Strength Report: Writing the Winter Off-Season Strength and Conditioning Program (Part I)

By: Mike Gentry

I enjoy my profession of strength and conditioning coaching because it allows me the opportunity to choose and to create the tools that can then be used by our athletes to improve their athletic performance. After 30 years of writing strength and conditioning programs at the Division I level, my approach has evolved into a systematic methodology of program design that fits my overall strength and conditioning training philosophy.

Virginia Tech Football Strength and Conditioning Training Philosophy

Periodization

I believe in a phased periodization approach to physical training as developed originally by Eastern European and Soviet Union scientists and coaches and introduced here to American coaches by researchers such as Mike Stone, Bill Kraemer and Vladimir Zatsiorsky.

The training model should provide a roadmap that allows the athlete to progress from point A to point B. The use of periodization principles will help a coach to determine appropriate volume, intensity and frequency of training.

Exercise Selection and Teaching Methods

When training football players, the use of multi-joint, ground based movements should be the core or focus of their resistance training. Exercises such as Olympic lifting variations, squatting variations, and pressing variations offer more opportunities for sport specific movements and also increase overall coordination and balance.

The exercise instruction should be progressive in nature, from simple to complex. As an example, the hang clean is taught from a hang position jump shrug first, followed by a hang position high pull, progressing to a hang clean.

The one element of athleticism that affects other parameters of athleticism the most is strength. This is particularly true for younger and untrained athletes.

There is a high correlation between an athlete's relative strength and short sprint speed. The development of absolute strength is essential and should be emphasized during the winter off-season phase of football training.

When training explosive power athletes, it's my belief that some of their training should be done with velocity. This application of force can be trained with the use of Olympic lifting variations, plyometric exercises and other exercise modalities. We typically program at least one explosive, high velocity exercise each training session.

Training Intensities and Exercise Variety

Bar speed is of paramount importance when using the Olympic lifts for the development of explosive power. When programming clean, snatch and jerk variations, we use fewer reps per set, performed at lower intensities. This allows greater bar speed and more transferable results. In general, it is better to slightly undertrain a football player in the weight room than to overtrain him. My goal is for our players to achieve every programmed rep of our foundational core exercises, not easily but successfully.

Our philosophy includes changing most assistance exercises every two to three weeks during both the off-season and in-season. There should be frequent use of different variations of pulls, the squat and presses particularly during in-season training. Using a variety of the fundamental core exercises and consistently changing your assistance exercises is vitally important for avoiding accommodation, boredom and overuse injuries.

<u>Successive Steps When Writing the Off-Season Program</u>

There are seven steps to writing the winter off-season program, each of which are described in the paragraphs to follow.

Step 1: Determine your overall training philosophy.
Step 2: Develop your annual plan.
Step 3: Develop your exercise and drill menus.
Step 4: Use the Predicted Maximum Chart to program core lifts.
Step 5: Write your periodization schedule.
Step 6: Write your weekly and daily training program.
Step 7: Test and evaluate.

Step 1: Determine Your Overall Training Philosophy

Your training philosophy should be based on your investigation of the science of training through formal and informal education. This includes talking with and reading the ideas of strength and conditioning professionals, as well as your personal experiences of what has worked and not worked well in your past experience training players.

Step 2: Develop Your Annual Plan

Before I start to develop the off-season program or winter program for football I develop a loosely structured annual plan. In general, the plan should include the physical goals that are most important during each phase of training. Each of these phases will have different training priorities based on their proximity to the competitive season. While concurrent training goals are necessary, prioritization of training goals must be honored. (See Chart 1)

College Football Annual Strength and Conditioning Plan Example

Season	Duration	Goal
Off-Season: Winter	6 to 7 Weeks	Increase Absolute Strength and Muscular Hypertrophy
Pre-Season: Spring Football	2 to 3 Weeks	Increased Specific Conditioning
In-Season: Spring Football	4 Weeks	Strength, Power and Conditioning Maintenance
Pre-Season: Summer Session One	4 to 5 Weeks	Increase Strength, Power and Anaerobic Conditioning
Pre-Season: Summer Session Two	4 to 5 Weeks	Increase Power-Specific Conditioning and Agility
In-Season: Fall Football	Phased approach of 3 to 4 Weeks Each	Each phase is designed to maintain strength, power and specific conditioning levels obtained in the pre-season phase

Step 3: Develop Your Exercise and Drill Menus

Prior to writing your program, it is helpful to develop menus of training exercises and drills organized in related categories. This list should be updated each year. These exercise menus allow you to keep variety in your program. The exercises must be appropriate and practical. (See Chart 2)

Sample Exercise Menu

1. Warm-up and Core

Dynamic Warm-up Exercises

- Walking Toe Touch
- Slipping Toe Touch
- Walking Knee Hug
- Skipping Toe Touch
- Low Shuffle
- Low Carioca
- High Knee Carioca
- High Knee Crossover
- Backward Skip

Abdominal and Core Exercises

- Hokie Leg Raises
- ABC Sit Ups
- Twisting Sit Ups
- Bicycle
- Flutter Kick
- Dying Cockroach
- Lawn Chairs
- Pikes
- Cherry Pickers
- Front Plank
- Side Plank

2. Explosive Power

Olympic Lift Variations

Hang Clean Progression

- Jump Shrug from Hang Position
- High Pull from Hang Position
- Hang Clean

Power Clean Progression

- Olympic Deadlift to Knee
- Clean Pulls
- Power Clean

Push Jerk Progression

- Standing Military Press
- Push Press
- Push Jerk

Power Snatch Progression

- Snatch Grip Jump Shrug from Hang
- Snatch Grip High Pull from Hang
- Hang Snatch
- Snatch Grip Olympic Deadlift
- Snatch Grip Clean Pulls from floor
- Power Snatch
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- ***Explosive Power Variations***
- Explosive Box Step Ups with bodyweight or vest
- Explosive Bear Machine Jumps
- Vertimax Machine Jumps
- Plyometric Box Jump Variations
- Hammer Jammer Machine
- Speed Back Squats with Tendo Machines

3. Absolute Strength Multi Joint

Lower Body (Bilateral)

Back Squat Variations

- High Bar Olympic Style
- Low Bar Powerlifting Style
- High Box Squat
- Low Box Squat

Front Squat Variations

- Bear Squat Machine -Double Leg
- Pit Shark Machine-Double Leg
- Leg Press Machine-Double Leg

Lower Body (Isolateral)

- Barbell & Dumbbell Box Step Ups
- Barbell & Dumbbell Stationary Lunges
- Barbell & Dumbbell Walking Lunges
- Single Leg Squat Barbell or Dumbbell
- Single Leg Bear Squat Machine
- Single Leg Leg Press

Upper Body (Bilateral)

Bench Press Variations

- Regular Supine Bench Press
- Close Grip Supine Bench Press
- Supine Bench Board Press
- Power Rack Partial Bench Lockouts
- Incline Bench Press
- Decline Bench Press
- Chain or Band Supine Bench Press
- Bench Press Machine

Upper Body (Bilateral) *(continued)*

Shoulder Press

- Standing Barbell Overhead Press
- Standing Barbell behind the Neck Press
- Seated Barbell Overhead Press
- Seated Barbell behind the Neck Press
- Seated Overhead Press Machine

Upper Body (Isolateral)

Bench Press Variations

- Dumbbell Supine Bench Press - *Both arms together, alternate press or single arm only*
- Dumbbell Incline Bench Press - *Both Arms together, alternate press or single arm only*
- Dumbbell Decline Bench Press - Both arms together, alternate *press or single arm only*

Shoulder Press

- Dumbbell Standing Overhead - *Both arms together, alternate press or single arm only*
- Dumbbell Seated Overhead - *Both arms together, alternate press or single arm only*

Step 4: Use the Predicted Maximum Chart to Program Core Lifts

Use of the Predicted Maximum Chart will allow you to properly program your athletes' core lifts throughout the cycle. This knowledge will allow you to systematically move the athletes toward appropriate near max per repetitions (training peaks) as they progress through the training cycle. As an example: 75% for 10 reps, 85% for 5 reps, 92% for 3 reps. You should gradually move the athletes toward a theoretical max per repetitions as they progress through the cycle. (See Chart 3)

Predicted Maximum Chart

Number of Repetitions	Percentage of One Rep Maximum
1	100%
2	95.5%
3	91.7%
4	88.5%
5	85.7%
6	83.2%
7	80.9%
8	78.8%
9	76.9%
10	75.2%
11	73.6%
12	72.1%

Example:

Calculate Maximum of 5 reps with 280 pounds

Step 1: Convert to Decimal

85.7% /100 = .857

Step 2: Calculate Predicted Maximum

280/.857= 325

Step 5: Write Your Periodization Schedule

After choosing your primary or core lifts, write your periodization schedule for the training cycle. The schedule provides the target intensity for the last set of preselected core exercises through each week of the cycle. These intensities are selected based on the goal of the program, the athlete's general profile and length of the cycle. (See Chart 4)

Virginia Tech Football Winter Off-Season Periodization Schedule Example

	Back Squat	Bench Press	Power Clean	Push Press	Push Jerk
Week 1	64% – 10 reps	70% – 8 reps	73% – 3 reps	67% – 3 reps	n/a
Week 2	76% – 6 reps	76% – 6 reps	76% – 3 reps	70% – 3 reps	n/a
Week 3	79% – 5 reps	79% – 5 reps	79% – 3 reps	73% – 3 reps	n/a
Week 4	82% – 5 reps	85% – 5 reps	82% – 3 reps	n/a	82% – 3 reps
Week 5	85% – 3 reps	88% – 3 reps	85% – 3 reps	n/a	85% – 2 reps
Week 6	88% – 3 reps	91% – 2 reps	88% – 1 rep	n/a	88% – 1 rep
Week 7	Get 3 rep max	Get 1 rep max	Get 1 rep max	n/a	Get 1 rep max

Step 6: Write Your Weekly and Daily Training Program

The next step in the writing process is to determine your weekly training frequency (as an example, three or four days of resistance training per week.) I believe a variety of training frequencies can be effective. I've chosen the four-day-per-week model for our winter Off-Season approach.

Remember, at this time of the year, our most important adaptation is to become stronger and gain muscle. This chart represents the framework I used to develop this particular off-season program. I recommend developing your weekly and daily training programs with support from your periodization schedule, predicted max chart and exercise menus. (See Chart 5)

Organization of Daily Training Schedule Example

Monday	Tuesday	Thursday	Friday
Dynamic Warm Up Foot Speed Drills Court – Abdominal Ex.	Dynamic Warm Up Foot Speed Drills Court – Abdominal Ex.	Dynamic Warm Up Foot Speed Drills Court – Abdominal Ex.	Dynamic Warm Up Foot Speed Drills Court – Abdominal Ex.
Explosive Exercise (Heavy) Lower Body Strength (Heavy) Assistance Exercises	Explosive Exercise (Light) Upper Body Strength (Heavy) Assistance Exercises	Explosive Exercise (Heavy) Lower Body Strength (Light) Assistance Exercises	Explosive Exercise (Light) Upper Body Strength (Light) Assistance Exercises
Conditioning – Resistance (i.e. Boards or Sleds) -or- Speed, Agility, Quickness Drills	Conditioning -or- Speed, Agility, Quickness Drills	Speed, Agility, Quickness Drills -or- Competitive Games	Conditioning -or - Speed, Agility, Quickness Drills
Flexibility – Recovery (i.e. Static, Hurdles, Straps, Bands) Foam Rolling	Flexibility – Recovery (i.e. Static, Hurdles, Straps, Bands) Foam Rolling	Flexibility – Recovery (i.e. Static, Hurdles, Straps, Bands) Foam Rolling	Flexibility – Recovery (i.e. Static, Hurdles, Straps, Bands) Foam Rolling

Using the framework shown above, along with the periodization schedule and your particular exercise menus, you are ready to craft the program that you feel will be the best fit for your particular team, facility and overall situation. Please refer to the charts for the 2014 Winter Off-Season Strength – Power Schedule and 2014 Winter Off-Season SAQ Schedule that are posted on AmericanFootballMonthly.com. This will include the total six week off-season training plan, including the SAQ and conditioning elements of the plan.

Step 7: Test and Evaluate

I encourage you to include some form of testing and evaluation in your program. Testing allows you to evaluate your athletes' progress and your program's effectiveness. When structured and administered correctly, this testing phase will provide motivation to the athlete and reinforce correct exercise technique.

Be sure that your testing protocol measures your training objectives.

In the next issue of AFM, I will be addressing coaching methods and philosophy. Your skills in these areas are arguably more important than your programming expertise in developing winning athletes. Stay strong.

Winter Off Season SAQ Schedule PDF

Winter Off Season Strength - Power PDF

About the Author: Mike Gentry is Associate Athletic Director for Athletic Performance at Virginia Tech. He has been a head coach on the BCS level for 32 years. Gentry has a Bachelor's Degree, Master's Degree and a Doctorate in Education. He won Samson Equipment's Strength and Conditioning Coach of the Year award in 2004. Gentry and Dr. Tony Caterisano recently completed a book on strength and conditioning - The Ultimate Guide to Physical Training for Football. Gentry was inducted as a Master Strength and Conditioning Coach by the CSCCA in 2003. Mike served two three-year terms on the CSCCA Board of Directors from 2006 to 2012. Gentry was inducted into the USA Strength and Conditioning Hall of Fame Collegiate Division in 2011.