
B	Bench Glute	4	x	10 EA		Add Wt.
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SE Glute Bar Lift	3	x	6	75%	
B	Hip Flex Prone	3	x	8 EA		3 Sec Ecc, 8 EA Leg
C	Glute Ham Raise	3	x	6		3 Sec Iso @ Mid-Position
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 10 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	10	x	1	87.5-92.5%	5 sets @ 87.5%, 2 sets @ 90%, 2 sets @ 92.5%
B	Plate T Raise	5	x	8		5 LB Plate, Thumbs Down
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — Upper Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	10	x	3 EA	60%	3 Sec Iso, Max Speed
B	DB Reverse Fly	5	x	6		3 Sec Iso
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SA DB Shoulder Press	4	x	6 EA	70%	
B	Swiss Ball Roll-Out	4	x	8		3 Sec Iso
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	6		3 Sec Ecc, Add Wt. If Possible
B	Palloff Rotational Press	3	x	8 EA		3 Sec Ecc, 8 EA
C	JM DB Press	3	x	6	75%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 10 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	5 Yard Square Drill	1	x	5 EA		Sprint All Directions
Perform A for 10 Total repetitions; Rest 45 seconds between repetitions						
Block 2	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running	1	x	5 EA		Focus on Body Angle
Perform A for 10 Total repetitions; Rest 45 seconds between repetitions						
Block 3	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	7 Second Sprint	14	x	7s		Sprint Maximal Distance
Perform A for 14 Total repetitions; Rest 40 seconds between repetitions						

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Quality Strength 5-Day Elite Training Block Week 10 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	10	x	1	87.5-92.5%	5 sets @ 87.5%, 2 sets @ 90%, 2 sets @ 92.5%
B	Toes Up-SL Squat	5	x	10 EA		Drive Knee FWD, Keep Foot Tripod
C	JOP Matrix	5	x	3 EA		Stick EA Rep, 3-FWD,3-LAT,3-ROT
Perform A-C Simultaneously for 10 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — Lower Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Rear Foot Elevated Split Squat	10	x	3 EA	60%	3 Sec Iso, Max Speed
B	Standing Hip Flexor	5	x	8 EA		3 Sec Iso w/ Arm Press-8 EA Leg
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Goblet Rotational Lunge	4	x	6 EA	70%	3 Sec Ecc, 6 EA Leg
B	Bench Groin	4	x	10 EA		Add Wt.
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	6	70%	3 Sec Ecc
B	SA/SL Plank Matrix	3	x	2:00		R. Arm-L. Arm-R. Leg-L. Leg, 20s EA
C	Cable Rotational Pull to Press	3	x	6 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 10 - Friday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	1,1,1	x	5,3,3		Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	10	x	2		Add Wt.
B	TRX Y Raise	5	x	8		
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 1:00 minutes between Rounds						

Block 3 — Upper Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	10	x	3	60%	3 Sec Iso, Max Speed
B	Cable Face Pull	5	x	6		3 Sec Ecc
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	TRX Inverted Row	4	x	8		Rotate Wrists, Add Wt. If Possible
B	Band Pull Apart	4	x	10		Thumbs Out
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench Press	3	x	6 EA	75%	Single Arm
B	Cable Walkout	3	x	4 EA		Athletic Stance, 3 Steps Out, 4 EA
C	DB SA Shrug	3	x	6	70%	3 Sec Iso
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 11 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Back Squat	10	x	1	90-95%	5 sets @ 90%, 2 sets @ 92.5%, 2 sets @ 95%
B	Ankle Wipers	5	x	15 EA		Max ROM, No Knee Mvmt
C	Downhill Hip Flexor Stretch	5	x	6 EA		3 Sec Iso, 6 EA Leg
Perform A-C Simultaneously for 10 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — **Lower Dynamic Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	10	x	3 EA	65%	3 Sec Iso, Max Speed
B	Glute Wind-Up to Jump	5	x	4 EA		Wind-Up Around Glute, SL Land
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	4	x	6 EA	72.5%	3 Sec Ecc, 6 EA Leg
B	Bench Glute	4	x	12 EA		Add Wt.
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SE Glute Bar Lift	3	x	6	77.5%	
B	Hip Flex Prone	3	x	10 EA		3 Sec Ecc, 8 EA Leg
C	Glute Ham Raise	3	x	8		3 Sec Iso @ Mid-Position
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 11 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	10	x	1	90-95%	5 sets @ 90%, 2 sets @ 92.5%, 2 sets @ 95%
B	Plate T Raise	5	x	8		5 LB Plate, Thumbs Down
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — Upper Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	10	x	3 EA	65%	3 Sec Iso, Max Speed
B	DB Reverse Fly	5	x	6		3 Sec Iso
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SA DB Shoulder Press	4	x	6 EA	75%	
B	Swiss Ball Roll-Out	4	x	10		3 Sec Iso
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	6		3 Sec Ecc, Add Wt. If Possible
B	Palloff Rotational Press	3	x	10 EA		3 Sec Ecc, 10 EA
C	JM DB Press	3	x	6	77.5%	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 11 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	5 Yard Square Drill	1	x	6 EA		Sprint All Directions
Perform A for 12 Total repetitions; Rest 45 seconds between repetitions						
Block 2	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running	1	x	6 EA		Focus on Body Angle
Perform A for 12 Total repetitions; Rest 45 seconds between repetitions						
Block 3	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	10 Second Sprint	12	x	10s		Sprint Maximal Distance
Perform A for 12 Total repetitions; Rest 40 seconds between repetitions						

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Quality Strength 5-Day Elite Training Block Week 11 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	10	x	1	90-95%	5 sets @ 90%, 2 sets @ 92.5%, 2 sets @ 95%
B	Toes Up-SL Squat	5	x	10 EA		Drive Knee FWD, Keep Foot Tripod
C	JOP Matrix	5	x	3 EA		Stick EA Rep, 3-FWD,3-LAT,3-ROT
Perform A-C Simultaneously for 10 Sets, Alternating Between A,B & A,C						
25 Seconds Rest Between Exercises; 1:15 minutes between Rounds						

Block 3 — Lower Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Rear Foot Elevated Split Squat	10	x	3 EA	65%	3 Sec Iso, Max Speed
B	Standing Hip Flexor	5	x	8 EA		3 Sec Iso w/ Arm Press-8 EA Leg
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Goblet Rotational Lunge	4	x	6 EA	72.5%	3 Sec Ecc, 6 EA Leg
B	Bench Groin	4	x	12 EA		Add Wt.
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	6	75%	3 Sec Ecc
B	SA/SL Plank Matrix	3	x	2:00		R. Arm/L. Leg-L. Arm/R. Leg 30s EA
C	Cable Rotational Pull to Press	3	x	8 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Quality Strength 5-Day Elite Training Block Week 11 - Friday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	1,1,1	x	5,3,3		Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	10	x	2		Add Wt.
B	TRX Y Raise	5	x	8		
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 1:00 minutes between Rounds						

Block 3 — Upper Dynamic Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	10	x	3	65%	3 Sec Iso, Max Speed
B	Cable Face Pull	5	x	6		3 Sec Ecc
Perform A-B Simultaneously for 10 Sets						
25 Seconds Rest Between Exercises; 0:45 seconds between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	TRX Inverted Row	4	x	8		Rotate Wrists, Add Wt. If Possible
B	Band Pull Apart	4	x	10		Thumbs Out
Perform A-B Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench Press	3	x	6 EA	77.5%	Single Arm
B	Cable Walkout	3	x	4 EA		Athletic Stance, 3 Steps Out, 4 EA
C	DB SA Shrug	3	x	6	72.5%	3 Sec Iso
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.12 Oxidative Training Block (Weeks 12-14)

As students return for the start of school, it is necessary to complete the oxidative training block a second time. This training block is now three weeks in length and is completed as the foundation for the entire off-season training model. For this reason, the specific training of this energy system must be improved prior to any other quality required in the sport of lacrosse. Training and running days are all completed in an oxidative fashion. This training in this block includes the glute layering system, described in section one, and other circuit style methods.

Goal Adaptations of Block:

- Utilize glutes as primary drivers of movement
- Increase oxygen availability
- Enhance blood flow and efficiency
- Increase mitochondrial density
- Increase oxidative enzymes
- Improve clearance of metabolites
- Recover at a higher rate
- Ultimately maximize the athlete's "drain"

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Oxidative 6-Day Elite Training Block Week 12 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

Block 3	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Injury Prevention Running	2	x	5m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 2 Sets of 5 min; 1:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 12 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Sit	1	x	5m		5 minute Isometric
B	DB Bench	1	x	5m	25-30%	5 minute Isometric
C	Supine Glute Ham Back	1	x	5m	25-30%	5 minute Isometric
D	Left Leg Lunge	1	x	5m		5 minute Isometric
E	DB Prone Row	1	x	5m	25-30%	5 minute Isometric
F	Right Leg Lunge	1	x	5m		5 minute Isometric
Perform A-F for 5 minutes Each; 3:00 Rest Between Exercises						

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Oxidative 6-Day Elite Training Block Week 12 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2 — Oxidative Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	4	x	4m		Running at Max Heart Rate
Perform A for 4 Sets of 4 min; 2:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 12 - Thursday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						
Block 3	**Oxidative Energy System Conditioning**					
A	Metabolic Injury Prevention Running	2	x	6m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 2 Sets of 6 min; 1:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 12 - Friday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Oxidative 6-Day Elite Training Block Week 12 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	35m		Heart Rate Between 135-155
Perform A for 1 Set for 35m; Can Be Completed Through Running, Biking, or an Elliptical						

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Oxidative 6-Day Elite Training Block Week 13 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	30s		Complete As Many Reps As Possible
Perform A for 1 Set @ 30s on 10s off						

Block 3	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Injury Prevention Running	3	x	5m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 3 Sets of 5 min; 1:30 rest between rounds						

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Oxidative 6-Day Elite Training Block Week 13 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Sit	1	x	5m		5 minute Isometric
B	DB Bench	1	x	5m	25-30%	5 minute Isometric
C	Supine Glute Ham Back	1	x	5m	25-30%	5 minute Isometric
D	Left Leg Lunge	1	x	5m		5 minute Isometric
E	DB Prone Row	1	x	5m	25-30%	5 minute Isometric
F	Right Leg Lunge	1	x	5m		5 minute Isometric
Perform A-F for 5 minutes Each; 2:30 Rest Between Exercises						

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Oxidative 6-Day Elite Training Block Week 13 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Oxidative Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	4	x	6m		Running at Max Heart Rate

Perform A for 4 Sets of 6 min; 2:30 rest between rounds

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Oxidative 6-Day Elite Training Block Week 13 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Oxidative Energy System Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	3-D Contralateral Circuit	1	x	30s		Complete As Many Reps As Possible

Perform A for 1 Set @ 30s on 10s off

Block 3 — Oxidative Energy System Conditioning

A	Metabolic Injury Prevention Running	3	x	6m		Jog, Shuffle R&L, Carioca R&L, Backpedal

Perform A for 3 Sets of 6 min; 1:30 rest between rounds

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Oxidative 6-Day Elite Training Block Week 13 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	30s		Complete As Many Reps As Possible
Perform A for 1 Set @ 30s on 10s off						

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Oxidative 6-Day Elite Training Block Week 13 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	35 EA		
B	Banded Other 4 Toe Work	1	x	35 EA		
C	Level 2 Glute Iso Training Protocol	1	x	23m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	15 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Oxidative Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Cardiac Output	1	x	45m		Heart Rate Between 135-155

Perform A for 1 Set for 45m; Can Be Completed Through Running, Biking, or an Elliptical

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Oxidative 6-Day Elite Training Block Week 14 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 3 Glute Iso Training Protocol	1	x	26m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	35s		Complete As Many Reps As Possible
Perform A for 1 Set @ 35s on 10s off						

Block 3	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Injury Prevention Running	4	x	4m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 4 Sets of 4 min; 1:00 rest between rounds						

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 14 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 3 Glute Iso Training Protocol	1	x	26m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Sit	1	x	5m	25-30%	5 minute Isometric
B	DB Bench	1	x	5m	25-30%	5 minute Isometric
C	Supine Glute Ham Back	1	x	5m	25-30%	5 minute Isometric
D	Left Leg Lunge	1	x	5m	25-30%	5 minute Isometric
E	DB Prone Row	1	x	5m	25-30%	5 minute Isometric
F	Right Leg Lunge	1	x	5m	25-30%	5 minute Isometric
Perform A-F for 5 minutes Each; 2:00 Rest Between Exercises						

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 14 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 3 Glute Iso Training Protocol	1	x	26m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	3	x	9m		Running at Max Heart Rate
Perform A for 3 Sets of 9 min; 2:30 rest between rounds						

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 14 - Thursday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 3 Glute Iso Training Protocol	1	x	26m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	35s		Complete As Many Reps As Possible
Perform A for 1 Set @ 35s on 10s off						
Block 3	**Oxidative Energy System Conditioning**					
A	Metabolic Injury Prevention Running	4	x	5m		Jog, Shuffle R&L, Carioca R&L, Backpedal
Perform A for 4 Sets of 5 min; 1:00 rest between rounds						

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 14 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 3 Glute Iso Training Protocol	1	x	26m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	35s		Complete As Many Reps As Possible
Perform A for 1 Set @ 35s on 10s off						

Triphasic Lacrosse Training Manual

Oxidative 6-Day Elite Training Block Week 14 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 3 Glute Iso Training Protocol	1	x	26m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	55m		Heart Rate Between 135-155
Perform A for 1 Set for 55m; Can Be Completed Through Running, Biking, or an Elliptical						

4.13 Glycolytic Training Block (Weeks 15-16)

Training throughout this block is utilized to maximize the glycolytic energy system. Running was implemented for this training block during the capacity strength training block. However, now the training days are also completed specifically to drive this energy system to function at this highest level. The extreme level of metabolites produced makes this phase one of the training one of the most grueling to complete in the Triphasic Lacrosse Training Manual. Circuits are also utilized in this training block. However, they are implemented specifically to drive metabolite production and are completed at a much higher intensity than the circuits of the oxidative training block.

Goal Adaptations of Block:

- Continue glute specific training
- Produce high-levels of metabolites
- Improve tolerance of metabolites
- Increase glycolytic enzymes
- Ultimately maximize an athlete's "sink" size

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 15 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Glute Function Series Warm-Up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 4 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — **Glycolytic Energy System Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench - Left Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
B	DB Split Squat - Right Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
C	DB Bench - Right Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
D	DB Split Squat - Left Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
E	SL Glute Bar Lift - Right Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
F	DB Bent Over Row - Left Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
G	SL Glute Bar Lift - Left Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
H	DB Bent Over Row - Right Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
I	DB Shoulder Press - Both Arms	3	x	30s	65-70%	30 second Isometric, 10 second Rest
J	Pull-Up - Both Arms	3	x	30s	65-70%	30 second Isometric, 10 second Rest
K	Swiss Ball Leg Curl - Both Legs	3	x	30s	65-70%	30 second Isometric, 10 second Rest
L	Inverted Row - Both Arms	3	x	30s	65-70%	30 second Isometric, 10 second Rest

Perform A-L Simultaneously for 3 Sets

10 Seconds Rest Between Exercises; 2:30 minutes between Rounds

Block 3 — **Glycolytic Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Metabolic Injury Prevention Running	10	x	20s		Sprint, Shuffle R&L, Carioca R&L; 1 EA Rep

Perform A for 10 Sets of 20 sec; 1:00 rest between rounds; Cover as Much Distance as Possible in Each Repetition

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 15 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 4 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Step Up	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bench Press	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Block 3	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	RDL	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
B	Lat Pull Down	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Block 4	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Split Squat	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bent Over Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Block 5	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Lateral Lunge	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	TRX Inverted Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 15 - Wednesday

Pre — Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 4 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Glycolytic Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	4	x	4m		Running at Max Heart Rate

Perform A for 4 Sets of 4 min; 2:30 rest between rounds

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 15 - Thursday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 4 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Bench - Left Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
B	DB Split Squat - Right Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
C	DB Bench - Right Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
D	DB Split Squat - Left Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
E	SL Glute Bar Lift - Right Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
F	DB Bent Over Row - Left Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
G	SL Glute Bar Lift - Left Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
H	DB Bent Over Row - Right Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
I	DB Shoulder Press - Both Arms	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
J	Pull-Up - Both Arms	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
K	Swiss Ball Leg Curl - Both Legs	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
L	Inverted Row - Both Arms	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
Perform A-L Simultaneously for 3 Sets						
10 Seconds Rest Between Exercises; 2:30 minutes between Rounds						

Block 3	Glycolytic Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Injury Prevention Running	10	x	25s		Sprint, Shuffle R&L, Carioca R&L; 1 EA Rep
Perform A for 10 Sets of 25 sec; 1:00 rest between rounds; Cover as Much Distance as Possible in Each Repetition						

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 15 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 4 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Glycolytic Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Step Up	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bench Press	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						
Block 3	**Glycolytic Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	RDL	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
B	Lat Pull Down	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						
Block 4	**Glycolytic Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Split Squat	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bent Over Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						
Block 5	**Glycolytic Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Lateral Lunge	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	TRX Inverted Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

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Glycolytic 6-Day Elite Training Block Week 15 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 4 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Glycolytic Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Cardiac Output	1	x	35m		Heart Rate Between 135-155

Perform A for 1 Set for 35m

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 16 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Glute Function Series Warm-Up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 5 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — **Glycolytic Energy System Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench - Left Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
B	DB Split Squat - Right Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
C	DB Bench - Right Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
D	DB Split Squat - Left Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
E	SL Glute Bar Lift - Right Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
F	DB Bent Over Row - Left Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
G	SL Glute Bar Lift - Left Leg	3	x	30s	65-70%	30 second Isometric, 10 second Rest
H	DB Bent Over Row - Right Arm	3	x	30s	65-70%	30 second Isometric, 10 second Rest
I	DB Shoulder Press - Both Arms	3	x	30s	65-70%	30 second Isometric, 10 second Rest
J	Pull-Up - Both Arms	3	x	30s	65-70%	30 second Isometric, 10 second Rest
K	Swiss Ball Leg Curl - Both Legs	3	x	30s	65-70%	30 second Isometric, 10 second Rest
L	Inverted Row - Both Arms	3	x	30s	65-70%	30 second Isometric, 10 second Rest

Perform A-L Simultaneously for 3 Sets

10 Seconds Rest Between Exercises; 2:30 minutes between Rounds

Block 3 — **Glycolytic Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Metabolic Injury Prevention Running	12	x	20s		Sprint, Shuffle R&L, Carioca R&L; 1 EA Rep

Perform A for 12 Sets of 20 sec; 1:00 rest between rounds; Cover as Much Distance as Possible in Each Repetition

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 16 - Tuesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 5 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Step Up	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bench Press	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Block 3	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	RDL	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
B	Lat Pull Down	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Block 4	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Split Squat	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bent Over Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

Block 5	Glycolytic Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Lateral Lunge	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	TRX Inverted Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes						
No Rest Between Exercises; 2:30 minutes between Next Round						

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Glycolytic 6-Day Elite Training Block Week 16 - Wednesday

Pre — Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 5 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Glycolytic Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	4	x	4m		Running at Max Heart Rate

Perform A for 4 Sets of 4 min; 2:30 rest between rounds

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Glycolytic 6-Day Elite Training Block Week 16 - Thursday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Glute Function Series Warm-Up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 5 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — **Glycolytic Energy System Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bench - Left Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
B	DB Split Squat - Right Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
C	DB Bench - Right Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
D	DB Split Squat - Left Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
E	SL Glute Bar Lift - Right Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
F	DB Bent Over Row - Left Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
G	SL Glute Bar Lift - Left Leg	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
H	DB Bent Over Row - Right Arm	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
I	DB Shoulder Press - Both Arms	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
J	Pull-Up - Both Arms	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
K	Swiss Ball Leg Curl - Both Legs	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest
L	Inverted Row - Both Arms	3	x	30s	45-50%	30 second Oscillatory, 10 Second Rest

Perform A-L Simultaneously for 3 Sets

10 Seconds Rest Between Exercises; 2:30 minutes between Rounds

Block 3 — **Glycolytic Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Metabolic Injury Prevention Running	12	x	25s		Sprint, Shuffle R&L, Carioca R&L; 1 EA Rep

Perform A for 12 Sets of 25 sec; 1:00 rest between rounds; Cover as Much Distance as Possible in Each Repetition

Triphasic Lacrosse Training Manual

Glycolytic 6-Day Elite Training Block Week 16 - Friday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 5 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Glycolytic Energy System Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bench Press	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes

Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes

No Rest Between Exercises; 2:30 minutes between Next Round

Block 3 — Glycolytic Energy System Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	RDL	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes
B	Lat Pull Down	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes

Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes

No Rest Between Exercises; 2:30 minutes between Next Round

Block 4 — Glycolytic Energy System Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Split Squat	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	Bent Over Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes

Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes

No Rest Between Exercises; 2:30 minutes between Next Round

Block 5 — Glycolytic Energy System Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Lateral Lunge	AMAP	x	10 EA	50-60%	As Many Sets As Possible in 5 minutes
B	TRX Inverted Row	AMAP	x	10	50-60%	As Many Sets As Possible in 5 minutes

Perform A-B Simultaneously for 10 Repetitions Each for As Many Sets As Possible in 5 minutes

No Rest Between Exercises; 2:30 minutes between Next Round

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Glycolytic 6-Day Elite Training Block Week 16 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Glute Function Series Warm-Up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	50 EA		
B	Banded Other 4 Toe Work	1	x	50 EA		
C	Level 5 Glute Iso Training Protocol	1	x	14m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	20 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — Glycolytic Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Cardiac Output	1	x	35m		Heart Rate Between 135-155

Perform A for 1 Set for 35m

4.14 Eccentric Training Block (Weeks 17-18)

The eccentric training block is implemented for two weeks. It is in this block that each of the components described in section three of this manual are implemented entirely within a single program. The Block Training, Modified Undulated, High-Quality Training, and Muscle Action Training Models are all implemented simultaneously within this block. Each of these models are implemented in other phases, but not all within the same training program. This phase is primarily focused on the ability of an athlete to absorb high-levels of force, as this is the first phase in the utilization of the SSC. For this reason, eccentric training is implemented. As this block is completed with the highest possible quality, the ATP/Cr-P energy system is implemented on running days. Recall the importance of short, repeat-sprints in the sport of lacrosse. Training completed in this block is designed to mimic those specific requirements in the most efficient model possible.

Goal Adaptations of Block:

- Maximize absorption of force
- Enhance acceleration and deceleration technique
- Improve tissue tolerance
- Movement efficiency
- Improve the SSC ability
- Reduce inhibiting effects of GTOs
- Selectively train explosive type II muscle fibers

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Eccentric 6-Day Elite Training Block Week 17 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	10 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	85-87.5%	7 Sec Ecc-Partner Help
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump Pause	4	x	4		Pull-In, Pause at Bottom
D	Accel. Band Jump Pause	4	x	4		Pull-In, Pause at Bottom
E	Manual 4-Way Neck	4	x	1 EA	Partner Push	7 Sec Ecc-EA
F	Partner Bench Glute	4	x	1 EA	Partner Push	7 Sec Ecc-EA
G	Ant. Tib Band	4	x	2 EA	1" Band	3 Sec Ecc-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	5	x	1 EA	Partner Push	7 Sec Ecc-Opposite Hand
B	DB Common Lunge Matrix	5	x	1 EA	82.5-85%	7 Sec Ecc-FWD,LAT,ROT
C	Partner Bench Groin	5	x	1 EA	Partner Push	7 Sec Ecc-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Glute Ham Bar Lift	4	x	1 EA	82.5-85%	7 Sec Ecc-EA, 2 Up-1 Down
B	Partner Hip Flex Prone	4	x	3	Partner Push	7 Sec Ecc-EA
C	Partner Band Abs	4	x	8	Partner Pull	7 Sec Ecc
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 17 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	1,1	85-87.5%	7 Sec Ecc-Partner Help
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Pause at Bottom
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	1	Partner Pull	7 Sec Ecc
B	Banded Cuban Press	4	x	1 EA	1/2" Band	7 Sec Ecc-EA
C	Wrist Uln & Rad	4	x	1 EA		7 Sec Ecc-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	4	x	1 EA	82.5-85%	7 Sec Ecc-EA
B	DB Shoulder Press	4	x	2	82.5-85%	Bottom 1/2, 3 Sec Ecc-2 EA
C	Wrist Pro & Sup	4	x	1 EA	Partner Push	7 Sec Ecc-EA
D	SA Farmers Carry	4	x	20Y	Heavy	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 17 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Speed/Agility Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Pro-Agility	1	x	3 EA		5-10-5
1:30 Minute Rest Between Reps						
Block 2	**Lower Body Warm-up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						
Block 3	**Lower Body Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Hex Bar Deadlift	8	x	5s	85-90%	Max Reps, No Floor Touch
B	Toe Out-Common Lunge Matrix	8	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						
Block 4	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Split Squat	3	x	5s	80-85%	OC-D+1, EA
B	DB RDL	3	x	5s	80-85%	OC-D+1
C	Hip Flex Prone	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						
Block 5	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Step Up	3	x	5s	80-85%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						
Block 6	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Glute Ham Bar Lift	3	x	5s	80-85%	Reactive-AMAP/Push-Pull
B	Contra. GH + DB Bench Press	3	x	5s	Light/Speed	OC-D+1, EA
C	Bench Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 17 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Z-Cone Agility	1	x	3 EA		7 yard Square
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	85-90%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	80-85%	OC-D+1
B	DB Bent Over Row	3	x	5s	80-85%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	80-85%	OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	5s		OC-D+1
B	Stiff Leg Ankle Hops	4	x	5s		Max Reps, No Heel Touch
C	Wrist Uln & Rad	4	x	5s		OC-D+1
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Contra. Glute Ham + DB Row	3	x	5s	Light	OC-D+1, EA
B	Wrist Pro & Sup	3	x	5s		OC-D+1
C	Band Crawl	3	x	20Y	Partner Pull	Controlled Movement
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 17 - Friday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Drill	4	x	4 EA		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						
Block 2	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted March	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 3	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Tall-Fall Burst	4	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 4	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Decel Drill	4	x	4 EA		Decel Every 5 yards, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 5	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Shuffle Decel Drill	4	x	4 EA		Decel Every 5 yards, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 6	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Box Drill	1	x	4 EA		Shuffle-Sprint-Shuffle
1:00 Minute Rest Between Sets						

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Eccentric 6-Day Elite Training Block Week 17 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Elev. Ankle Raise	3	x	10 EA		Maintain Arch
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	80-85%	10 Sec Ecc-Partner Help
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Pause
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Manual 4-Way Neck	4	x	2 EA	Partner Push	5 Sec Ecc-2 EA
F	Partner Bench Groin	4	x	2 EA	Partner Push	5 Sec Ecc-2 EA
G	Ankle Band Work	4	x	2 EA	1" Band	5 Sec Ecc-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	1	Partner Pull	10 Sec Ecc
B	SA Band Straight Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable Straight Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	2 EA		5 Sec Ecc-2 EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	3	x	2 EA	Partner Push	5 Sec Ecc-2 EA
B	Partner Bench Glute	3	x	2 EA	Partner Push	5 Sec Ecc-2 EA
C	SWB Twist Down	3	x	2 EA		5 Sec Ecc-2 EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 18 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Speed/Agility Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	10 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	85-87.5%	7 Sec Ecc-Partner Help
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump Pause	4	x	4		Pull-In, Pause at Bottom
D	Accel. Band Jump Pause	4	x	4		Pull-In, Pause at Bottom
E	Manual 4-Way Neck	4	x	1 EA	Partner Push	7 Sec Ecc-EA
F	Partner Bench Glute	4	x	1 EA	Partner Push	7 Sec Ecc-EA
G	Ant. Tib Band	4	x	2 EA	1" Band	3 Sec Ecc-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	5	x	1 EA	Partner Push	7 Sec Ecc-Opposite Hand
B	DB Common Lunge Matrix	5	x	1 EA	82.5-85%	7 Sec Ecc-FWD,LAT,ROT
C	Partner Bench Groin	5	x	1 EA	Partner Push	7 Sec Ecc-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Glute Ham Bar Lift	4	x	1 EA	82.5-85%	7 Sec Ecc-EA, 2 Up-1 Down
B	Partner Hip Flex Prone	4	x	3	Partner Push	7 Sec Ecc-EA
C	Partner Band Abs	4	x	8	Partner Pull	7 Sec Ecc
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 18 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	1,1	85-87.5%	7 Sec Ecc-Partner Help
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Pause at Bottom
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	1	Partner Pull	7 Sec Ecc
B	Banded Cuban Press	4	x	1 EA	1/2" Band	7 Sec Ecc-EA
C	Wrist Uln & Rad	4	x	1 EA		7 Sec Ecc-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	4	x	1 EA	82.5-85%	7 Sec Ecc-EA
B	DB Shoulder Press	4	x	2	82.5-85%	Bottom 1/2, 3 Sec Ecc-2 EA
C	Wrist Pro & Sup	4	x	1 EA	Partner Push	7 Sec Ecc-EA
D	SA Farmers Carry	4	x	20Y	Heavy	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 18 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Speed/Agility Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Pro-Agility	1	x	3 EA		5-10-5
1:30 Minute Rest Between Reps						
Block 2	**Lower Body Warm-up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						
Block 3	**Lower Body Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Hex Bar Deadlift	8	x	5s	85-90%	Max Reps, No Floor Touch
B	Toe Out-Common Lunge Matrix	8	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						
Block 4	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Split Squat	3	x	5s	80-85%	OC-D+1, EA
B	DB RDL	3	x	5s	80-85%	OC-D+1
C	Hip Flex Prone	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						
Block 5	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	DB Step Up	3	x	5s	80-85%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						
Block 6	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Glute Ham Bar Lift	3	x	5s	80-85%	Reactive-AMAP/Push-Pull
B	Contra. GH + DB Bench Press	3	x	5s	Light/Speed	OC-D+1, EA
C	Bench Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 18 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Z-Cone Agility	1	x	3 EA		7 yard Square
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	85-90%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	80-85%	OC-D+1
B	DB Bent Over Row	3	x	5s	80-85%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	80-85%	OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	5s		OC-D+1
B	Stiff Leg Ankle Hops	4	x	5s		Max Reps, No Heel Touch
C	Wrist Uln & Rad	4	x	5s		OC-D+1
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Contra. Glute Ham + DB Row	3	x	5s	Light	OC-D+1, EA
B	Wrist Pro & Sup	3	x	5s		OC-D+1
C	Band Crawl	3	x	20Y	Partner Pull	Controlled Movement
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric 6-Day Elite Training Block Week 18 - Friday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Drill	4	x	5 EA		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						
Block 2	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted March	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 3	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Tall-Fall Burst	5	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 4	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Decel Drill	5	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 5	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Shuffle Decel Drill	5	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 6	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Box Drill	1	x	5 EA		Shuffle-Sprint-Shuffle
1:00 Minute Rest Between Sets						

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Eccentric 6-Day Elite Training Block Week 18 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Elev. Ankle Raise	3	x	10 EA		Maintain Arch
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	80-85%	10 Sec Ecc-Partner Help
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Pause
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Manual 4-Way Neck	4	x	2 EA	Partner Push	5 Sec Ecc-2 EA
F	Partner Bench Groin	4	x	2 EA	Partner Push	5 Sec Ecc-2 EA
G	Ankle Band Work	4	x	2 EA	1" Band	5 Sec Ecc-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	1	Partner Pull	10 Sec Ecc
B	SA Band Straight Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable Straight Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	2 EA		5 Sec Ecc-2 EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	3	x	2 EA	Partner Push	5 Sec Ecc-2 EA
B	Partner Bench Glute	3	x	2 EA	Partner Push	5 Sec Ecc-2 EA
C	SWB Twist Down	3	x	2 EA		5 Sec Ecc-2 EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.15 Download (Week 19)

The download week is implemented to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

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Download 4-Day Elite Training Block Week 19 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 19 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	2	x	4m		Running at Max Heart Rate
Perform A for 2 Sets of 4 min; 2:30 rest between rounds						

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Download 4-Day Elite Training Block Week 19 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Download 4-Day Elite Training Block Week 19 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	30m		Heart Rate Between 135-155
Perform A for 1 Set for 30m; Can Be Completed Through Running, Biking, or an Elliptical						

4.16 Isometric Training Block (Weeks 20-21)

The isometric block is completed for a duration of two weeks. Just as in the eccentric training block, all models presented in section three are implemented within this phase. By improving the isometric muscle action specifically, the transition between force absorption and production is improved to the highest extent. This continues to improve the utilization of the SSC, which is required in every movement in lacrosse. With this block also being completed with the highest possible quality, the ATP/Cr-P energy system is implemented on running days. Once again, the training in this phase is programmed to represent short, high-intensity bursts, just like the movements required in lacrosse.

Goal Adaptations of Block:

- Maximize force transfer
- Movement efficiency
- Improve the SSC ability
- Increase recruitment of muscle fibers
- Enhance rate coding

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Isometric 6-Day Elite Training Block Week 20 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Speed/Agility Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	12 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — **Lower Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	85-87.5%	7 Sec Iso-Partner Help
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump Pause	4	x	4		Pull-In, Pause at Bottom
D	Accel. Band Jump Pause	4	x	4		Pull-In, Pause at Bottom
E	Manual 4-Way Neck	4	x	1 EA	Partner Push	7 Sec Iso-EA
F	Partner Bench Glute	4	x	1 EA	Partner Push	7 Sec Iso-EA
G	Ant. Tib Band	4	x	2 EA	1" Band	3 Sec Iso-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	5	x	1 EA	Partner Push	7 Sec Iso-Opposite Hand
B	DB Common Lunge Matrix	5	x	1 EA	82.5-85%	7 Sec Iso-FWD,LAT,ROT
C	Partner Bench Groin	5	x	1 EA	Partner Push	7 Sec Iso-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Lower Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Glute Ham Bar Lift	4	x	1 EA	82.5-85%	7 Sec Iso-EA, 2 Up-1 Down
B	Partner Hip Flex Prone	4	x	3	Partner Push	7 Sec Iso-EA
C	Partner Band Abs	4	x	8	Partner Pull	7 Sec Iso
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 20 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	1,1	85-87.5%	7 Sec Iso-Partner Help
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Pause at Bottom
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	1	Partner Pull	7 Sec Iso
B	Banded Cuban Press	4	x	1 EA	1/2" Band	7 Sec Iso-EA
C	Wrist Uln & Rad	4	x		1 EA	7 Sec Iso-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	4	x	1 EA	82.5-85%	7 Sec Iso-EA
B	DB Shoulder Press	4	x	2	82.5-85%	Bottom 1/2, 3 Sec Iso-2 EA
C	Wrist Pro & Sup	4	x	1 EA	Partner Push	7 Sec Iso-EA
D	SA Farmers Carry	4	x	20Y	Heavy	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 20 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	8	x	5s	85-90%	Max Reps, No Floor Touch
B	Toe Out JOP Matrix	8	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Squat	3	x	5s	80-85%	OC-D+1, EA
B	DB RDL	3	x	5s	80-85%	OC-D+1
C	Hip Flex Prone	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	3	x	5s	80-85%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	5s	80-85%	Reactive-AMAP/Push-Pull
B	Contra. GH + DB Bench Press	3	x	5s	Light/Speed	OC-D+1, EA
C	Bench Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 20 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Z-Cone Agility	1	x	3 EA		7 yard Square
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	85-90%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	80-85%	OC-D+1
B	DB Bent Over Row	3	x	5s	80-85%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	80-85%	OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	5s		OC-D+1
B	Stiff Leg Ankle Hops	4	x	5s		Max Reps, No Heel Touch
C	Wrist Uln & Rad	4	x	5s		OC-D+1
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Contra. Glute Ham + DB Row	3	x	5s	Light	OC-D+1, EA
B	Wrist Pro & Sup	3	x	5s		OC-D+1
C	Band Crawl	3	x	20Y	Partner Pull	Controlled Movement
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 20 - Friday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Drill - Double	4	x	4 EA		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						
Block 2	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted Skip	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 3	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Staggered Stance Rolling Start	2 EA	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets; Complete 4 Total Repetitions, 2 EA Leg Forward						
Block 4	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Decel Drill	4	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 5	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Shuffle Decel Drill	4	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 6	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running	1	x	4 EA		2 Laps, Focus on Body Angle
1:00 Minute Rest Between Sets						

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Isometric 6-Day Elite Training Block Week 20 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Elev. Ankle Raise + Knee Drive	3	x	10 EA		Maintain Arch, Drive Knee Through
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	80-85%	10 Sec Iso-Partner Help
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Pause
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Manual 4-Way Neck	4	x	2 EA	Partner Push	5 Sec Iso-2 EA
F	Partner Bench Groin	4	x	2 EA	Partner Push	5 Sec Iso-2 EA
G	Ankle Band Work	4	x	2 EA	1" Band	5 Sec Iso-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	1	Partner Pull	10 Sec Iso
B	SA Band Straight Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable Straight Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	2 EA		5 Sec Iso-2 EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	3	x	2 EA	Partner Push	5 Sec Iso-2 EA
B	Partner Bench Glute	3	x	2 EA	Partner Push	5 Sec Iso-2 EA
C	SWB Twist Down	3	x	2 EA		5 Sec Iso-2 EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 21 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	12 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	85-87.5%	7 Sec Iso-Partner Help
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump Pause	4	x	4		Pull-In, Pause at Bottom
D	Accel. Band Jump Pause	4	x	4		Pull-In, Pause at Bottom
E	Manual 4-Way Neck	4	x	1 EA	Partner Push	7 Sec Iso-EA
F	Partner Bench Glute	4	x	1 EA	Partner Push	7 Sec Iso-EA
G	Ant. Tib Band	4	x	2 EA	1" Band	3 Sec Iso-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	5	x	1 EA	Partner Push	7 Sec Iso-Opposite Hand
B	DB Common Lunge Matrix	5	x	1 EA	82.5-85%	7 Sec Iso-FWD,LAT,ROT
C	Partner Bench Groin	5	x	1 EA	Partner Push	7 Sec Iso-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Glute Ham Bar Lift	4	x	1 EA	82.5-85%	7 Sec Iso-EA, 2 Up-1 Down
B	Partner Hip Flex Prone	4	x	3	Partner Push	7 Sec Iso-EA
C	Partner Band Abs	4	x	8	Partner Pull	7 Sec Iso
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 21 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	1,1	85-87.5%	7 Sec Iso-Partner Help
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Pause at Bottom
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	1	Partner Pull	7 Sec Iso
B	Banded Cuban Press	4	x	1 EA	1/2" Band	7 Sec Iso-EA
C	Wrist Uln & Rad	4	x		1 EA	7 Sec Iso-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	4	x	1 EA	82.5-85%	7 Sec Iso-EA
B	DB Shoulder Press	4	x	2	82.5-85%	Bottom 1/2, 3 Sec Iso-2 EA
C	Wrist Pro & Sup	4	x	1 EA	Partner Push	7 Sec Iso-EA
D	SA Farmers Carry	4	x	20Y	Heavy	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 21 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	8	x	5s	85-90%	Max Reps, No Floor Touch
B	Toe Out JOP Matrix	8	x	3 EA		Rapid Decel, 3-FWD,3-LAT,3-ROT, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Squat	3	x	5s	80-85%	OC-D+1, EA
B	DB RDL	3	x	5s	80-85%	OC-D+1
C	Hip Flex Prone	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	3	x	5s	80-85%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	5s	80-85%	Reactive-AMAP/Push-Pull
B	Contra. GH + DB Bench Press	3	x	5s	Light/Speed	OC-D+1, EA
C	Bench Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 21 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Z-Cone Agility	1	x	3 EA		7 yard Square
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	85-90%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	80-85%	OC-D+1
B	DB Bent Over Row	3	x	5s	80-85%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	80-85%	OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	5s		OC-D+1
B	Stiff Leg Ankle Hops	4	x	5s		Max Reps, No Heel Touch
C	Wrist Uln & Rad	4	x	5s		OC-D+1
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Contra. Glute Ham + DB Row	3	x	5s	Light	OC-D+1, EA
B	Wrist Pro & Sup	3	x	5s		OC-D+1
C	Band Crawl	3	x	20Y	Partner Pull	Controlled Movement
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric 6-Day Elite Training Block Week 21 - Friday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Drill - Double	4	x	5 EA		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						
Block 2	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted Skip	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 3	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Staggered Stance Rolling Start	2 EA	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets; Complete 4 Total Repetitions, 2 EA Leg Forward						
Block 4	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Decel Drill	5	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 5	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Shuffle Decel Drill	5	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 6	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running	1	x	5 EA		2 Laps, Focus on Body Angle
1:00 Minute Rest Between Sets						

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Isometric 6-Day Elite Training Block Week 21 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Elev. Ankle Raise + Knee Drive	3	x	10 EA		Maintain Arch, Drive Knee Through
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	1,1-Clu	80-85%	10 Sec Iso-Partner Help
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Pause
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Manual 4-Way Neck	4	x	2 EA	Partner Push	5 Sec Iso-2 EA
F	Partner Bench Groin	4	x	2 EA	Partner Push	5 Sec Iso-2 EA
G	Ankle Band Work	4	x	2 EA	1" Band	5 Sec Iso-2 EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	1	Partner Pull	10 Sec Iso
B	SA Band Straight Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable Straight Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	2 EA		5 Sec Iso-2 EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Reverse Hyper	3	x	2 EA	Partner Push	5 Sec Iso-2 EA
B	Partner Bench Glute	3	x	2 EA	Partner Push	5 Sec Iso-2 EA
C	SWB Twist Down	3	x	2 EA		5 Sec Iso-2 EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.17 Download (Week 22)

The download week is implemented to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

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Download 4-Day Elite Training Block Week 22 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 22 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	2	x	4m		Running at Max Heart Rate
Perform A for 2 Sets of 4 min; 2:30 rest between rounds						

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Download 4-Day Elite Training Block Week 22 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Download 4-Day Elite Training Block Week 22 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	30m		Heart Rate Between 135-155
Perform A for 1 Set for 30m; Can Be Completed Through Running, Biking, or an Elliptical						

4.18 Reactive Training Block (Weeks 23-24)

The concentric block is implemented for two weeks. Once again, all models presented in section three are implemented within this phase. Through the training of the concentric phase, each of the three muscle actions have been specifically and individually adapted to the greatest extent. This will allow an athlete to increase both force production and efficiency through the SSC. With this block also being completed with the highest possible quality, the ATP/Cr-P energy system is implemented on running days. Once again, the training in this phase is programmed to represent short, high-intensity bursts, just like the movements required in lacrosse.

Goal Adaptations of Block:

- Increase force production through kinetic chain
- Movement efficiency
- Improve the SSC ability
- Reduce antagonist activation
- Improve “reactivity”
- Improve synchronization within individual muscles
- Enhance kinetic chain synchronization

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Reactive 6-Day Elite Training Block Week 23 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	12 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	7s,7s-Clu	85-87.5%	Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	7s		Reactive-AMAP/Push-Pull-EA
F	Bench Glute	4	x	7s		Reactive-AMAP/Push-Pull-EA
G	Ant. Tib Band	4	x	7s	1" Band	Reactive-AMAP-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	5	x	7s	82.5-85%	Reactive-AMAP/Push-Pull-EA
B	DB Common Lunge Matrix	5	x	3 EA	82.5-85%	3-FWD,3-LAT,3-ROT-EA
C	Bench Groin	5	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SL Glute Ham Bar	4	x	7s	82.5-85%	Reactive-AMAP/Push-Pull-EA
B	Hip Flex Prone	4	x	7s		Reactive-AMAP/Push-Pull-EA
C	Partner Band Crawl	4	x	15Y	Partner Pull	
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 23 - Tuesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Speed/Agility Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	7s,7s-Clu	85-87.5%	Reactive-AMAP/Push-Pull-EA
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Explode Out Immediately
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	7s	Bodyweight	Reactive-AMAP/Push-Pull
B	Banded Cuban Press	4	x	7s	1/2" Band	Reactive-AMAP/Push-Pull-EA
C	Wrist Uln & Rad	4	x	7s	1 EA	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	4	x	7s	82.5-85%	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	4	x	7s	82.5-85%	Bottom 1/2, Reactive-AMAP-EA
C	Wrist Pro & Sup	4	x	7s	1 EA	Reactive-AMAP/Push-Pull-EA
D	SA Farmers Carry	4	x	20Y	Heavy	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 23 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	8	x	5s	85-90%	Max Reps, No Floor Touch
B	Common Lunge Matrix Plyo	8	x	3 EA		Continuous, 3 EA Way, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Squat	3	x	5s	80-85%	OC-D+1, EA
B	DB RDL	3	x	5s	80-85%	OC-D+1
C	Hip Flex Prone	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	3	x	5s	80-85%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar	3	x	5s	80-85%	Reactive-AMAP/Push-Pull
B	Contra. GH + DB Bench Press	3	x	5s	Light/Speed	OC-D+1, EA
C	Bench Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 23 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Z-Cone Agility	1	x	3 EA		7 yard Square
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	85-90%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	80-85%	OC-D+1
B	DB Bent Over Row	3	x	5s	80-85%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	80-85%	OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	5s		OC-D+1
B	Stiff Leg Ankle Hops	4	x	5s		Max Reps, No Heel Touch
C	Wrist Uln & Rad	4	x	5s		OC-D+1
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Contra. Glute Ham + DB Row	3	x	5s	Light	OC-D+1, EA
B	Wrist Pro & Sup	3	x	5s		OC-D+1
C	Band Crawl	3	x	20Y	Partner Pull	Controlled Movement
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 23 - Friday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Drill - Continuous	4	x	5s		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						
Block 2	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted Run	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 3	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Staggered Stance Start	2 EA	x	15Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets; Complete 4 Total Repetitions, 2 EA Leg Forward						
Block 4	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Chaos Drill - Mirror	6	x	5s		Partner Reactive, Sprint FWD, Shuffle BCK
1:00 Minute Rest Between Sets; Complete 3 Sets as the "Leader" and 3 as the "Follower"						
Block 5	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running + Return	1	x	5 EA		Partner Chase, COD @ Cones
1:00 Minute Rest Between Sets						

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Reactive 6-Day Elite Training Block Week 23 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	10s,10s-Clu	80-85%	Reactive-AMAP/Push-Pull-EA
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Explode Out Immediately
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Swissball 4-Way Neck	4	x	10s		Reactive-AMAP/Push-Pull-EA
F	Bench Groin	4	x	10s		Reactive-AMAP/Push-Pull-EA
G	Ankle Band Work	4	x	10s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	10s		Reactive-AMAP/Push-Pull
B	SA Band Straight Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable Straight Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	3	x	10s	80-85%	Reactive-AMAP/Push-Pull-EA
B	Bench Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	SWB Twist Down	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 24 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Speed/Agility Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						
Block 2	**Lower Body Warm-up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	12 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						
Block 3	**Lower Body Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Safety Bar Split Squat	4	x	7s,7s-Clu	85-87.5%	Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	7s		Reactive-AMAP/Push-Pull-EA
F	Bench Glute	4	x	7s		Reactive-AMAP/Push-Pull-EA
G	Ant. Tib Band	4	x	7s	1" Band	Reactive-AMAP-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						
Block 4	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Staggered Stance RDL	5	x	7s	82.5-85%	Reactive-AMAP/Push-Pull-EA
B	DB Common Lunge Matrix	5	x	3 EA	82.5-85%	3-FWD,3-LAT,3-ROT-EA
C	Bench Groin	5	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						
Block 5	**Lower Auxiliary Strength**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	SL Glute Ham Bar	4	x	7s	82.5-85%	Reactive-AMAP/Push-Pull-EA
B	Hip Flex Prone	4	x	7s		Reactive-AMAP/Push-Pull-EA
C	Partner Band Crawl	4	x	15Y	Partner Pull	
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 24 - Tuesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Speed/Agility Training**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — **Upper Body Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	7s,7s-Clu	85-87.5%	Reactive-AMAP/Push-Pull-EA
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Explode Out Immediately
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	7s	Partner Pull	Reactive-AMAP/Push-Pull
B	Banded Cuban Press	4	x	7s	1/2" Band	Reactive-AMAP/Push-Pull-EA
C	Wrist Uln & Rad	4	x	7s	1 EA	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — **Upper Auxiliary Strength**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Bent Over Row	4	x	7s	82.5-85%	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	4	x	7s	82.5-85%	Bottom 1/2, Reactive-AMAP-EA
C	Wrist Pro & Sup	4	x	7s	Partner Push	Reactive-AMAP/Push-Pull-EA
D	SA Farmers Carry	4	x	20Y	Heavy	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 24 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	8	x	5s	85-90%	Max Reps, No Floor Touch
B	Common Lunge Matrix Plyo	8	x	3 EA		Continuous, 3 EA Way, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Squat	3	x	5s	80-85%	OC-D+1, EA
B	DB RDL	3	x	5s	80-85%	OC-D+1
C	Hip Flex Prone	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	3	x	5s	80-85%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar	3	x	5s	80-85%	Reactive-AMAP/Push-Pull
B	Contra. GH + DB Bench Press	3	x	5s	Light/Speed	OC-D+1, EA
C	Bench Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 24 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Z-Cone Agility	1	x	3 EA		7 yard Square
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	85-90%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	80-85%	OC-D+1
B	DB Bent Over Row	3	x	5s	80-85%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	80-85%	OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	5s		OC-D+1
B	Stiff Leg Ankle Hops	4	x	5s		Max Reps, No Heel Touch
C	Wrist Uln & Rad	4	x	5s		OC-D+1
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Contra. Glute Ham + DB Row	3	x	5s	Light	OC-D+1, EA
B	Wrist Pro & Sup	3	x	5s		OC-D+1
C	Band Crawl	3	x	20Y	Partner Pull	Controlled Movement
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Reactive 6-Day Elite Training Block Week 24 - Friday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Wall Drill - Continuous	4	x	7s		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						
Block 2	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted Run	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						
Block 3	**Acceleration Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Staggered Stance Start	2 EA	x	15Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets; Complete 4 Total Repetitions, 2 EA Leg Forward						
Block 4	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Chaos Drill - Mirror	6	x	7s		Partner Reactive, Sprint FWD, Shuffle BCK
1:00 Minute Rest Between Sets; Complete 3 Sets as the "Leader" and 3 as the "Follower"						
Block 5	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running + Return	1	x	6 EA		Partner Chase, COD @ Cones
1:00 Minute Rest Between Sets						

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Reactive 6-Day Elite Training Block Week 24 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	10s,10s-Clu	80-85%	Reactive-AMAP/Push-Pull-EA
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Explode Out Immediately
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Swissball 4-Way Neck	4	x	10s		Reactive-AMAP/Push-Pull-EA
F	Bench Groin	4	x	10s		Reactive-AMAP/Push-Pull-EA
G	Ankle Band Work	4	x	10s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	10s		Reactive-AMAP/Push-Pull
B	SA Band Straight Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable Straight Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Strength

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	3	x	10s	80-85%	Reactive-AMAP/Push-Pull-EA
B	Bench Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	SWB Twist Down	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.19 Download (Week 25)

The download week is implemented to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

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Download 4-Day Elite Training Block Week 25 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 25 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	2	x	4m		Running at Max Heart Rate
Perform A for 2 Sets of 4 min; 2:30 rest between rounds						

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Download 4-Day Elite Training Block Week 25 - Friday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Download 4-Day Elite Training Block Week 25 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	30m		Heart Rate Between 135-155
Perform A for 1 Set for 30m; Can Be Completed Through Running, Biking, or an Elliptical						

4.20 Repeat-Power Training Block (Weeks 26-27)

In the repeat-power training block the primary goal of training shifts from absolute force production to the ability to produce force quickly. From the previous training phases every athlete should be capable of producing greater levels of absolute force. However, lacrosse requires this force to be produced rapidly. Increased strength, from the previous training blocks, is directly related to power production, as power is equivalent to force times velocity. Repeat-Power is improved in training by reducing the load utilized and increasing the velocity at which the movement is completed. The glycolytic energy system is re-addressed on the running days to improve this performance quality prior to the beginning of the season. The sport of lacrosse requires an athlete to run, not lift. For this reason, running days will begin to be completed at a higher frequency, in this case two days per week.

Goal Adaptations of Block:

- Increase power production through kinetic chain
- Movement efficiency
- Improve the SSC ability at increased velocities
- Reduce antagonist activation
- Improve “reactivity”
- Improve synchronization within individual muscles at increased velocities
- Enhance kinetic chain synchronization at increased velocities

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Repeat-Power 6-Day Elite Training Block Week 26 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	12 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	7s,7s-Clu	65-70%	Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	7s		Reactive-AMAP/Push-Pull-EA
F	Bench Glute	4	x	7s		Reactive-AMAP/Push-Pull-EA
G	Ant. Tib Band	4	x	7s	1" Band	Reactive-AMAP-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	5	x	7s	65-70%	Reactive-AMAP/Push-Pull-EA
B	DB Common Lunge Matrix	5	x	3 EA	65-70%	3-FWD,3-LAT,3-ROT-EA
C	Bench Groin	5	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	4	x	7s	65-70%	Reactive-AMAP/Push-Pull-EA
B	Hip Flex Prone	4	x	7s		Reactive-AMAP/Push-Pull-EA
C	Cable Rotational Pull to Press	4	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 26 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	7s,7s-Clu	65-70%	Reactive-AMAP/Push-Pull-EA
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Explode Out Immediately
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	7s		Reactive-AMAP/Push-Pull
B	Banded Cuban Press	4	x	7s	1/2" Band	Reactive-AMAP/Push-Pull-EA
C	Wrist Uln & Rad	4	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	4	x	7s EA	Moderate	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	4	x	7s	65-70%	Bottom 1/2, Reactive-AMAP-EA
C	Wrist Pro & Sup	4	x	7s		Reactive-AMAP/Push-Pull-EA
D	SA Farmers Carry	4	x	20Y	Moderate	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 26 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**
Block 1	**Glycolytic Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lactic Threshold Training	4	x	10x20s		Sprint Max Distance in 20 seconds
Perform A for 10 repetitions of 0:20 Sprint; 10 second rest between repetitions; Complete 4 Total Sets with Rest 2:00 between Sets						

Triphasic Lacrosse Training Manual

Repeat-Power 6-Day Elite Training Block Week 26 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5, Shuffle-Sprint-Shuffle
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	8	x	5s	75-80%	Max Reps, No Floor Touch
B	Common Lunge Matrix Plyo + Return	8	x	3 EA		Continuous, 3 EA Way, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 5 — Upper Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	75-80%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 6 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	3	x	5s	75-80%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
D	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 7 — Upper Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	75-80%	OC-D+1
B	DB Bent Over Row	3	x	5s	75-80%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	75-80%	OC-D+1
D	Chin-Up	3	x	5s		OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 26 - Friday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**
Block 1	**Glycolytic Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lactic Capacity Training	3	x	3x1:30		Sprinting at Max Speed
Perform A for 3 repetitions of 1:30 Sprint; 1:00 rest between repetitions; Complete 3 Total Sets with Rest 3:00 between Sets						

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Repeat-Power 6-Day Elite Training Block Week 26 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	10s,10s-Clu	55-60%	Reactive-AMAP/Push-Pull-EA
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Explode Out Immediately
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Swissball 4-Way Neck	4	x	10s		Reactive-AMAP/Push-Pull-EA
F	Bench Groin	4	x	10s		Reactive-AMAP/Push-Pull-EA
G	Ankle Band Work	4	x	10s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	10s		Reactive-AMAP/Push-Pull
B	SA Band St. Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable St. Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	3	x	10s	55-60%	Reactive-AMAP/Push-Pull-EA
B	Bench Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	SWB Twist Down	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 27 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 50's	1	x	6		20-10-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Wipers	3	x	12 EA		Max ROM, No Knee Mvmt
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	7s,7s-Clu	65-70%	Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump High, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	7s		Reactive-AMAP/Push-Pull-EA
F	Bench Glute	4	x	7s		Reactive-AMAP/Push-Pull-EA
G	Ant. Tib Band	4	x	7s	1" Band	Reactive-AMAP-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	5	x	7s	65-70%	Reactive-AMAP/Push-Pull-EA
B	DB Common Lunge Matrix	5	x	3 EA	65-70%	3-FWD,3-LAT,3-ROT-EA
C	Bench Groin	5	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 5 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	4	x	7s	65-70%	Reactive-AMAP/Push-Pull-EA
B	Hip Flex Prone	4	x	7s		Reactive-AMAP/Push-Pull-EA
C	Cable Rotational Pull to Press	4	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 27 - Tuesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		10 Yard Stairs + 10 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Upper Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	7s,7s-Clu	65-70%	Reactive-AMAP/Push-Pull-EA
B	Speed Bench Press	4	x	5	30-35%	Push-Pull, Full ROM
C	DB Incline Press	4	x	5	35-40%	Push-Pull, Full ROM
D	Rack Band Push-Up	4	x	5		Pull-In, Explode Out Immediately
E	Mini Band Scap Press	4	x	10	Green	
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pull-Up	4	x	7s		Reactive-AMAP/Push-Pull
B	Banded Cuban Press	4	x	7s	1/2" Band	Reactive-AMAP/Push-Pull-EA
C	Wrist Uln & Rad	4	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	4	x	7s EA	Moderate	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	4	x	7s	65-70%	Bottom 1/2, Reactive-AMAP-EA
C	Wrist Pro & Sup	4	x	7s		Reactive-AMAP/Push-Pull-EA
D	SA Farmers Carry	4	x	20Y	Moderate	
Perform A-D Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 27 - Wednesday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**
Block 1	**Glycolytic Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lactic Threshold Training	4	x	10x30s		Sprint Max Distance in 30 seconds
Perform A for 10 repetitions of 0:30 Sprint; 10 second rest between repetitions; Complete 4 Total Sets with Rest 2:00 between Sets						

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Repeat-Power 6-Day Elite Training Block Week 27 - Thursday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5, Shuffle-Sprint-Shuffle
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	8	x	5s	75-80%	Max Reps, No Floor Touch
B	Common Lunge Matrix Plyo + Return	8	x	3 EA		Continuous, 3 EA Way, EA Leg
Perform A-B Simultaneously for 8 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Mini-Band Scap Wall Walks	3	x	10 EA	Green	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 5 — Upper Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	4	x	5s	75-80%	Max Reps
B	One Arm Med Ball Pass	4	x	5 EA		Use Hips
C	Delt Bent Over OH Rebound Drop	4	x	5 EA		
Perform A-C Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 6 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Step Up	3	x	5s	75-80%	Bottom 1/2, EA
B	Glute Ham Hyper	3	x	5s		OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
D	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 7 — Upper Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	DB Incline Press	3	x	5s	75-80%	OC-D+1
B	DB Bent Over Row	3	x	5s	75-80%	OC-D+1, EA
C	DB Shoulder Press	3	x	5s	75-80%	OC-D+1
D	Chin-Up	3	x	5s		OC-D+1
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Repeat-Power 6-Day Elite Training Block Week 27 - Friday

Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**Glycolytic Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Lactic Capacity Training	3	x	3x2:00		Sprinting at Max Speed
Perform A for 3 repetitions of 2:00 Sprint; 1:00 rest between repetitions; Complete 3 Total Sets with Rest 3:00 between Sets						

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Repeat-Power 6-Day Elite Training Block Week 27 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	4	x	10s,10s-Clu	55-60%	Reactive-AMAP/Push-Pull-EA
B	Lateral Hurdle Hop	4	x	3 EA		Jump High, Continuous
C	Resisted Speed Skater Jumps	4	x	3 EA		Pull-In, Explode Out Immediately
D	Band Assisted Shuffle	4	x	1 EA		5 Yards EA
E	Swissball 4-Way Neck	4	x	10s		Reactive-AMAP/Push-Pull-EA
F	Bench Groin	4	x	10s		Reactive-AMAP/Push-Pull-EA
G	Ankle Band Work	4	x	10s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	4	x	10s		Reactive-AMAP/Push-Pull
B	SA Band St. Arm Lat Pull-Down	4	x	4 EA		Speed
C	SA Cable St. Arm Lat Pull-Down	4	x	4 EA		Power
D	MB OH Slams	4	x	5		
E	Banded Cuban Press	4	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Power

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance RDL	3	x	10s	55-60%	Reactive-AMAP/Push-Pull-EA
B	Bench Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	SWB Twist Down	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.21 Download (Week 28)

The download week is implemented to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

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Download 4-Day Elite Training Block Week 28 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 28 - Wednesday

Pre — **Pre-Running, Multi-Dimensional Warm-Up**

Block 1 — **Glute Function Series Warm-Up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — **Oxidative Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Threshold Training	2	x	4m		Running at Max Heart Rate

Perform A for 2 Sets of 4 min; 2:30 rest between rounds

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Download 4-Day Elite Training Block Week 28 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Download 4-Day Elite Training Block Week 28 - Satuday

Pre — **Pre-Running, Multi-Dimensional Warm-Up**

Block 1 — **Glute Function Series Warm-Up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow

Perform A-D as a Glute Funtion Warm-Up Series Prior to Training

Block 2 — **Oxidative Energy System Conditioning**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Cardiac Output	1	x	30m		Heart Rate Between 135-155

Perform A for 1 Set for 30m; Can Be Completed Through Running, Biking, or an Elliptical

4.22 Speed Training Block (Weeks 29-30)

The repeat-power block lays the foundation for the speed training block, just as strength laid the foundation for power. The speed block is the most transferrable training phase as it is executed in the most specific manner to the sport of lacrosse. The primary goal of this training phase is to maximize RFD for each movement trained. In order to train this phase to the highest extent, low-loads at the highest possible velocities must be trained. Performance coaches must remember their goal is to not only prepare athletes optimally for the physical demands of competition, but also for the requirements of practice. These are commonly not identical stressors and must be considered individually. For this reason, running days are now completed three days per week and are all aimed at improving the ATP/Cr-P energy system and also include metabolic change of direction work. This leads to optimal performance on the lacrosse field and “peaks” an athlete specifically for the requirements of the sport.

Goal Adaptations of Block:

- Maximize RFD production through kinetic chain
- Movement efficiency at highest velocities
- Improve the SSC ability at velocities similar to lacrosse
- Reduce antagonist activation at high-velocities
- Improve “reactivity” at lacrosse game speeds
- Improve synchronization within individual muscles at highest velocities
- Enhance kinetic chain synchronization at highest velocities

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Speed 6-Day Elite Training Block Week 29 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 60's	1	x	6		20-20-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	7s	1" Band	Max ROM, Speed
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	4	x	7s,7s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	7s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Glute	4	x	7s		Reactive-AMAP/Push-Pull-EA
G	Banded Hip Flexor Pulls	4	x	7s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 5 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	35-40%	Reactive-AMAP/Push-Pull-EA
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	OC Rack Band Press	3	x	7s		OC-D+1
D	Pull-Up	3	x	7s		Bottom 1/2, Reactive-AMAP
E	Banded Cuban Press	3	x	7s		
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	3 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Speed Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	Glute Ham Bar Lift	3	x	7s	35-40%	OC-D+1
D	Banded Paw Back	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 6-Day Elite Training Block Week 29 - Tuesday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1 — Acceleration Technique Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	SA Wall Drill - Continuous	4	x	7s		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						

Block 2 — Acceleration Technique Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Band Resisted Run	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						

Block 3 — Acceleration Technique Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Staggered Stance Start	2 EA	x	15Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets; Complete 4 Total Repetitions, 2 EA Leg Forward						

Block 4 — ATP/Cr-P Energy System Conditioning

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Crease Running + Return	1	x	5 EA		Partner Chase, COD @ Cones
1:00 Minute Rest Between Sets						

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Speed 6-Day Elite Training Block Week 29 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5, Shuffle-Sprint-Shuffle
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Kneel. 3-Way Hip Flex	6	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 7 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 6-Day Elite Training Block Week 29 - Thursday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Decel Drill	4	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 2	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Shuffle Decel Drill	4	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 3	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Chaos Drill - Mirror	6	x	5s		Partner Reactive, Sprint FWD, Shuffle BCK
1:00 Minute Rest Between Sets; Complete 3 Sets as the "Leader" and 3 as the "Follower"						
Block 4	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Box Drill	1	x	4 EA		Shuffle-Sprint-Shuffle
1:00 Minute Rest Between Sets						

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Speed 6-Day Elite Training Block Week 29 - Friday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	4	x	10s,10s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	10s		Reactive-AMAP/Push-Pull-EA
F	Ball Groin Squeeze	4	x	10s		Reactive-AMAP/Push-Pull
G	Glute Wind-Up	4	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	10s	35-40%	Reactive-AMAP/Push-Pull-EA
B	MB OH Slams	3	x	5		
C	Banded Cuban Press	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 6-Day Elite Training Block Week 29 - Saturday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Shuffle 5-RT; Shuffle 5-LT; Sprint 20	5	x	1		
B	Backpedal 5; Sprint 10; Backpedal 5; Sprint 10	5	x	1		
C	Sprint 5; Shuffle Back 45° RT; Sprint 5; Shuffle Back 45° LT	5	x	1		
D	Sprint 15; Shuffle 10-RT; Sprint 15; Shuffle 10-LT	5	x	1		
E	Sprint 10; 45° Dodge-RT; Sprint 10	5	x	1		
F	Sprint 10; 45° Dodge-LT; Sprint 10	5	x	1		
G	Shuffle 10-RT; Turn and Sprint 10; Shuffle 10-LT	5	x	1		
H	Shuffle 10-LT; Turn and Sprint 10; Shuffle 10-RT	5	x	1		
30 Seconds Rest Between Exercises; Rest 2:00 between rounds						
Perform A-D at Maximal Speed, Simultaneously for 5 Sets						

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Speed 6-Day Elite Training Block Week 30 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Flying 60's	1	x	6		20-20-20, Bound-Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	7s	1" Band	Max ROM, Speed
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	4	x	7s,7s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	7s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Glute	4	x	7s		Reactive-AMAP/Push-Pull-EA
G	Banded Hip Flexor Pulls	4	x	7s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 5 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	35-40%	Reactive-AMAP/Push-Pull-EA
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	OC Rack Band Press	3	x	7s		OC-D+1
D	Pull-Up	3	x	7s		Bottom 1/2, Reactive-AMAP
E	Banded Cuban Press	3	x	7s		
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	3 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Speed Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	Glute Ham Bar Lift	3	x	7s	35-40%	OC-D+1
D	Banded Paw Back	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 6-Day Elite Training Block Week 30 - Tuesday

Pre	Pre-Running, Multi-Dimensional Warm-Up

Block 1	Acceleration Technique Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	SA Wall Drill - Continuous	4	x	7s		Drive Hips FWD, Leg in Piston Motion
1:00 Minute Rest Between Reps						

Block 2	Acceleration Technique Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Band Resisted Run	6	x	10Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets						

Block 3	Acceleration Technique Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Staggered Stance Start	2 EA	x	15Y		Drive Hips FWD, Maintain Angle
1:00 Minute Rest Between Sets; Complete 4 Total Repetitions, 2 EA Leg Forward						

Block 4	ATP/Cr-P Energy System Conditioning					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Crease Running + Return	1	x	6 EA		Partner Chase, COD @ Cones
1:00 Minute Rest Between Sets						

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Speed 6-Day Elite Training Block Week 30 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Pro-Agility	1	x	3 EA		5-10-5, Shuffle-Sprint-Shuffle
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Kneel. 3-Way Hip Flex	6	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 7 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 6-Day Elite Training Block Week 30 - Thursday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Decel Drill	4	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 2	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Partner Reactive Shuffle Decel Drill	4	x	4 EA		Decel With Partner, 4 EA Leg
1:00 Minute Rest Between Sets						
Block 3	**Change of Direction Technique Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Chaos Drill - Mirror	6	x	5s		Partner Reactive, Sprint FWD, Shuffle BCK
1:00 Minute Rest Between Sets; Complete 3 Sets as the "Leader" and 3 as the "Follower"						
Block 4	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Box Drill	1	x	5 EA		Shuffle-Sprint-Shuffle
1:00 Minute Rest Between Sets						

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Speed 6-Day Elite Training Block Week 30 - Friday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Speed/Agility Training

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Stairs + Turn & Sprint	1	x	3 EA		15 Yard Stairs + 15 Sprint
1:30 Minute Rest Between Reps						

Block 2 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 3 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	4	x	10s,10s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	4	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	4	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	4	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	4	x	10s		Reactive-AMAP/Push-Pull-EA
F	Ball Groin Squeeze	4	x	10s		Reactive-AMAP/Push-Pull
G	Glute Wind-Up	4	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 4 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	10s	35-40%	Reactive-AMAP/Push-Pull-EA
B	MB OH Slams	3	x	5		
C	Banded Cuban Press	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 6-Day Elite Training Block Week 30 - Saturday						
Pre	**Pre-Running, Multi-Dimensional Warm-Up**					
Block 1	**ATP/Cr-P Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Shuffle 5-RT; Shuffle 5-LT; Sprint 20	5	x	1		
B	Backpedal 5; Sprint 10; Backpedal 5; Sprint 10	5	x	1		
C	Sprint 5; Shuffle Back 45° RT; Sprint 5; Shuffle Back 45° LT	5	x	1		
D	Sprint 15; Shuffle 10-RT; Sprint 15; Shuffle 10-LT	5	x	1		
E	Sprint 10; 45° Dodge-RT; Sprint 10	5	x	1		
F	Sprint 10; 45° Dodge-LT; Sprint 10	5	x	1		
G	Shuffle 10-RT; Turn and Sprint 10; Shuffle 10-LT	5	x	1		
H	Shuffle 10-LT; Turn and Sprint 10; Shuffle 10-RT	5	x	1		
25 Seconds Rest Between Exercises; Rest 1:45 between rounds						
Perform A-D at Maximal Speed, Simultaneously for 5 Sets						

4.23 Download (Week 31)

The download week is implemented to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 31 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 31 - Wednesday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Threshold Training	2	x	4m		Running at Max Heart Rate
Perform A for 2 Sets of 4 min; 2:30 rest between rounds						

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Download 4-Day Elite Training Block Week 31 - Friday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	25s		Complete As Many Reps As Possible
Perform A for 1 Set @ 25s on 10s off						

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Download 4-Day Elite Training Block Week 31 - Satuday

Pre	Pre-Running, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Conditioning**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Cardiac Output	1	x	30m		Heart Rate Between 135-155
Perform A for 1 Set for 30m; Can Be Completed Through Running, Biking, or an Elliptical						

4.24 Speed Training Block (Weeks 32-34)

This is the first block implemented while in-season practices are occurring. As the season occurs performance coaches must consider the intensity and volume which take place in-season. For this reason, training of the speed block is implemented only three days per week. The speed block is trained again for two reasons. First of all, the athlete experiences a stressor he is extremely familiar with. This is important as the athlete is now experiencing a new stressor in the form of practice. Training in a fashion the body is adapted to reduces the stress experienced in training. Secondly, by continuing to train the speed quality an athlete can be "peaked" for the first competition of the season. The adaptations for this training phase remain the same as the previous speed block. There is no running completed as conditioning occurs during practice sessions.

Goal Adaptations of Block:

- Maximize RFD production through kinetic chain
- Movement efficiency at highest velocities
- Improve the SSC ability at velocities similar to lacrosse
- Reduce antagonist activation at high-velocities
- Improve "reactivity" at lacrosse game speeds
- Improve synchronization within individual muscles at highest velocities
- Enhance kinetic chain synchronization at highest velocities

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Speed 3-Day Elite Training Block Week 32 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	7s	1" Band	Max ROM, Speed
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	7s,7s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
G	Banded Hip Flexor Pulls	3	x	7s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	35-40%	Reactive-AMAP/Push-Pull-EA
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	OC Rack Band Press	3	x	7s		OC-D+1
D	Pull-Up	3	x	7s		Bottom 1/2, Reactive-AMAP
E	Banded Cuban Press	3	x	7s		
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	3 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Speed Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	Glute Ham Bar Lift	3	x	7s	35-40%	OC-D+1
D	Banded Paw Back	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 32 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Kneel. 3-Way Hip Flex	6	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 32 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	10s,10s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	10s		Reactive-AMAP/Push-Pull-EA
F	Ball Groin Squeeze	3	x	10s		Reactive-AMAP/Push-Pull
G	Glute Wind-Up	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	10s	35-40%	Reactive-AMAP/Push-Pull-EA
B	MB OH Slams	3	x	5		
C	Banded Cuban Press	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 33 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	7s	1" Band	Max ROM, Speed
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	7s,7s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
G	Banded Hip Flexor Pulls	3	x	7s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	35-40%	Reactive-AMAP/Push-Pull-EA
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	OC Rack Band Press	3	x	7s		OC-D+1
D	Pull-Up	3	x	7s		Bottom 1/2, Reactive-AMAP
E	Banded Cuban Press	3	x	7s		
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	3 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Speed Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	Glute Ham Bar Lift	3	x	7s	35-40%	OC-D+1
D	Banded Paw Back	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 33 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Kneel. 3-Way Hip Flex	6	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 33 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	10s,10s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	10s		Reactive-AMAP/Push-Pull-EA
F	Ball Groin Squeeze	3	x	10s		Reactive-AMAP/Push-Pull
G	Glute Wind-Up	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	10s	35-40%	Reactive-AMAP/Push-Pull-EA
B	MB OH Slams	3	x	5		
C	Banded Cuban Press	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 34 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	7s	1" Band	Max ROM, Speed
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	7s,7s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
G	Banded Hip Flexor Pulls	3	x	7s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	35-40%	Reactive-AMAP/Push-Pull-EA
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	OC Rack Band Press	3	x	7s		OC-D+1
D	Pull-Up	3	x	7s		Bottom 1/2, Reactive-AMAP
E	Banded Cuban Press	3	x	7s		
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	3 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Speed Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	Glute Ham Bar Lift	3	x	7s	35-40%	OC-D+1
D	Banded Paw Back	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 34 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Kneel. 3-Way Hip Flex	6	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Bench Glute	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Bench Groin	3	x	5s		OC-D+1, EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Speed 3-Day Elite Training Block Week 34 - Saturday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	10s,10s-Clu		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	10s		Reactive-AMAP/Push-Pull-EA
F	Ball Groin Squeeze	3	x	10s		Reactive-AMAP/Push-Pull
G	Glute Wind-Up	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	10s	35-40%	Reactive-AMAP/Push-Pull-EA
B	MB OH Slams	3	x	5		
C	Banded Cuban Press	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.25 Download (Week 35)

In-Season, the download week is now implemented on only a two-day basis. However, the goals remain to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality

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Download 4-Day Elite Training Block Week 35 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 35 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 10s off						

4.26 Eccentric Hybrid Training Block (Weeks 36-38)

The hybrid model is incorporated throughout the in-season training model of the Triphasic Lacrosse Training Model. This hybrid model takes into account the athlete's nervous system needs to the greatest extent, while continuing to consider the residual training effects of the other six physical performance qualities. This weekly model consists of two days per week as competitions are now completed every week and considers the training of each physical performance quality. Strength and power phases are implemented early in the week, with speed training being completed on the second training day. This weekly sequence allows the athlete to be neutrally "peaked" for the upcoming competition. The eccentric muscle action phase is also re-addressed in this training block. It is critical performance coaches be adaptable during in-season training. If athletes are fatigued, then neural work may not be possible as it requires high-quality training. Always remember that it does not have to be done because it is written on an athlete's program.

Goal Adaptations of Block:

- Maximize physical preparedness for competition
- Maintain each quality at optimal levels
- Re-address isometric training block adaptations
- "Peak" athletes for competition

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Eccentric Hybrid 2-Day Elite Training Block Week 36 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	5 Sec Ecc, 3 Reps EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps, % Based on Athlete
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		5 Sec Ecc, EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	3x5s		5 Sec Ecc, 3 Reps EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps, % Based on Athlete
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	3x5s		5 Sec Ecc, 3 Reps EA, Load Glute
D	Pull-Up	3	x	3x5s		5 Sec Ecc, 3 Reps
E	Banded Cuban Press	3	x	3x5s		5 Sec Ecc, 3 Reps EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps
B	Bench Groin	3	x	3x5s		5 Sec Ecc, 3 Reps EA
C	DB Common Lunge Matrix	3	x	5s	65-80%	5 Sec Ecc-FWD,LAT,ROT
D	SA Farmers Carry	3	x	20Y	Moderate	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric Hybrid 2-Day Elite Training Block Week 36 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Glute Wind-Up	6	x	5 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Banded Speed Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Eccentric Hybrid 2-Day Elite Training Block Week 37 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	5 Sec Ecc, 3 Reps EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps, % Based on Athlete
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		5 Sec Ecc, EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	3x5s		5 Sec Ecc, 3 Reps EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — **Upper Body Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps, % Based on Athlete
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	3x5s		5 Sec Ecc, 3 Reps EA, Load Glute
D	Pull-Up	3	x	3x5s		5 Sec Ecc, 3 Reps
E	Banded Cuban Press	3	x	3x5s		5 Sec Ecc, 3 Reps EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — **Lower Auxiliary Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps
B	Bench Groin	3	x	3x5s		5 Sec Ecc, 3 Reps EA
C	DB Common Lunge Matrix	3	x	5s	65-80%	5 Sec Ecc-FWD,LAT,ROT
D	SA Farmers Carry	3	x	20Y	Moderate	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Eccentric Hybrid 2-Day Elite Training Block Week 37 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Glute Wind-Up	6	x	5 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Banded Speed Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Eccentric Hybrid 2-Day Elite Training Block Week 38 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	5 Sec Ecc, 3 Reps EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps, % Based on Athlete
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		5 Sec Ecc, EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	3x5s		5 Sec Ecc, 3 Reps EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — **Upper Body Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps, % Based on Athlete
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	3x5s		5 Sec Ecc, 3 Reps EA, Load Glute
D	Pull-Up	3	x	3x5s		5 Sec Ecc, 3 Reps
E	Banded Cuban Press	3	x	3x5s		5 Sec Ecc, 3 Reps EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — **Lower Auxiliary Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	3x5s	65-80%	5 Sec Ecc, 3 Reps
B	Bench Groin	3	x	3x5s		5 Sec Ecc, 3 Reps EA
C	DB Common Lunge Matrix	3	x	5s	65-80%	5 Sec Ecc-FWD,LAT,ROT
D	SA Farmers Carry	3	x	20Y	Moderate	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Eccentric Hybrid 2-Day Elite Training Block Week 38 - Wednesday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Glute Wind-Up	6	x	5 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Banded Speed Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.27 Download (Week 39)

In-Season, the download week is now implemented on only a two-day basis. However, the goals remain to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality
- Maximize physical preparedness for competition
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 39 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 39 - Wednesday

Pre	**Pre-Training, Multi-Dimensional Warm-Up**

Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 10s off						

4.28 Isometric Hybrid Training Block (Weeks 40-42)

As with the previous hybrid training model, the six physical performance qualities are considered along with their residual training are considered in this weekly training model. Strength is trained early in the week, with speed being trained in the second training session to prepare athletes optimally to compete. The isometric muscle action phase is re-addressed in this training block. As always, be adaptable and adjust programming as needed according to each of your athletes.

Goal Adaptations of Block:

- Maximize physical preparedness for competition
- Maintain each quality at optimal levels
- Re-address isometric training block adaptations
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Isometric Hybrid 2-Day Elite Training Block Week 40 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — **Lower Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	5 Sec Iso, 3 Reps EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — **Lower Body Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps, % Based on Athlete
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		5 Sec Iso, EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	3x5s		5 Sec Iso, 3 Reps EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — **Upper Body Warm-up**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — **Upper Body Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps, % Based on Athlete
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	3x5s		5 Sec Iso, 3 Reps EA, Load Glute
D	Pull-Up	3	x	3x5s		5 Sec Iso, 3 Reps
E	Banded Cuban Press	3	x	3x5s		5 Sec Iso, 3 Reps EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — **Lower Auxiliary Speed**

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps
B	Bench Groin	3	x	3x5s		5 Sec Iso, 3 Reps EA
C	DB Common Lunge Matrix	3	x	5s	65-80%	5 Sec Iso-FWD,LAT,ROT
D	SA Farmers Carry	3	x	20Y	Moderate	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Isometric Hybrid 2-Day Elite Training Block Week 40 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Glute Wind-Up	6	x	5 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Banded Speed Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric Hybrid 2-Day Elite Training Block Week 41 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	5 Sec Iso, 3 Reps EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps, % Based on Athlete
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		5 Sec Iso, EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	3x5s		5 Sec Iso, 3 Reps EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps, % Based on Athlete
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	3x5s		5 Sec Iso, 3 Reps EA, Load Glute
D	Pull-Up	3	x	3x5s		5 Sec Iso, 3 Reps
E	Banded Cuban Press	3	x	3x5s		5 Sec Iso, 3 Reps EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps
B	Bench Groin	3	x	3x5s		5 Sec Iso, 3 Reps EA
C	DB Common Lunge Matrix	3	x	5s	65-80%	5 Sec Iso-FWD,LAT,ROT
D	SA Farmers Carry	3	x	20Y	Moderate	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Isometric Hybrid 2-Day Elite Training Block Week 41 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Glute Wind-Up	6	x	5 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Banded Speed Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Isometric Hybrid 2-Day Elite Training Block Week 42 - Monday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	5 Sec Iso, 3 Reps EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps, % Based on Athlete
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		5 Sec Ecc, EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	3x5s		5 Sec Iso, 3 Reps EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps, % Based on Athlete
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	3x5s		5 Sec Iso, 3 Reps EA, Load Glute
D	Pull-Up	3	x	3x5s		5 Sec Iso, 3 Reps
E	Banded Cuban Press	3	x	3x5s		5 Sec Iso, 3 Reps EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	3x5s	65-80%	5 Sec Iso, 3 Reps
B	Bench Groin	3	x	3x5s		5 Sec Iso, 3 Reps EA
C	DB Common Lunge Matrix	3	x	5s	65-80%	5 Sec Iso-FWD,LAT,ROT
D	SA Farmers Carry	3	x	20Y	Moderate	
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Isometric Hybrid 2-Day Elite Training Block Week 42 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
Perform A as a Warm-Up for Heavier Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Drop Jump DB Split Squat	6	x	2 EA	45-55%	Drop into Position and Explode Out
B	Glute Wind-Up	6	x	5 EA		Wind-Up Around Glute
Perform A-B Simultaneously for 6 Sets						
25 Seconds Rest Between Exercises; 1:30 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s		OC-D+1
B	MB OH Slams	3	x	5		
C	Delt Bent Over OH Rebound Drop	3	x	5 EA		
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Speed Switch Cycle Lunge	3	x	5s		OC-D+1
B	DB SL RDL	3	x	5s	45-55%	OC-D+1, EA
C	Banded Speed Glute	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 5 — Upper Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Split Stance Cable Rotational Row	3	x	5s EA	Speed	Reactive-AMAP/Push-Pull
B	DB Shoulder Press	3	x	5s	45-55%	OC-D+1
C	Cable Rotational Pull to Press	3	x	4 EA		Low to High, Violent Hip Drive
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Block 6 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Banded Hip Flexor Pulls	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Glute Ham Bar Lift	3	x	5s	45-55%	OC-D+1
C	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.29 Download (Week 43)

In-Season, the download week is now implemented on only a two-day basis. However, the goals remain to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality
- Maximize physical preparedness for competition
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 39 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

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Download 4-Day Elite Training Block Week 39 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 10s off						

4.30 Hybrid Training Block (Weeks 44-45)

In the hybrid training model, the six physical performance qualities are considered along with their residual training are considered in this weekly training model. Strength is trained early in the week, with speed being trained in the second training session to prepare athletes optimally to compete. Reactive training is completed on both days as the SSC and other neural factors now become the primary goal of training. As always, be adaptable and adjust programming as needed according to each of your athletes.

Goal Adaptations of Block:

- Maximize physical preparedness for competition
- Maintain each quality at optimal levels
- Maximize use of SSC
- Re-address power training block adaptations
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 44 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	7s	65-80%	Reactive-AMAP/Push-Pull, No Floor Touch
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	65-80%	Reactive-AMAP/Push-Pull
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	7s		Reactive-AMAP/Push-Pull-EA, Load Glute
D	Pull-Up	3	x	7s		Reactive-AMAP/Push-Pull
E	Banded Cuban Press	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	7s	65-80%	Reactive-AMAP/Push-Pull
B	Bench Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	DB Common Lunge Matrix	3	x	3 EA	65-80%	Reactive-AMAP/Push-Pull-EA
D	Contra. Glute Ham + DB Row	3	x	7s	Light	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Hybrid 2-Day Elite Training Block Week 44 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Speed Skater Jumps	3	x	3 EA		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
G	Glute Wind-Up to Jump	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s	35-40%	Reactive-AMAP/Push-Pull
B	MB OH Slams	3	x	5		
C	Split Stance Cable Rotational Row	3	x	5s	Speed	Reactive-AMAP/Push-Pull
D	Banded Cuban Press	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

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Hybrid 2-Day Elite Training Block Week 45 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	7s	65-80%	Reactive-AMAP/Push-Pull, No Floor Touch
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	3	x	7s	65-80%	Reactive-AMAP/Push-Pull
B	One Arm Med Ball Pass	3	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	3	x	7s		Reactive-AMAP/Push-Pull-EA, Load Glute
D	Pull-Up	3	x	7s		Reactive-AMAP/Push-Pull
E	Banded Cuban Press	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	3	x	7s	65-80%	Reactive-AMAP/Push-Pull
B	Bench Groin	3	x	7s		Reactive-AMAP/Push-Pull-EA
C	DB Common Lunge Matrix	3	x	3 EA	65-80%	Reactive-AMAP/Push-Pull-EA
D	Contra. Glute Ham + DB Row	3	x	7s	Light	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 45 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Speed Skater Jumps	3	x	3 EA		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
G	Glute Wind-Up to Jump	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	3	x	5s	35-40%	Reactive-AMAP/Push-Pull
B	MB OH Slams	3	x	5		
C	Split Stance Cable Rotational Row	3	x	5s	Speed	Reactive-AMAP/Push-Pull
D	Banded Cuban Press	3	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	3	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	3	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	3	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	3	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises						

4.31 Download (Week 46)

In-Season, the download week is now implemented on only a two-day basis. However, the goals remain to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality
- Maximize physical preparedness for competition
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 46 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Oxidative Energy System Training**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 15s off						

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 46 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Metabolic Sandbell Circuit	1	x	20s		Complete As Many Reps As Possible
Perform A for 1 Set @ 20s on 10s off						

4.32 Hybrid Training Block (Weeks 47-48)

In the hybrid training model, the six physical performance qualities are considered along with their residual training are considered in this weekly training model. Strength is trained early in the week, with speed being trained in the second training session to prepare athletes optimally to compete. Reactive training is completed on both days as the SSC and other neural factors now become the primary goal of training. As always, be adaptable and adjust programming as needed according to each of your athletes.

Goal Adaptations of Block:

- Maximize physical preparedness for competition
- Maintain each quality at optimal levels
- Maximize use of SSC
- Re-address power training block adaptations
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 47 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	7s	55-65%	Reactive-AMAP/Push-Pull, No Floor Touch
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	2	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	One Arm Med Ball Pass	2	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	2	x	7s		Reactive-AMAP/Push-Pull-EA, Load Glute
D	Pull-Up	2	x	7s		Reactive-AMAP/Push-Pull
E	Banded Cuban Press	2	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	2	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	Bench Groin	2	x	7s		Reactive-AMAP/Push-Pull-EA
C	Common Lunge Matrix Plyo	2	x	3 EA	55-65%	Continuous, 3 EA Way, EA Leg
D	Contra. Glute Ham + DB Row	2	x	7s	Light	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 47 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Speed Skater Jumps	3	x	3 EA		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
G	Glute Wind-Up to Jump	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	2	x	5s	35-40%	Reactive-AMAP/Push-Pull
B	MB OH Slams	2	x	5		
C	Split Stance Cable Rotational Row	2	x	5s	Speed	Reactive-AMAP/Push-Pull
D	Banded Cuban Press	2	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	2	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	2	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	2	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	2	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises						

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Hybrid 2-Day Elite Training Block Week 48 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	3	x	7s	55-65%	Reactive-AMAP/Push-Pull, No Floor Touch
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	3	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	7s		Reactive-AMAP/Push-Pull-EA
F	Kneel. 3-Way Hip Flex	3	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	3	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	2	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	One Arm Med Ball Pass	2	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	2	x	7s		Reactive-AMAP/Push-Pull-EA, Load Glute
D	Pull-Up	2	x	7s		Reactive-AMAP/Push-Pull
E	Banded Cuban Press	2	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	2	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	Bench Groin	2	x	7s		Reactive-AMAP/Push-Pull-EA
C	Common Lunge Matrix Plyo	2	x	3 EA	55-65%	Continuous, 3 EA Way, EA Leg
D	Contra. Glute Ham + DB Row	2	x	7s	Light	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 48 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	3	x	5s		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	3	x	4		Jump for Distance, Continuous
C	Speed Skater Jumps	3	x	3 EA		Pull-In, Explode Out Immediately
D	Accel. Band Jump	3	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	3	x	5s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Groin	3	x	5s		Reactive-AMAP/Push-Pull-EA
G	Glute Wind-Up to Jump	3	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 3 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	2	x	5s	35-40%	Reactive-AMAP/Push-Pull
B	MB OH Slams	2	x	5		
C	Split Stance Cable Rotational Row	2	x	5s	Speed	Reactive-AMAP/Push-Pull
D	Banded Cuban Press	2	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	2	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	2	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	2	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	2	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises						

4.33 Download (Week 49)

In-Season, the download week is now implemented on only a two-day basis. However, the goals remain to allow an athlete recovery time between intensive training blocks. Referring back to the GAS principles described in section one, it is during the recovery periods of training in which maximal adaptations occur. By allowing an athlete to recover from the previous, intense training phase, his body will improve to the greatest extent. The importance of these training weeks cannot be overlooked. Rest is a weapon and must be implemented at appropriate times within training. Both training and running days are completed in an oxidative fashion, with the implementation of the glute layering system and other circuit style methods.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Re-address glute function training
- Re-address oxidative performance quality
- Maximize physical preparedness for competition
- “Peak” athletes for competition

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 49 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	15s		Complete As Many Reps As Possible
Perform A for 1 Set @ 15s on 15s off						

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 49 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Regeneration Training Series					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Foam Roller Regen. Circuit	1	x	Ind.		
B	Band Mobility Series	1	x	Ind.		
Perform A and/or B as Desired per Individual Athlete						

4.34 Hybrid Training Block (Weeks 50-51)

In the hybrid training model, the six physical performance qualities are considered along with their residual training are considered in this weekly training model. Strength is trained early in the week, with speed being trained in the second training session to prepare athletes optimally to compete. Reactive training is completed on both days as the SSC and other neural factors now become the primary goal of training. As always, be adaptable and adjust programming as needed according to each of your athletes. Volume is typically reduced while intensity of the lift remains. This allows an athlete to "taper" while maintaining a high-level of CNS output, ultimately peaking for NCAA tournament time.

Goal Adaptations of Block:

- Maximize physical preparedness for competition
- Maintain each quality at optimal levels
- Maximize use of SSC
- Re-address power training block adaptations
- "Peak" athletes for competition

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 50 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	2	x	7s	55-65%	Reactive-AMAP/Push-Pull, No Floor Touch
B	Hurdle Hop	2	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	2	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	2	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	2	x	7s		Reactive-AMAP/Push-Pull-EA
F	Kneel. 3-Way Hip Flex	2	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	2	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	2	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	One Arm Med Ball Pass	2	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	2	x	7s		Reactive-AMAP/Push-Pull-EA, Load Glute
D	Pull-Up	2	x	7s		Reactive-AMAP/Push-Pull
E	Banded Cuban Press	2	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	1	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	Bench Groin	1	x	7s		Reactive-AMAP/Push-Pull-EA
C	Common Lunge Matrix Plyo	1	x	3 EA	55-65%	Continuous, 3 EA Way, EA Leg
D	Contra. Glute Ham + DB Row	1	x	7s	Light	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 1 Set						
25 Seconds Rest Between Exercises						

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Hybrid 2-Day Elite Training Block Week 50 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	2	x	5s		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	2	x	4		Jump for Distance, Continuous
C	Speed Skater Jumps	2	x	3 EA		Pull-In, Explode Out Immediately
D	Accel. Band Jump	2	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	2	x	5s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Groin	2	x	5s		Reactive-AMAP/Push-Pull-EA
G	Glute Wind-Up to Jump	2	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	2	x	5s	35-40%	Reactive-AMAP/Push-Pull
B	MB OH Slams	2	x	5		
C	Split Stance Cable Rotational Row	2	x	5s	Speed	Reactive-AMAP/Push-Pull
D	Banded Cuban Press	2	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	1	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	1	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	1	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	1	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 1 Set						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 51 - Monday

Pre — Pre-Training, Multi-Dimensional Warm-Up

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Band Work	3	x	3x5s	1" Band	Reactive-AMAP/Push-Pull-EA
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Hex Bar Deadlift	2	x	7s	55-65%	Reactive-AMAP/Push-Pull, No Floor Touch
B	Hurdle Hop	2	x	4		Jump for Distance, Continuous
C	Wt. Squat Jump	2	x	4		Pull-In, Explode Out Immediately
D	Accel. Band Jump	2	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	2	x	7s		Reactive-AMAP/Push-Pull-EA
F	Kneel. 3-Way Hip Flex	2	x	5 EA		5-FWD,5-LT,5-RT, EA Leg
G	Bench Glute	2	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-G Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Band Pull-Aparts	3	x	10	1/2" Band	
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 4 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Bench Press	2	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	One Arm Med Ball Pass	2	x	5 EA		Use Hips
C	Split Stance Cable Rotational Row	2	x	7s		Reactive-AMAP/Push-Pull-EA, Load Glute
D	Pull-Up	2	x	7s		Reactive-AMAP/Push-Pull
E	Banded Cuban Press	2	x	7s		Reactive-AMAP/Push-Pull-EA
Perform A-E Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 5 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Glute Ham Bar Lift	1	x	7s	55-65%	Reactive-AMAP/Push-Pull
B	Bench Groin	1	x	7s		Reactive-AMAP/Push-Pull-EA
C	Common Lunge Matrix Plyo	1	x	3 EA	55-65%	Continuous, 3 EA Way, EA Leg
D	Contra. Glute Ham + DB Row	1	x	7s	Light	Reactive-AMAP/Push-Pull-EA
Perform A-C Simultaneously for 1 Set						
25 Seconds Rest Between Exercises						

Triphasic Lacrosse Training Manual

Hybrid 2-Day Elite Training Block Week 51 - Wednesday

Pre — **Pre-Training, Multi-Dimensional Warm-Up**

Block 1 — Lower Body Warm-up

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Safety Bar Split Squat	1,1,1	x	5,3,3	50-80%	Warm-Up
B	Ankle Rocker Hops	3	x	6		Drive Knee FWD, Vertical Femur
Perform A & B Series Simultaneously for 3 Sets						
1:00 Minute Rest Between Sets						

Block 2 — Lower Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Lunge OC Hops	2	x	5s		Reactive-AMAP/Push-Pull-EA
B	Hurdle Hop	2	x	4		Jump for Distance, Continuous
C	Speed Skater Jumps	2	x	3 EA		Pull-In, Explode Out Immediately
D	Accel. Band Jump	2	x	4		Pull-In, Explode Out Immediately
E	Swissball 4-Way Neck	2	x	5s		Reactive-AMAP/Push-Pull-EA
F	Banded Speed Groin	2	x	5s		Reactive-AMAP/Push-Pull-EA
G	Glute Wind-Up to Jump	2	x	4 EA		Wind-Up Around Glute
Perform A-G Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 3 — Upper Body Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Chin-Up	2	x	5s	35-40%	Reactive-AMAP/Push-Pull
B	MB OH Slams	2	x	5		
C	Split Stance Cable Rotational Row	2	x	5s	Speed	Reactive-AMAP/Push-Pull
D	Banded Cuban Press	2	x	5s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 2 Sets						
25 Seconds Rest Between Exercises; 2:00 minutes between Rounds						

Block 4 — Lower Auxiliary Speed

Order	Exercise	Sets	Reps/Duration		Load	Notes
A	Switch Cycle Lunge	1	x	4 EA		Switch Legs in Air to Land in Start Pos.
B	Banded Paw Back	1	x	10s		Reactive-AMAP/Push-Pull-EA
C	Banded Speed Glute	1	x	10s		Reactive-AMAP/Push-Pull-EA
D	Banded Hip Flexor Pulls	1	x	10s		Reactive-AMAP/Push-Pull-EA
Perform A-D Simultaneously for 1 Set						
25 Seconds Rest Between Exercises						

4.35 Download (Week 52)

Only four teams are still competing in collegiate lacrosse at this point in the annual calendar. In order to compete at optimal levels after a long, taxing season, athletes must be allowed to recover from their previous two weeks of hybrid training. At this point in the year all six physical performance qualities residuals have been considered throughout the entire in-season training program. At this point in the year, no more adaptations will be realized by an athlete through training. Athletes will receive their neural training through practice entirely at this point. Recovery protocols should be implemented in training to ensure each and every athlete feels their absolute best. This allows optimal physical preparedness for the potential, and hopefully, two game weekend which is the quest of every team starting back in week one of this annual plan.

Goal Adaptations of Block:

- Allow supercompensation from previous training block
- Induce recovery
- Maximize physical preparedness for final four weekend
- “Peak” athletes for final four weekend

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 52 - Monday

Pre	Pre-Training, Multi-Dimensional Warm-Up

Block 1	Glute Function Series Warm-Up					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						

Block 2	Oxidative Energy System Training					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	3-D Contralateral Circuit	1	x	15s		Complete As Many Reps As Possible
Perform A for 1 Set @ 15s on 15s off						

Triphasic Lacrosse Training Manual

Download 4-Day Elite Training Block Week 52 - Wednesday

Pre	Pre-Training, Multi-Dimensional Warm-Up					
Block 1	**Glute Function Series Warm-Up**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Banded Big Toe Work	1	x	20 EA		
B	Banded Other 4 Toe Work	1	x	20 EA		
C	Level 1 Glute Iso Training Protocol	1	x	18m	Green/Blue	
D	Swiss Ball Hip Patterning	1	x	10 EA	1" Band	Hips Drive, Shoulders Follow
Perform A-D as a Glute Funtion Warm-Up Series Prior to Training						
Block 2	**Regeneration Training Series**					
Order	**Exercise**	**Sets**	**Reps/Duration**		**Load**	**Notes**
A	Foam Roller Regen. Circuit	1	x	Ind.		
B	Band Mobility Series	1	x	Ind.		
Perform A and/or B as Desired per Individual Athlete						

4.36 Conclusion of the Triphasic Lacrosse Training Model

All coaches have the goal of winning the championship of their leagues at the start of each and every year. The training and conditioning of a team plays a large role in this goal. Only when stress is applied to each of the six physical performance qualities appropriately, along with injury reduction training and maximized transfer of training is elite-level lacrosse performance possible. If a program does not consider each of these primary principles athletes are likely to break down at some point. Injured athletes, regardless of their skill level, are not able to assist with the ultimate goal of winning a championship.

The Triphasic Lacrosse Training Model considers each of these training principles and applies them in a systematic training program. This program begins with the consideration of the requirements of lacrosse specifically. The Triphasic Lacrosse Training Model then improves every athlete's energy systems to the fullest extent, according to his individual needs in the sport. After an athlete has improved his ability to complete repeat-sprint efforts, he is then trained to improve his general strength levels. These increased force producing abilities are then translated to each of the three muscle action phases in order to maximize the power and efficiency of the SSC. Athletes are then trained in specific power production and speed to maximize RFD, which allows transfer of training to be realized to the highest possible extent. Finally, in-season training is programmed with each of the physical performance qualities and their residual training effects in mind, along with the neural preparation of athletes for competition.

Only when each of these factors are considered, implemented, and executed appropriately is optimal performance possible for an elite-level athlete throughout the duration of the grueling, physical lacrosse season.

SECTION 5

REFERENCES UTILIZED IN THE TRIPHASIC LACROSSE TRAINING MANUAL

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