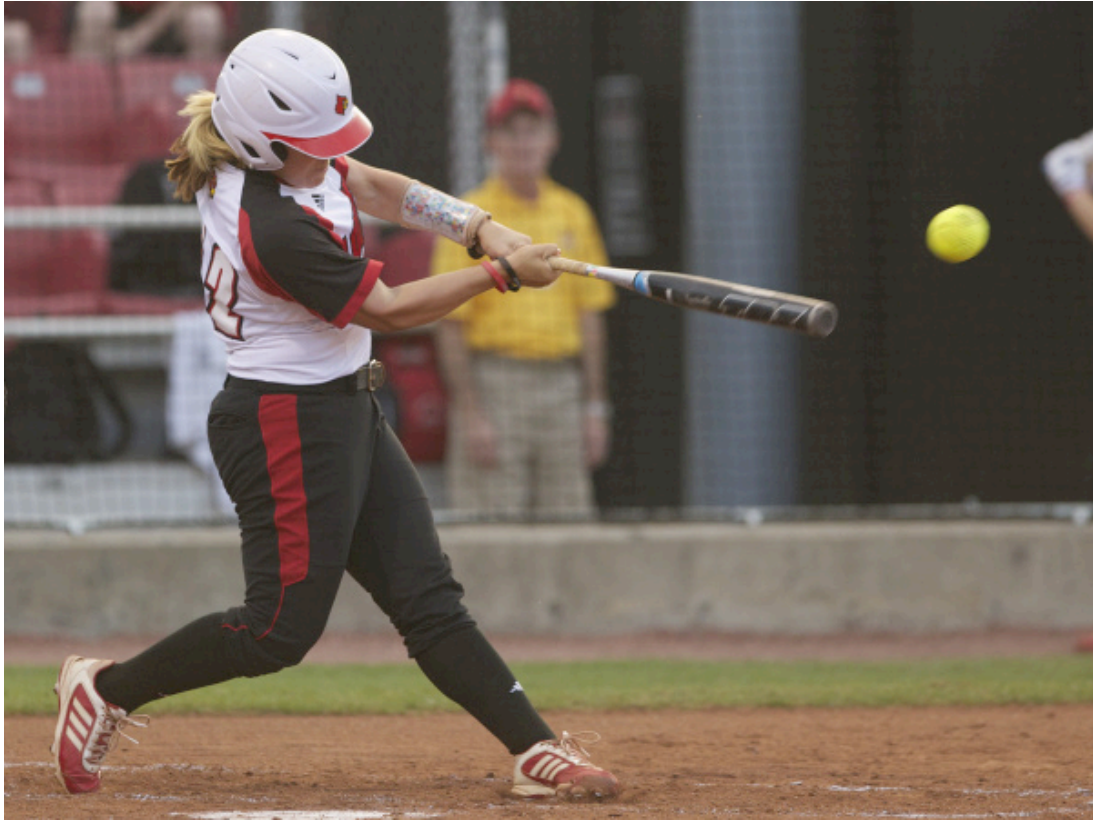


athlete
construction



**Developing the
BULLETPROOF
Softball Athlete**

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THE COMPANY

A*THLETE CONSTRUCTION* is a company passionate about building better athletes.... **BULLETPROOF** athletes! That means physically tougher, mentally tougher, and above all, injury-resistant athletes.

To be successful, we know that athletes must commit to developing their bodies and elevating overall athleticism. Why? Because athleticism directly impacts sport performance and injury prevention.

In today's society too many young athletes (and coaches) overlook athlete development, choosing instead to spend all their time playing the game, and working on skill development. The problem with this approach is there will always be a ceiling on skill development created by your physical size, strength, speed and fitness. Though skill development is essential, to be the best softball player you must also focus on becoming the best softball athlete.

At *ATHLETE CONSTRUCTION* our goal is to provide safe and effective sport-specific training programs to facilitate athlete development. Our programs are built on a foundation of fundamental movement quality- essential

for durability and the development of higher level performance capacities- then progress toward building strength, speed, power and conditioning. Our programs are well planned, progressing athletes appropriately by increasing volume and/or intensity at reasonable rates. Finally, our programs include simple evaluation tools to track progress, and educational handouts on how to eat and how to recover to produce maximum results.

Philosophy

Train movements, not muscles!

Just as there are many different philosophies on hitting and base running, there are many different approaches to athlete development. For us, the goal is BULLETPROOF athlete development, and maximum transfer of training to the field.

Traditional resistance training, and bodybuilding, emphasizes single-joint muscle-based exercises, and bilateral (two leg) single-plane (mostly sagittal) movements. This approach may lead to increases in muscle size and strength, but has limited transfer to the sport. It may also exacerbate injury risk by failing to appropriately prepare athletes for the physical stresses to specific body parts during sport.

The sport-specific movement-based approach to training adhered to by **ATHLETE CONSTRUCTION** simultaneously addresses prevention and performance. By emphasizing multi-plane, multi-joint and explosive movements, and developing and sustaining a high level of movement quality (mobility where its' needed and stability where its' needed), the end result is a more prepared athlete, and greater overall transfer.

PERFORMANCE & PREVENTION



MOVEMENT

Training Principles

At *ATHLETE CONSTRUCTION* our philosophy and our training principles dictate our methodologies. We adhere to the following principles in designing all of our training programs:

Sport-Specific Training

The purest form of training for any activity is the activity itself. To be effective, a training program must reproduce the functional movements and metabolic demands of the sport being trained for. Sport-specific training challenges athletes' to perform specific movements and movement patterns safely, efficiently and subconsciously; develops the appropriate energy systems; and promotes muscular adaptations that lead to superior sport performance.

Multiple Joint Movements

No single body part works in isolation during movement. The body works synergistically (muscles, joints and proprioceptors work together) to produce complex movements. Running, jumping, swinging, and throwing all require multiple joint actions timed in synchronized neuromuscular recruitment patterns. Thus, integrated movements should be trained, not individual muscles, if the goal is to maximize function and performance.

Multiple Plane Movements

Movement in sport occurs in three planes- sagittal (forward-backward), frontal (side-to-side) and transverse (rotational)- and combinations of all three. Resistance training should incorporate exercises and movement patterns that develop strength and efficiency in each plane.

Ground-Based Movements

Most sport skills are initiated by applying force in to the ground, on one leg or two. The more force an athlete can apply against the ground, the faster they will accelerate, the higher they will jump and the more effective they will be on the playing field. Exercises should be chosen to enhance this ability to generate force.

Explosive Training

The ability to generate force at high rates of speed (power) is crucial in sport. Power output is the result of motor unit recruitment by the central nervous system (CNS). There are two types of motor units- fast and slow- that vary greatly in their ability to generate force. Training explosively, using ground-based, multiple joint movements trains the body to recruit fast motor units at high rates of speed. This, in turn, improves performance potential.

Regeneration

No training program can be successful without a commitment to nutrition, rest and a healthy lifestyle. Decrements in performance can often be traced to a poor diet, poor sleep habits, and/or lack of recovery time. It is essential that athletes understand and apply regeneration techniques that accelerate recovery.

Chapter

2

THE GAME

Before designing any training program, we believe it's essential to analyze the demands of the sport- from biomechanics to bioenergetics- to completely understand how to build *BULLETPROOF* players. At *ATHLETE CONSTRUCTION* we study these physical demands extensively, looking at offensive and defensive needs, and positional demands. This includes analyzing the types of movement, planes of movement, and speeds of movement performed. Next, we look at the metabolic (energy systems) and environmental demands, to develop the most effective conditioning programs. And finally, we look at injury trends in the game (and by position when possible) to identify areas requiring extra attention. We use this information to develop comprehensive training programs that make a major impact on performance and prevention.

Elite Player Profile

So, what do the best softball athletes look like? What should they look like? All shapes and sizes play the game, but what does a great slapper/outfielder look like? How strong is strong

enough for an elite catcher? How fit is fit enough for a power pitcher? This information can be hard to find in the literature, but we work hard to build the most accurate player profiles based upon published data, and data we have collected with elite college players over many years. Then, we use these player profiles to guide our programming decisions and our goal setting.

Softball Needs Analysis

Looking inside the game (at elite levels) we see pitching velocities in the 60's, bat speeds of 80+ mph, and throwing velocities that elicit 4000 degrees per second of arm internal rotation. And, as we know, these extreme high velocity movements are performed repeatedly within games, and day after day for months on end during the competitive season. *Generating these levels of speed and power are definite performance priorities, but also prevention priorities for training programs to address.*

Below is a snapshot of the specific training priorities we focus on when developing **BULLETPROOF** softball athletes. Creating training plans to develop and peak these qualities at the right time is the end goal.

OFFENSIVE PRIORITIES

- ★Hip (Rotational) Power
- ★Starting Speed

DEFENSIVE PRIORITIES

- ★Multidirectional Speed and Quickness
- ★Throwing Velocity
- ★Stamina

PITCHING PRIORITIES

- ★Lower Body Power
- ★Power-Endurance

★Aerobic Endurance

Movement Quality

So, how do we build *BULLETPROOF* players? The short answer is: 1) we build a foundation of great movement quality, then 2) we build exceptional (functional) strength.

Why movement quality first? Because it is the cornerstone of both performance and prevention. Great movement quality allows for optimal development of other performance qualities- from strength to speed. On the other hand, adding strength to dysfunction (or poor movement quality) is a sure-fire way to increase injury risk. Poor movement quality is also the top predictor of non-contact injury risk (after previous injury) in athletes.

We know for sure, every athlete (regardless of the sport they play) must have solid movement patterns to perform safely, efficiently and effectively, and to maximize athletic development. That means they must have adequate mobility (or freedom of movement) at joints where it is needed (ankle, hip, thoracic spine, shoulder) and appropriate stability (or ability to control movement) at joints where it is needed (foot, knee, low back, scapulae). A lack of either leads to movement limitations, compensation patterns being developed, and increased injury risk.

Strength

Once a high level of movement quality has been established (with our softball athletes), we shift our primary focus to strength development. Building exceptional strength- that is transferable to the field- is essential for both performance and durability. Specifically, building exceptional lower body strength is our top priority.

As a foundational component of power (power= strength x speed), strength impacts a players ability to generate power in

the batters' box, explode out of the batters box, and explode in all directions defensively.

$$\text{POWER} = \text{STRENGTH (force)} \times \text{SPEED (velocity)}$$

Likewise, from a durability standpoint, we also have a huge appreciation for lower body strength. We know that any time high velocity movements are being produced- either by a body part or an implement being held by a body part- those same velocities must be controlled and decelerated. If we look at a pitcher exploding off the mound to throw a pitch, we see extremely high levels of force being generated by the support leg. This is generally what we focus on in training- producing more force at higher rates of speed. Yet, what's happening with the stride leg is just as important. When the stride leg makes contact with the ground it must decelerate and absorb 1.5-2.0 times the pitchers bodyweight. And this happens pitch after pitch, and inning after inning.

This mechanical loading (or eccentric stress) placed on pitchers' bodies requires significant eccentric force absorption (strength) potential. Similarly, with field players, significant stress is required to decelerate the throwing arm after releasing the ball, and with hitters, decelerating the bat after every swing. *Many overuse injuries in the game are absolutely the result of inadequate strength to support the deceleration demands of these high speed movements being performed on the field.*

Finally, exceptional (core) stabilization strength is required to optimize power output. By creating stiffness (or stability) around the pelvis and lumbar spine, the core muscles allow greater force to be applied in to the ground, and improved force transfer from the ground, through the core, and out to the arm (throwing), legs (running), or bat (swinging).

The efficiency and effectiveness of every movement begins with the ability of core muscles to provide stability to the pelvis and spine. In fact, the greater eccentric and stabilization strength

available, the greater concentric force production will be without any increase in muscle size.

Speed

From an offensive speed standpoint the priority is absolutely maximizing starting speed (not top-end speed). It takes an elite athlete approximately 5-6 seconds, or 40+ yards, to hit top speed. In the game of softball that never happens. A softball athlete never runs more than 20 yards in a straight line before turning left. Thus, our training focuses on the initial start and acceleration (starting speed)- a quality that correlates directly with lower body strength and power.

Defensively, speed is also a training priority. In particular, lateral quickness, or the ability to open the hips and initiate a crossover step to get behind a hit ball, is key. Likewise, the ability to react and explode forward to pounce on a bunt or chase down a fly ball, is also important for defensive prowess. These are also developed much more effectively on a foundation of lower body strength.

Conditioning

Conditioning for the game of softball has always been controversial. Just how fit does a player need to be? After all, most movements on the field occur in 3 seconds or less- followed by extended periods of rest. Yet, inning after inning, oftentimes in back to back games, and oftentimes in heat and humidity, players must be able to maintain mental focus and execute high volumes of very technical high speed actions. This is where stamina becomes important!

There is no arguing that pitchers must be the fittest players on the field, with catchers close behind. It is imperative that pitchers (and catchers) take pride in their conditioning status- to ensure that fatigue is never a factor in the outcome of a game. We also believe that field players should be fit, and believe in regular conditioning workouts to sustain a moderate level of

aerobic fitness. This ensures a high level of stamina not only within games but over multiple game weekends, and over the course of long and demanding seasons.

Injury Prevention

Where injury prevention is concerned, keep in mind we are focused on non-contact injuries. (Collision injuries between players, or players and fences are difficult to control.) Research indicates the main non-contact injuries in the game are overuse injuries to the shoulder and elbow, followed by strains and sprains to the low back, groin, knee and ankle.

Minimizing overuse injuries first requires an assessment of technique. Poor throwing and swinging mechanics, or an unplanned and unrealistic surge in volume in either of these, is often the cause of injury. These are important considerations for the softball coaching staff.

Next, an assessment of the body's movement quality is key. As we already discussed, asymmetrical movement patterns- where a lack of mobility or stability exists on one side of the body- leads to unhealthy compensations developing and increased injury risk.

On the prevention front specifically, an analysis of the game reveals significant mechanical stresses- shoulder distraction stress, elbow extension torque, rotational forces, ground reaction and braking forces- are placed on the body by the game's high velocity movements. The acute (short-term) and chronic (long-term) effects of these stresses are important durability considerations, and play a huge role in how we train athletes for the game.

Specifically we choose exercises and movements that prepare the body to handle the stresses of the game, without adding any additional unnecessary loading. And, we select only exercises that serve both a performance and prevention role.

Finally, knowing that many more non-contact injuries occur very early in the season than later in the season- a great indication of poor preparation- we put an emphasis on timely preparation for the start of the season. We also put an emphasis on effective warm-ups and cool downs before and after every training session, practice and game.

THE PROGRAM

ATHLETE CONSTRUCTION's Level II program has been designed for players committed to optimizing athleticism for the game of softball. We know that consistent year-round training is always essential for developing and sustaining performance capacities, however, the off-season is absolutely the best time to invest in intensive off-field training.

This program has been designed for maximum versatility, but is perfect for off-season use. The 12-week program includes three 4-week training cycles- BASE (4 weeks), DEVELOPMENTAL (4 week) & PEAK (4 weeks). If desired, each of these cycles can be extended to 8 weeks, for a total program length of 24 weeks. During the competitive season, the DEVELOPMENTAL and PEAK phases of the program can be continued, but condensed to two lifts per week.

Equipment Needs

Equipment for the program has been kept to a minimum-especially in the *BASE Phase*, but specific equipment items are

DEVELOPING THE BULLETPROOF SOFTBALL ATHLETE

needed to complete the workouts. A full list of required equipment is listed below:

- ★Dumbbells (assorted weights)
- ★Kettlebells (not essential, dumbbells can be substituted)
- ★Rubber-coated Medicine Balls (6lbs & 10-12lbs)
- ★Stability ball
- ★Plyometric (jumping) Boxes
- ★TRX Suspension Strap
- ★Mini Resistance Band
- ★1/2" Resistance Band



Training Overview

A detailed overview of the program training schedule is shown below, and is also available as a pdf document in the Printable Files Folder on your DVD.

Each cycle of the program has been organized as follows:

- 3 total body lifts per week (Workout A, B & C)
- 2 movement & conditioning workouts per week (1 offensive speed & 1 defensive speed)

On the schedule you will see the lifts are set for Monday, Wednesday and Friday, with speed and conditioning on Tuesday and Thursday. It is NOT essential that you stick with this schedule, but it is ideal.

WEEK	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	WKND.	PHASE
1	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C	EXTRA CONDITIONING (OPTIONAL)	BASE
2	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
3	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
4	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		DEVELOPMENTAL
5	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
6	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
7	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
8	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
9	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
10	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		PEAK
11	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		
12	WORKOUT A	OFFENSIVE SPEED & CONDITIONING	WORKOUT B	DEFENSIVE SPEED & CONDITIONING	WORKOUT C		

Workout Template

A sample workout template is shown below. You will see each workout begins on the top section of the template- with **MOVEMENT PREP**. This includes a light general warm-up (bike, jog), a foam roll series, a dynamic movement series and targeted prehab exercises. *Videos are available for all of these exercises/movements on your DVD.*

After the **MOVEMENT PREP** items have been completed, you will begin the lift by following the letters vertically on the workout card. All exercises beginning with the same letter (ie: A) should be performed as a circuit (back to back), with no rest. For example, A1, A2 and A3 are performed in sequentially with no rest between exercises. Likewise for B1, B2 & B3.

To determine the number of sets for each block of work, look under the **REPS** header. If there are 3 numbers listed vertically (ie: 4, 4, 4) that means you will do 3 sets of 4 reps each for that

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PRE-WORK	MOVEMENT PREP												
	Bike or Light Jog 5:00 Soft Tissue Length/Quality: Foam Roll Series			3 Plane Leg Swings x10e *lean on wall, chest up <u>Ladder Series 2-3 reps each</u> 2 In- F/B/LT/RT Scissors- F/B In/In/Out/Out-F/B 'Icky Shuffle' Crossover- F/B			Wall Ankle Mob. X6e RDL to Squat x6 Side-lying Rotation x6e PNF Diagonals x10e						
WORKOUT A		WK 1			WK 2			WK 3			WK 4		
		REP	%	LOAD	REP	%	LOAD	REP	%	LOAD	REP	%	LOAD
A1	1-DB ISO BOX SQUAT	5		:05	5		:05	6		:05	6		:10
	*hold 1 DB at chest (goblet style)	5			5			6			6		
	*slowly lower hips to box	5			5			6			6		
	*hold bottom posn. For time shown				5			6					
A2	DROP SQUAT	5		:03	5		:03	5		:05	5		:07
	*stand tall on balls of feet	5			5			5			5		
	with feet hip-width, shift feet,	5			5			5			5		
	drop in to squat & hold				5			5					
A3	SQUAT JUMP	5		:03	5		:05	5		:07	5		:09
	*hands on hips, jump for max ht.	5			5			5			5		
	*stick & hold landing for time	5			5			5			5		
	indicated				5			5					
A4	MINI BAND RES. LAT WALK (R/L)	10	Yds		10	Yds		15	Yds		20	Yds	
	*resistance band around ankles	10	Yds		10	Yds		15	Yds		20	Yds	
	*sit in def. stance, step laterally				10	Yds		15	Yds				
	1 foot at a time, long strides												
BLOCK A- REST :90 BETWEEN SETS													

exercise. Of course, you will do 5 reps of exercise A1, then the appropriate number of reps for A2, then A3. Then you will rest for the amount of time indicated, and repeat. Under the **LOAD** column you will write in the amount of weight or load you used for each set of that exercise. If it was a bodyweight exercise you can write **BW**. As you move from Week 1 to Week 2 to Week 3, work to increase the amount of weight or load you are using. Of course, remember that perfect technique is always your top priority. Never use more weight than you can handle with perfect form!

Pre-Work

The **PRE-WORK** section of the workout is designed to prepare your body for the workout ahead. It is also designed to develop and/or reinforce great movement quality. By doing so these exercises or movement patterns are important prehab (or prevention) items.

PRE-WORK includes very general movement to increase heat production. Light biking or jogging or jumping rope for 5-6 minutes is ideal. This is followed by a self-massage series we call foam rolling, since it is done with a foam roller that acts as your personal massage therapist. Foam rolling prepares your body for loading by improving muscle tissue length and quality, in addition to increasing local blood flow. *A detailed video of our preferred foam roll series is included in every workout on your DVD.* After the foam rolling series is a dynamic movement series and finally a 3-4 targeted prehab exercises to address mobility and stability.

Post-Work

After each workout you should plan to repeat the same foam roll series from your pre-work, and do a light stretch of major muscle groups (hamstrings, quads, glutes, groin, lats and pecs). *During or immediately after you roll and stretch, you should drink a recovery shake or low-fat chocolate milk to begin the recovery process.*

Offensive Speed

Once each week during the program you will focus on offensive, or linear, speed. This workout should begin the same way- with a light general warm-up, your foam roll series, and a movement prep series. These are included on your workout cards. Next in your offensive speed workouts will be a Line Quickness Series. This simple and short series of 3 difference quickness drills is designed to excite your nervous system and prepare your body to move fast! Also included in your offensive speed workouts is a plyometric progression- starting with a force reduction or landing emphasis, and progressing to an explosiveness or force production emphasis.

Technique work and a progression of linear speed training is also included. Be sure to follow the number of sets and reps closely,

and most of all, be sure to recover completely between reps. *Speed work IS NOT, and SHOULD NOT, feel like conditioning!*

Defensive Speed

Defensive speed or lateral speed is also included in your program one day per week. Follow the progression as it is outlined on your workout sheet- progressing from the **3-HURDLE QUICKNESS SERIES**, to **PLYOS** and then **SPEED** drills. As mentioned in the Offensive Speed section above, be certain to recover completely between all reps of all drills.

If you are a pitcher, do all of this defensive speed workout EXCEPT the actual speed section. The quickness and plyos will be very valuable for you, but unless you also play another position on the field, you will not need to do the technical lateral speed drills. Instead, once you finish the plyos section, begin your conditioning.

Conditioning

After you finish your offensive and defensive speed work, you will do your conditioning- which is detailed at the bottom of your workout sheet. Be sure to note the difference between every week of the training cycle. On Week 1 & 3 in the **BASE Phase** for example, you are doing the same workout, with only a slight progression in volume. Likewise, on Week 2 & 4. Be sure to note the progression from week to week as you move from Week 1 through Week 12 of the program.

Your conditioning program includes a variety of running, biking and slideboard workouts. If you do not have a stationary bike or a slideboard, you can substitute running variations, just follow the same workout parameters (work, rest, sets, reps). As with your lifting-based workouts, finish with your foam roll series, stretching and drinking your recovery shake. One "**EXTRA CONDITIONING**" workout has been added at the bottom of your Speed & Conditioning workout sheet. This is available if

you need to improve your body composition (fat loss), and/or you are a pitcher or catcher who wants/needs extra conditioning work.

Performance Testing

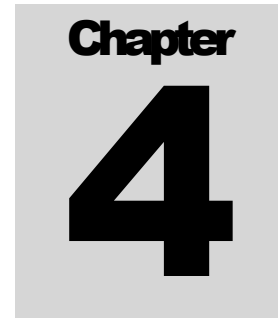
The best way to monitor progress with training is to test meaningful criteria. Establishing baseline performance values first, then repeating the same tests at regular intervals, is also a great tool for goal setting and motivation. We are proposing that you follow the performance testing battery outlined below before you begin the program, after Week 4, Week 8 and Week 12. If you plan to expand the program to 24 weeks, by doubling each week in the program (ie: Week 1 becomes Week 1 & 2, etc.), then test yourself before Week 1, after Week 8, and after Week 16, and after Week 24). *Reporting sheets for your testing are provided in the Appendices section of this manual.*

Testing Battery

1. **Bodyweight (lbs)**
2. **Standing Long Jump (inches)**
 - a. Put a tape line on the floor
 - b. Stand with toes behind line
 - c. Jump horizontally for maximum distance, stick the landing on 2 feet without allowing hands to touch floor
 - d. Measure distance from back of tape line to back of your heels with a measuring tape (round to nearest 0.5")
3. **Pushups (reps)**
 - a. Have a partner/coach place a fist on the ground underneath your chest while you are in a pushup position
 - b. On every rep, touch your chest to their fist and complete the rep at the top by locking your elbows
 - c. Complete as many full reps as possible without resting

4. 20-Yard Sprint

- a. Sprint 20 yards at top speed- have a coach hand-time you with a stop watch (start watch on your first movement, stop as first body part breaks finish line)



PERFORMANCE NUTRITION

It's called 'PERFORMANCE' nutrition for a reason. When you're an athlete your diet plays a critical role in performance and recovery. It's not about eating whatever you can find, whenever you remember. It's about choosing the best foods/drinks at the right times- according to the impact they will have on your health, your energy level, your healing power and your rate of recovery. Not sure when to eat, or what to eat? Read this section thoroughly, and refer back to it often.

**REMEMBER: Everything meal and snack is an opportunity to positively impact your health and your performance!*

When to Eat- Patterning

Patterning is a huge part of optimizing your diet. There IS a big difference between taking in 3,000 calories and 300 grams of protein in 2 meals per day (say lunch and dinner), and taking in the same calories and protein in 6 meals and snacks timed effectively throughout the day. Your body's response to the calories and protein will be very different in each scenario (as shown below). Whether your goal is to lose body fat, or add a

few pounds of lean muscle mass (or just maintain your current body composition), patterning should not be compromised.

2 FEEDINGS / DAY

- By eating whopping loads of food only twice per day your body will spend most of the day in a state of low blood sugar and will be forced in to overdrive to process the over-sized feedings.
- Your brain will trigger the production of catabolic hormones- that break down muscle- post-exercise rather than shifting in to “building” mode from a great post-workout recovery shake or snack.
- Your body will store fat much more easily like a Sumo wrestler.

5-6 FEEDINGS / DAY

- Your body works much more efficiently and your energy levels will be stabilized when you eat every 2-3 hours throughout the day.
- Your blood sugar and appetite will be normalized throughout the day, while optimizing your metabolic rate.
- You provide an environment where muscle tissue is repaired and synthesized effectively.

THE BOTTOM LINE

- It does make a difference HOW and WHEN you eat.

Sample Feeding Plan- AM Workout

7:15-7:30AM: BREAKFAST OF CHAMPIONS (FEEDING #1)

1-2 cup(s) Whole Grain (high fiber, low sugar) Cereal or Oatmeal,
1 cup Skim or Soy Milk, 2 Tbsp. Flax-seed oil, 1 cup Fresh or Frozen Blueberries, 2-4 Hard-boiled Omega-3 enriched Egg Whites
8-16oz Water, Multivitamin + 1000mg capsule Fish Oil

**9:30-10:00AM: MORNING / PRE-WORKOUT SNACK
(FEEDING #2)**

1 Apple with 2 Tbsp. Natural Peanut Butter OR 1 Builder's Bar, 16oz. Water

**10:30-11:30: DURING WORKOUT
(FEEDING #3)**

Sip Gatorade mixed with 1/2 scoop whey protein isolate (shake well)

**11:30-12:00PM: POST-WORKOUT SHAKE
(FEEDING #4)**

16 oz. low-fat Chocolate Milk OR Gatorade Recovery Shake, 1 piece fruit, 1000mg capsule Fish Oil

**1:00-1:30PM: LUNCH
(FEEDING #5)**

Large Spinach or Romaine Salad with 2-3 fists* of protein (chicken, turkey, fish, beans, eggs) OR Whole-wheat wrap filled with veggies & 2-3 fists* of protein (tuna, turkey, grilled chicken, hummus etc.), 16 oz. Water or Green Tea
*1 fist= 1 serving

**3:30-4:00PM: AFTERNOON / SNACK
(FEEDING #6)**

1 Apple with 2 Tbsp. Natural Peanut Butter OR 1 Builder's Bar, 16oz. Water

**6:00PM: DINNER
(FEEDING #7)**

2-4 fists Grilled Chicken, Fish or Steak Fajitas with Grilled Veggies, 1-2 cups Black beans, Salsa, Cheese, Guacamole, 1-3 whole wheat tortillas

**8:30-9:00: EVENING SNACK
(FEEDING #8)**

1-2 cups Low-fat Greek Yogurt with 1 Handful of Chopped Walnuts or Almonds, 16oz. Water

Sample Feeding Plan – PM Workout

7:15-7:30AM: BREAKFAST OF CHAMPIONS

(FEEDING #1)

1-2 cup(s) Whole Grain (high fiber, low sugar) Cereal or Oatmeal, 1 cup Skim or Soy Milk, 2 Tbsp. Flax-seed oil, 1 cup Fresh or Frozen Blueberries, 2-4 Hard-boiled Omega-3 enriched Egg Whites,
8-16oz Water, Multivitamin + 1000mg capsule Fish Oil

9:30-10:00AM: MORNING SNACK

(FEEDING #2)

1-2 cups Low-fat Greek Yogurt with 1 Handful of Chopped Walnuts or Almonds, 16oz. Water

12:00-1:00PM: LUNCH

(FEEDING #3)

Large Spinach or Romaine Salad with 2-3 fists* of protein (chicken, turkey, fish, beans, eggs) OR Whole-wheat wrap filled with veggies & 2-3 fists* of protein (tuna, turkey, grilled chicken, hummus etc.), 16 oz. Water or Green Tea

*1 fist= 1 serving

2:30-3:30PM: AFTERNOON/PRE-WORKOUT SNACK

(FEEDING #4)

1 Apple with 2 Tbsp. Natural Peanut Butter OR 1 Builder's Bar, 16oz. Water

4:30-6:00PM: DURING WORKOUT

(FEEDING #5)

Sip Gatorade mixed with 1/2 scoop whey protein isolate (shake well)

6:00PM: POST-WORKOUT SHAKE

(FEEDING #6)

16 oz. low-fat Chocolate Milk OR Gatorade Recovery Shake, 1piece fruit, 1000mg capsule Fish Oil

6:30PM: DINNER

(FEEDING #7)

2-4 fists Grilled Chicken, Fish or Steak Fajitas with Grilled Veggies, 1-2 cups Black beans, Salsa, Cheese, Guacamole, 1-3 whole wheat tortillas

8:30-9:30PM: EVENING SNACK

(FEEDING #8)

1-2 cups Frozen Yogurt w/ chopped nuts OR 1-2 cup Low-fat Cottage Cheese with 1 cup Unsweetened Crushed Pineapple

What to Eat- Nutrient Density

So, if you're going to eat you may as well choose foods that will do something for you. We like to say that every meal or snack is an opportunity to impact your health and performance so why not maximize the 'bang?'

- Accelerate the repletion of fuel (glycogen).
- Improve immune function.
- Accelerate healing.
- Stimulate protein synthesis (essential for muscle growth)-over nutrient-empty foods that do nothing but provide calories.

Think about the foods you turn to most often.

- Are you eating them out of habit?
- Are you eating them because you've never bothered to give nutrition much thought?
- Take the top 10 foods you eat most and look at the ingredients that are in them. Can you pronounce everything in the ingredient list? Are there more than 5 ingredients?
- Is there any fiber?
- Any protein?
- Any healthy fat?
- How much sugar?
- Are there more than 5 ingredients?

Start evaluating what you're putting in to your body. As your most prized possession your body deserves the best. Start giving it high quality nutrients found in whole foods and it will serve you well. Improve the quality of the foods you eat!

EMPTY CALORIES

Many athletes' diets contain too many empty calories. Empty calories come from foods that have lots of calories, but few vitamins and minerals. Examples include:

- Alcohol
- Candy
- Pop / Soda
- Sugary Cereal
- Fried Foods
- Sour Cream
- Cream Cheese
- Desserts

HIGH QUALITY FOODS

High quality foods contain lots of nutrients for not as many calories. Examples include:

- Lean Meats – Chicken, turkey, fish
- Whole Grains – Whole wheat bread, oatmeal, brown rice, bran cereal
- Fruit – apples, oranges, bananas, strawberries, blueberries,
- Vegetables – broccoli, dark greens, sweet potatoes, peppers, spinach, etc. . .

THE BOTTOM LINE

- Limit empty calorie foods.
- Increase high quality foods
- Even choices such as white bread, white rice, and pasta are not the best way to maximize your nutrient intake.

- A good rule of thumb when searching for the highest nutrient dense foods is to “Eat a rainbow often.”

PROTEIN

Let's start with protein since it is (or should be) every athlete's priority! Protein MUST be present in every meal and snack. Protein MUST be consumed before, during and after your workouts. When it comes to choosing protein foods always choose lean and low-fat options. Before, during and after exercise your body needs fast-absorbing protein found only in whey protein (naturally present in milk).

Top Protein Options

Eggs/Egg whites/ Omega-3 Enriched Eggs
Eggs (2) / Egg Whites (2) / Egg Substitute (1/4 Cup)
Skim milk & Low-Fat Yogurt
Turkey, Chicken (skinless)
Low-Fat Cottage Cheese
Fish (tuna, salmon, cod, tilapia, haddock, etc.)
Lean Beef (grass-fed if poss.)
Ground Turkey Breast (97% fat free)
Whey isolate (powder)
Nut Butters/Nuts (peanut, almond)
Butters (2 Tbsp)/ Nuts (Palm Size)
Beans/Legumes (black beans, kidney beans, garbanzo beans
(hummus)

Calculating your protein needs is essential as an athlete. Depending on your training volume, or phase of training you are in your protein requirements need to change.

- In-Season (Light Training):
 - Bodyweight (BW) x 0.7 Grams
 - Example: 150 lbs x 0.7 = 105 Grams
- Off-Season (Heavy Training):
 - Bodyweight (BW) x 1.0 Grams
 - Example: 150 lbs x 1.0 = 150 Grams

CARBOHYDRATES

Carbohydrates are the most confusing macronutrient. They are also the most abundant when it comes to our food supply. Understanding the 3 different types of carbohydrates and knowing when to include them in your daily plan is integral. Carbohydrates are the primary source of fuel for the body during intense activities. Carbohydrates provide energy for basic body function, nerve transmission and muscular contraction. They also assist in the digestion and metabolism of fat as an energy source. The type and amount of carbohydrates in your diet can inhibit or assist you in achieving your performance goals as well as keeping you healthy. Carbohydrates can be found in food such as grains, fruit, vegetables, milk, beans and legumes. When choosing carbohydrate for each feeding, it is important to choose nutrient dense carbohydrate.

FIBER-RICH CARBOHYDRATES

These are your friend. fiber-rich carbohydrates are among the most nutrient-dense foods on the planet, loaded with vitamins, minerals and antioxidants (that bolster the immune system and speed healing and recovery). They include, quite simply, fruits, veggies, beans and legumes. Of course, not all fruits and veggies are created equally. Make sure you balance the more starchy vegetables (corn, butternut squash, pumpkin, peas, root vegetables, and sweet potatoes) with less starchy vegetables.

Top Fiber-Rich Carbohydrate/Serving Size

Broccoli
2 Spears / 1Cup
Carrots
2 Medium / 6-8 Baby
Spinach
1Cup
Tomatoes
1 Medium
Blueberries
½ Cup
Citrus Fruits
1 Large
Bananas

1 Medium
Garlic
2-3 Cloves / 1 tsp Powder
Green Tea
1 Cup
Beans
1 Cup
Peppers
1 Cup

STARCHY CARBOHYDRATES/GRAINS

These carbohydrates can be good and bad- depending on the specific choices you make, when you eat them and how much you eat, and what point in time you eat them throughout your day.

- In general, we recommend 1-2 servings of starchy carbohydrates at each meal.
- The exception is if you are trying to LOSE BODY FAT. In that case we recommend 1-2 servings at breakfast and 1-2 servings in the post-exercise meal only.
- If trying to GAIN MASS we recommend pushing your intake of starchy carbohydrates to 3-4 servings at every meal.
- When it comes to starchy carbohydrates the rule of thumb is high fiber, low sugar. Choose breads and cereals that are high in fiber, made from whole grains and low in sugar. For example, there's a big difference between Corn Flakes (high sugar, no fiber) and Fiber ONE (high fiber, low sugar) and even between instant flavored oatmeal and steel cut oats (that you cook on the stove for 15 minutes). Likewise, there's a big difference between white bread and 100% whole wheat bread.

Top Starchy Carbohydrates/Serving Size

Whole Wheat Bread
1 Slice
Whole Grain Cereal
1 Cup
Brown Rice

½ Cup
Whole Wheat Pasta
½ Cup
Barley
½ Cup
Bulgar Wheat
½ Cup
Oatmeal
½ Cup
Quinoa
¼ Cup
Spelt Berries
1 Cup
Wheat Pita Bread
1 Piece
Wheat Berries
1 Cup
Whole Grain Tortillas
1 Tortilla
Whole Wheat Couscous
½ Cup

SUGARY CARBOHYDRATES

The final category of carbohydrate foods is also abundant and hard to avoid. As you would guess it includes the following:

- Cookies
- Cakes
- Candy
- Ice Cream

However, there are some sugary carbohydrate foods that have a place in an athlete's diet. During exercise your body needs fast sugar to sustain high intensity performance. Those foods/ beverages include:

- Gatorade/Powerade are formulated accordingly to be absorbed quickly.
- Many energy bars, gel shots, and recovery shakes are also formulated with glucose other fast-absorbing sugars to capitalize on your body's needs during exercise.

- Chocolate milk is an example of a whole food that naturally provides the nutritional profile proven to be ideal during and post-exercise.

HEALTHY FATS

The final component of a healthy diet- and one that is often overlooked is healthy fat. Every diet needs fat. What's important is WHERE the fat in your diet is coming from.

- Is most of your dietary fat coming from cheeseburgers and whole milk? If yes, then you are getting mostly saturated fat (or animal fat), which is a known cause of heart diseases.
- Is most of your dietary fat coming from vegetables, nuts, beans, or fish? Ideally, the majority of the fat in your diet should come from vegetable, legume and fish sources. In particular, every athlete should work to include Omega 3 fats in to their diet. These fats are not only incredibly good for heart and brain health, but act as natural anti-inflammatory in the body. A list of top sources of healthy fat is below. Incorporate these foods in to every meal you eat.

Healthy Fats/Serving Size

Raw Nuts
1 Palm
Nut Butters (Peanut, Almond)
2 Tbsp
Avocados
1 Avocado
Extra Virgin Olive Oil
1 Tbsp
Fish/Fish Oil
3 oz./1,000mg
Coconut, Grapseed or Flaxseed Oil
1 Tbsp

Pre, During & Post-Exercise Fueling

Fueling around your workout/practice will help you maximize your performance during practice or workouts as well as promote recovery and lean muscle mass gains. When implemented properly and consistently, strategic pre- and post-workout nutrition can greatly increase training quality and effectiveness.

Exercise causes many changes in the body. First, there is a significant increase in blood flow to working muscles. There is also a sharp increase in adrenaline. These changes favor catabolism (muscle breakdown) during exercise and anabolism (muscle synthesis) after exercise. Since these changes are acute, some lasting only a few hours, pre- and post-exercise meals are critical for optimizing anabolism and minimizing catabolism.

PRE-EXERCISE FUELING

The pre-exercise meal and/or snack is AS important if not MORE important than breakfast. The quality and timing of these nutrients will dictate the quality of your training and your body's response to it.

TIPS

- ♣ Eat a pre-exercise meal 3-3.5 hours before that includes fiber-rich nutrition dense carbohydrates and lean/low-fat protein.
- ♣ Eat a light snack 60-90 minutes before that includes slow-absorbing starchy carbs and a small amount of protein (minimal fat) (ie. 1/2 multigrain bagel with all-natural peanut butter, banana with peanut butter, small bowl of cereal with skim milk).
- ♣ If nothing else, 10-15 minutes before your lift or practice drink a recovery shake or low-fat chocolate milk.
- ♣ Drink lots of fluids to ensure you are well hydrated - your snack can be a liquid snack- a fruit smoothie or shake or low-fat chocolate milk.

- ♣ Avoid fatty foods- they stay in your stomach for long periods of time

DURING-EXERCISE FUELING

TIPS

- During weight training drink sports drink combined with a small amount of whey protein isolate as well as water.
- During conditioning sessions drink a combination of water and sports drink.
- Do not only drink water - IT WILL COMPROMISE YOUR PERFORMANCE!

POST-EXERCISE FUELING

The primary goal after any workout, practice, or competition is RECOVERY!

Accelerating the recovery process is particularly important when there is less than 24 hours between training and/or competition sessions. In these cases you must focus on:

TIPS

- ♣ REhydrate- replacing fluids
- ♣ Replenish- replenishing glycogen (fuel) stores
- ♣ REpair- repairing muscle tissue (minimizing muscle breakdown)
- ♣ REduce- reducing the damaging effects of post-exercise tissue inflammation

REHYDRATE

The best method for assessing fluid needs post-exercise is to measure weight lost during exercise. For each pound lost during exercise, 3 cups of fluid should be consumed as soon as possible. A combination of water and sports drinks should be used to ensure that electrolytes and glucose (fast absorbing

carbohydrate) are also being ingested. Another strategy for assessing hydration status is to monitor urine color and output.

REPLENISH

- Immediately after workout, there is a 30-minute window of “opportunity” that your body is more efficient at repletion your energy stores
- Like all meals and snacks, post-workout recovery snack or shake must contain carbohydrates and protein to promote glycogen repletion
- Minimum of 15-20g of protein is needed to promote muscle gains
- For prolonged intense exercise (aerobic or anaerobic) the best post-exercise carbohydrate to protein ratio appears to be 3:1 or 4:1.
- For resistance (strength power) workouts a ratio of 2:1 to 3:1 may be more appropriate
- Be sure to follow up with a post exercise meal within 2 hours to top off glycogen energy stores

****Low-fat chocolate milk is a perfect post-workout choice- it provides the necessary 3-1 (carb-protein) ratio***

REPAIR

In addition to replenishing the body’s fuel supply, post-exercise carbohydrate and protein ingestion changes the hormonal environment within the body from catabolic (muscle breakdown) back to anabolic (muscle building). The rapid consumption of carbohydrate and protein (NOT fat) post-workout allows the body to begin repairing and rebuilding.

From a repair standpoint, protein provides several benefits:

- Amino acids that rebuild damaged muscle tissue- an important adaptation to exercise.
- Without protein, the body’s ability to adapt to resistance exercise is greatly diminished.
- The timing of protein intake is important. If the anabolic stimulus from exercise is to be maximized a steady flow of amino acids must be available.

- Research shows that muscle protein synthesis is elevated by up to 50% 4 hours after resistance training and 109% 24 hours after. By 36 hours after training, synthesis rates have almost returned to normal.
- Since the body does not have the capacity to effectively store amino acids, protein should be eaten every 3-4 hours.
- Post-workout protein should be consumed immediately (within 30 minutes).

REDUCE

Reducing oxidative damage (minimizing free radical damage) after exercise is also extremely important. Free radicals are unstable molecules produced during the metabolism of oxygen. These unstable molecules promote inflammation and cell damage, leading to muscle soreness and delayed recovery short-term, degenerative disease long-term. Since exercise greatly increases oxygen intake, it also increases the production of free radicals in the body. Antioxidants are effective quenchers of free radicals, so it makes sense that ingesting antioxidants post-exercise would be an important strategy. The most effective antioxidants are Vitamin E and Vitamin C, and a wide variety of other phytonutrients found in fruits, vegetables, nuts and seeds.

Hydration Strategies

Sweating leads to fluid loss. Fluid loss leads to dehydration. Dehydration leads to premature fatigue, increased risk of heat illness, impaired performance and delayed recovery. Most athletes do not drink enough water before, during and after exercise.

HOW MUCH WATER IS ENOUGH

- It depends on a few things: your body size, your exercise intensity and duration, temperature and humidity levels and wearing of equipment.

- Generally, you should strive to drink the equivalent of half your body weight in ounces of water each day.

KEEP IN MIND

- Sweating promotes the loss of electrolytes - **MAGNESIUM, SODIUM, POTASSIUM, AND CALCIUM.**
- These nutrients are not replaced with water. When exercising in hot environments or for long periods of time it is important to replace electrolytes and fluids (with sports drinks/gels) to maintain optimum performance capabilities.

TIPS

- Drink fluids, regardless of thirst – you are already dehydrated when the sensation of thirst appears. Drink appropriate fluids such as water, sports drinks, and some 100% fruit juice. Some other beverages (low fat milk and high carbohydrate energy drinks) have important roles during high intensity training, but are not good hydrators.
- Keep it clear, Urine that is – Urine color should be used as an indicator of hydration status. Urine should be as clear as possible at all times and athletes should urinate every 2-3 hours.
- Weigh in/Weigh out after every practice – Athletes should aim to be within 1% of their initial weight of the day before subsequent workouts.
- Replace fluids lost within 60 minutes – Replace fluids lost during workouts as soon as possible, for each pound lost, replace with at least 3 cups (24 oz.) of water.
- Replace electrolytes – Athletes lose electrolytes through sweat. Be sure to replace those electrolytes by salting food, drinking Gatorade to prevent cramping and heat illness.

Sleep

The most underrated area of performance is sleep! Not getting enough sleep effects the following areas of performance:

- Reaction time

- Speed
- Fine motor skills
- Endurance.

Your body does significant work in the areas of muscle growth and repair while you sleep. If you are not getting enough sleep, you are compromising your recovery and your ability to add muscle mass.

TIPS

- Athletes' training requires a minimum of 8-9 hours of sleep.
- Establish a regular routine by getting up at approximately the same time each morning and going to bed at approximately the same time each night. Ideally within 30 minutes of the same time each morning and night.
- Avoid foods, at night, that contain caffeine (coffee, tea, chocolate, and soft drinks).
- Avoid alcohol and nicotine. Alcohol may initially induce sleep; however, the quality of sleep is poor and fragmented. Nicotine is a mild stimulant and will make it more difficult to sleep.
- Avoid large, heavy meals before bed. It will ramp up your digestive system and make it difficult to fall asleep.

Supplements

It's easy to be tempted by the wide variety of potions, pills and powders on the market today. By now, you understand there is no "magic pill" that comes in a bottle and no substitute for hard work. Make a great diet and healthy lifestyle your competitive 'edge.'

Understand that some supplements are legal, safe, and potentially beneficial to your performance, but there are many that are not legal, safe, and effective.

To keep your immune system strong and to optimize health, performance and recovery we recommend three supplements (1)

multivitamin, (2) fish oil (Omega 3) supplement, and (3) whey protein isolate.

MULTIVITAMIN

This is not a substitute for a healthy diet, but a second line of defense to ensure that your body is getting everything that it needs each day. When choosing a multivitamin evaluate products according to 3 simple rules:

- 1) Choose capsules over tablets, liquids over capsules.
- 2) Find a product that is rich in the antioxidant nutrients- Vitamins A, C, E & phytonutrients- and includes calcium, selenium, zinc, iron, magnesium and potassium.
- 3) Choose a 2-a-day over a 1-a-day.

To evaluate specific brands and products check out www.consumerlabs.com.

WHEY PROTEIN ISOLATE

Adding a scoop to your oatmeal in the morning, a smoothie or a shake at night is easy strategies for ensuring you are getting enough in to your diet. Also, adding a 1/2 scoop to some sports drink for a 'during" workout drink will help you get more out of your lifts and conditioning session.

APPENDIX A- Program Developers



CAROL BRUGGEMAN

One of the the most respected coaches in the game, Carol Bruggeman is closing in on the 600 win milestone as Associate Head Coach at the University of Louisville. In her 5 years with the Cardinals she has guided the perennial Top 25 team to two Big East Conference Championships and five straight NCAA appearances. Prior to Louisville Bruggemen started the softball program at Purdue University and was head coach from 1994-2005, leading the Boilermakers to 30+ win seasons in 9 of her 10 seasons. Bruggeman began her coaching career as a graduate assistant at her alma mater- the University of Iowa- after a stellar playing career that placed her in the Iowa Sports Hall of Fame. From Iowa Bruggeman moved on to an assistant coaching position at the University of Michigan from 1989-1993. Coach Bruggeman has written extensively about the game of softball- including chapters in 'The Softball Coaches Bible', 'The Softball Drillbook'- and is a regular speaker at conferences and clinics nationwide. She is also the current President of the National Fastpitch Coaches Association.



TEENA MURRAY

Teena Murray is Director of Sports Performance at the University of Louisville where she oversees athlete development and performance for the Cardinals' 21 Olympic sports. She is also the owner of *ATHLETE CONSTRUCTION* (LLC) and an adjunct professor in the graduate program at U of L.

In her 17 years in the strength and conditioning industry Teena has worked extensively with professional, Olympic, and collegiate athletes- including top draft picks in the WNBA, NHL, Olympic medalists, World Champions and All-Americans. She has worked collegiately at Cornell University and University of Connecticut, and professionally with the U.S. Women's National and Olympic hockey teams, and the Florida Panthers and Anaheim Ducks. She has published extensively, and has specific research interest in sport-specific athlete profiling.

A native of Canada, Teena holds a Master's degree in Exercise Physiology and undergraduate degrees in kinesiology and education. She is a Master Coach with the Collegiate Strength & Conditioning Coaches' Association (CSCCa) and is certified by the National Strength and Conditioning Association (NSCA), United States Weightlifting (USAW) and Functional Movement Systems (FMS).

APPENDIX B- Performance Testing Sheets

BASELINE (before Week 1):

Bodyweight: _____ pounds

Standing Long Jump: _____ inches

Pushups: _____ reps

20 Yard Sprint: _____ secs.

END OF BASE PHASE:

Bodyweight: _____ pounds

Standing Long Jump: _____ inches

Pushups: _____ reps

20 Yard Sprint: _____ secs.

END OF DEVELOPMENTAL PHASE

Bodyweight: _____ pounds

Standing Long Jump: _____ inches

Pushups: _____ reps

20 Yard Sprint: _____ secs.

END OF PEAK PHASE:

Bodyweight: _____ pounds

Standing Long Jump: _____ inches

Pushups: _____ reps

20 Yard Sprint: _____ secs.