

TRIPHASIC TRAINING

WRITTEN BY CAL DIETZ
AND BEN PETERSON



A SYSTEMATIC APPROACH TO
ELITE SPEED AND EXPLOSIVE
STRENGTH PERFORMANCE

TRIPHASIC TRAINING

A Systematic Approach To Elite Speed And
Explosive Strength Performance

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&
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On the eighth day, of the second month, of the twelfth year, of the twenty-first century, I dedicate this book to my family — wife Karyn , children Tatum and Brody, Mother, Father, brother Andy, Grandparents — and friends that helped me in my journey.

- C.D.

To the three men who gave rise to my fascination with human performance and inspired me to pursue my passion — Coach Mac, Coach Lilja, and Coach Nick.

- B.P.

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FOREWORD

Triphasic Training is a game changer! It becomes clear how the University of Minnesota Olympic sport programs have achieved such high levels of success after reading this book. I first began communicating with Coach Dietz in 2008. After watching Coach Dietz teach these principles, I came to the realization that his method was sound because it applied complex scientific principles in a practical manner for people to understand. This combination has established a “blueprint for success” and helped Coach Dietz’s athletes accomplish great feats both at the collegiate and professional level. I integrated the *Triphasic Method* with many collegiate and professional athletes at IMG. The results were outstanding! I will continue to utilize and integrate this very effective method throughout my tenure as a coach in this great profession. I’ve often heard that success leaves clues. After reading this book, you’ll have a blueprint for success and a greater knowledge of the training process. Loren Seagrave always says, “Educate people! Train animals!” This book will help you understand the “Why” and not just the “How”. It’s a “must have” for anyone trying to get better!

— **Jeff Dillman**
Director of Strength and Conditioning
University of Florida

AUTHOR'S NOTE

Co-authoring a book presented a unique challenge that neither of us expected. The book is a compilation of stories, personal experiences, and knowledge of two individuals. As such, a conventional writing style would have us write the book in a manner that distinguishes which author is contributing to a specific story or anecdote. It would require us to preface sentences with, “Cal remembers when...” or “Ben worked with an athlete who...” When we were finished with sections of the book and went back to read what we had written, we found the constant quoting hindered the flow of the book and prevented the reader from making connections between examples that came off as separate story lines.

To solve this perceived flaw to the book, we came up with a simple solution. We wrote the book from the first person view of a third party narrative. Instead of stating which one of us is involved with a story, we say “I remember” or “I worked with.” In essence, we created an imaginary person who is the culmination of both of our life experiences, knowledge, and stories. We beg the readers indulgence with this style choice and say that it is in no way meant to deceive or misguide the reader as to the source of information, but rather to improve the consistency and readability of the book. We feel that this allows for one clear voice to present the information and will maximize the usefulness of the material to the reader.

PREFACE

WHAT THIS BOOK IS NOT

Right off the bat, I want to make a huge confession. I want to tell you what this book is not. This book is not the Holy Grail of training! It isn't the only way to train athletes, nor does it promise to turn every athlete who uses these methods into an All-American. Even with the most advanced training methods, scientific knowledge, and vast array of sports supplements the twenty-first century has to offer, sport coaches, athletic directors, general managers, and parents must realize that in order to win, you must have the best athletes. That means you must recruit the best athletes in college and you must pay for the best athletes in the pros. No method in existence currently used by any strength coach can make up the gap between the genetics of a superior athlete to that of an inferior one.

So what does that mean? Are superior genetics the sole factor in determining success? Without getting into any physiology or neurology, let me explain using a real life example of two hockey players I coached several years ago. We will call them Fred and Walter. Fred and Walter grew up playing hockey together in a small town in northern Minnesota. From the very beginning, they were inseparable. To call them rink rats would have been an understatement. If they weren't at the local rink working on their slap shot or playing pick-up games, they were at the rink that Fred's dad made every year in the backyard working on stick handling and skating. Both households even had the same rule—if you were watching television, you had to work on your stick handling at the same time. (Both boys had small plastic sticks they practiced with on the floor during commercial breaks.)

Based on the amount of practice and work the two boys invested since the age of six, it shouldn't be any surprise that they were All-State selections in hockey and that both accepted scholarships to play for the University of Minnesota Golden Gophers (U of M). I remember when Fred and Walter arrived. They were virtually identical. Both stood six feet tall and weighed 175 lbs. During their four-year careers, they both went through the exact same strength and conditioning

routine every off-season. Their one rep max (1RM) for the bench and squat were within 15 pounds of each other. They ate the same meals at the training table, lived in the same house, and even dated the same girl (though not at the same time). I will add, and personally attest, that both Fred and Walter gave 100 percent to everything they did surrounding Gopher hockey. They attacked every workout and skated every shift like it was their last. For all intents and purposes, Fred and Walter were the exact same athlete, the only difference being their genetic makeup—they had different parents.

Here is where the story takes a drastic turn. During their time at the U of M, Walter continued to excel while Fred seemed to struggle at times on the ice. By their senior season, Walter was a pre-season All-American who would eventually go on to play in the NHL. Fred, meanwhile, was an average third line player. Why? How could two essentially identical athletes end up at such different levels?

The answer was genetics. Genetically speaking, Walter had a higher end sympathetic nervous system (SNS) and superior hormonal profile than Fred. The SNS is part of the electrical wiring grid of the body, relaying instructions from the motor cortex to the muscles of an athlete to perform coordinated muscle movements—hand eye coordination, force production, balance, and reactive ability to name a few. In addition, the SNS stimulates the endocrine system and hormonal response of the body under stress, controlling the release of epinephrine and norepinephrine (commonly known as adrenaline) and the mobilization of energy substrates through glucagon secretion as well as levels of other hormones associated with athletic performance such as testosterone (muscle building), T3 and T4 (metabolism), insulin-like growth factor-1 (muscle building), and insulin (anabolic recovery). In short, the SNS is the “fight or flight response,” the most powerful response of the human body. The better the wiring or the quality of the cable used in that wiring, the faster and more efficiently a signal will travel through the grid. Similarly, an athlete’s hormonal profile dictates his ability to respond to the rigors of competition—stress, performance, and recovery. An athlete who can process and respond to

stimuli more quickly as well as orchestrate the body's hormonal response efficiently will have a decisive advantage over other athletes. In Walter's case, both processes were superior.

Think of Fred and Walter as sports cars. Let's be patriotic and go with Ford Mustang GTs. Both rolled off the assembly line as stock models, but over the years, the cars were overhauled and upgraded. All the hours practicing stick handling and skating were like putting on a better air filter and upgraded exhaust. The hours spent in the weight room squatting and jumping on Russian plyometric boxes were like putting in a new engine block chip that allowed the cars to shift faster and accelerate more quickly. In the end, both cars were far superior to what they had been when they originally rolled off the assembly line over twenty years earlier. The only difference—one that I failed to mention at the start—was that when these cars first rolled off the line, Walter had a V-10 turbo engine while Fred had a V-8. From the very start, Walter had greater potential because his engine could inherently generate more horsepower. As long as both cars received the same upgrades, the V-10 turbo would always be the better, faster car.

Getting back to Fred and Walter, this doesn't mean that a person with a superior nervous system and hormonal profile will automatically be a better athlete. If Walter stayed home watching television and playing his Playstation 3 all day while Fred was off working out and practicing, I guarantee only Fred would have been offered a scholarship to play Division I hockey. Being blessed with the genetic gift of a superior nervous system, a V-10 turbo engine, doesn't guarantee a person athletic greatness. It merely gives him a better chance of reaching greatness if he puts forth the effort.

I don't know if you, as a coach, are lucky enough to have an entire weight room full of turbo V-10 engines or a bunch of V-8s. You might not have Mustangs at all but instead are sitting with a lot of Toyota Corollas. The main thing I want you to understand is that this is not a book about turning a Toyota Corolla into a Mustang GT. That is impossible. Every athlete has limited potential, a ceiling defined by his genetics. At the same time, no athlete is confined to a certain level of performance; every athlete can improve.

WHAT THIS BOOK IS

Every strength and conditioning coach is, to an extent, a mechanic. Not to beat the car metaphor to death, but you have to look at every athlete as a complex engine with thousands of moving parts. And you, the coach, are trying to squeeze every single drop of horsepower you can out of that engine. This book is a method of training that will turn you into a master mechanic, showing you how to improve the horsepower and performance of any make or model car that walks into your weight room. The tri-phasic undulating block model can be applied to any athlete at any time during his training cycle and achieve the same results—improvements in power, rate of force development, and neuromuscular coordination.

At this point, I would guess that some of you are holding up red flags to question that last statement. “How can one training model be applied to such a wide range of sports with the same results?” That is a fair and legitimate question, a question that I will answer in this book. While on the surface sports like hockey and basketball may seem very different, they are identical at their physiologic core. Bear with me a second—the “ah ha!” moment is only minutes away.

First, let’s agree on a couple things:

- ❖ All athletes use muscles. This is self-explanatory. Moving on...
- ❖ Every sport requires dynamic movement of those muscles. Remember, dynamic muscle action refers to the active movement of a muscle through a partial or complete range of motion (swinging a baseball bat, jumping for a rebound, or sprinting up a sideline).

I know that neither of those points are groundbreaking. Coaches often have a very good understanding of the dynamic movements used most frequently in the sports they train. This is where you can cite the importance of specificity of training until the cows come home. Coaches will often tailor their workouts to try and improve those specific neural pathways and muscle actions in their athletes, with the goal of creating more explosive, powerful, efficient athletes at that movement pattern. The problem doesn’t lie with this approach to training at all. In fact,

taking this approach to training is dead on accurate *one-third* of the time. The problem lies with the other two-thirds.

Remember that “ah ha!” moment I promised you? Well, here it is:

ALL DYNAMIC MUSCLE ACTION IS TRIPHASIC!

That one simple sentence is what ties every sport together and allows all athletes to be trained using the same method, yielding the same results. It is what this entire book is about. Understanding the physiologic nature of muscle action taking place during dynamic movements gives you, the coach, a foundational training method that can be applied to every sport. Couple this method with a periodization schedule that can be altered to fit with any training time frame and you have the tri-phasic undulating block method.

In a very brief and basic explanation that will be expanded upon at length in later chapters, the triphasic nature of all dynamic movement can be broken down into three phases:

- 1) **Eccentric phase:** This is the deceleration or lowering portion of the movement. It is associated with muscle lengthening. During this phase, kinetic energy is absorbed and stored in the tendons of the muscle structure to be used during the stretch reflex.
- 2) **Isometric phase:** This is where the mass, or athlete, comes to a complete stop before being reaccelerated in a new direction. (This is actually governed by Sir Isaac Newton’s Laws of Motion. More on that and physics later.)
- 3) **Concentric phase:** This is the acceleration of an athlete or mass. It is associated with muscle shortening.

As the adage goes, a chain is only as strong as its weakest link. If your training program consists solely of methods that train the concentric portion of dynamic muscle action, your athletes are heading into the season with a chain consisting of one strong link and two weak links. This book is designed to show you how to develop the other two phases of dynamic human movement

within a periodization model that will make all three links strong and optimize the performance of your athletes. Remember that:

ATHLETIC MOVEMENT = DYNAMIC MOVEMENT = TRI-PHASIC MOVEMENT

WRAP UP

I'm sure by now I have peaked your interest and forced you to rethink, in part, the training model you currently use with your athletes. When you are done reading this book, you'll not only be able to write programs that produce explosive, powerful athletes, but you'll also be able to spot flaws in the various movement patterns pertinent to their sport. These flaws tend to develop over time, especially during yearly training phases or macro-cycles. Keep in mind, these issues can develop even with the use of the best training methods. Any time an athlete develops a specific aspect of his performance (strength, speed, or power), it likely causes a deficit in a separate but related performance quality. For example, let's say you make an athlete faster with concentric only focused training. Great! The problem, however, is that you neglected to train the athlete's eccentric decelerator in tangent to be able to absorb the higher levels of force now placed on him by the athlete's improved speed. When the athlete decelerates to make a cut or jump on the field/court, he can't change direction as quickly due to a undertrained eccentric phase—the inability to absorb the increased force. This book will give coaches and/or trainers an understanding of how to address those qualities and fix and spot these issues to help your athletes reach a new level.

Now that you have a better idea of what this book *is* and *is not*, it is time to get to work. At this point, you've read the course outline. Now, it's time to get into the nitty gritty details and learn the tools that you, the master mechanic, will take back to your garage, the weight room, to start tuning up your athletes.