



This article is an excerpt from
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Training the collegiate athlete can often be a difficult task for a variety of reasons. At Montana State University do not have the same caliber of athletes other Division I schools tend to have, so we must develop the athletes that we get to their fullest potential, while minding collegiate hour restrictions, rules and vacations. Our sports performance program that I am about to describe is something we have developed over the course of the last four years and is a program that we are continually tweaking to ensure we are providing our athletes with the best training possible.

PROGRAM DESIGN *the bobcat approach*

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When training collegiate athletes there are a variety of considerations one must take in order to have a successful program. Like most Universities, our athletes are of all varieties coming from varying backgrounds. Some of the athletes have trained with weights in high school and have a solid foundation to build off of. On the other hand, many of our athletes have never touched a weight. In addition to their previous training experience, our athletes have varied demands from our sport coaches on how soon they have to compete. Some of our athletes may not have the luxury of red shirting and must play right away which can set back their development slightly and is usually very taxing for a true freshman, mostly due to the speed and the demands of college athletics. We also have to consider how much time we are allowed to train our athletes. The National Collegiate Athletic Association (NCAA) has rules on how many hours a week we can train our athletes, as well as discretionary time, and certain periods of the year namely during Christmas vacation, Spring Break, and Summer vacation that we can only have voluntary workouts with off-season teams. First and foremost our athletes are students, which usually develops its own set of stressors on top of the already stressful workouts, practices and competitions put on the body. Since the body cannot differentiate between the two types of stressors, sometimes programs must be adjusted to ensure the safety and progress of our athletes. The last piece of the training puzzle for the collegiate athlete is the sport coaches. We are very fortunate here at Montana State because our coaches are very supportive of strength and conditioning and our programming, but from time to time sport coaches may have special requests that must be address as well.

Keeping all of those factors in mind, we have two main goals for our programming: injury prevention and maximizing athletic performance. To accomplish these two goals, our philosophy on training is based heavily on Russian and Eastern European training methodologies of multi-year development combined with conjugate and concurrent periodization. We also believe in free weight, multi-joint, ground based movements in order to increase athlete's maximal strength levels, which in turn will aid in developing all of their other strength qualities. Several different loading methods are employed with our athletes based upon their preparedness. The types of loading methods we employ are as follows:

Repetitive Effort (RE) method, which is lifting loads less than 80% of 1 repetition maximum (1RM) with reps assigned using the Prilepin chart.

Sub-maximal Effort (SE) method, which is lifting loads 70 – 90% of 1RM with reps assigned using the Prilepin Chart.

Maximal Effort (ME) method, which is lifting loads 90%+ performing a 1 to 5 repetition maximum.

Dynamic Effort (DE) method, which is lifting sub-maximal loads 45 – 60% at high speeds in combination with bands and chains as accommodating resistance. In some cases we will use Olympic lifts, plyomet-

rics and medicine ball throws for dynamic effort work as well.

Now that you have an overview of our philosophy and program goals the following sections will describe give an overview of how we maximize our athlete's athletic performance.

Our strength training program is based upon a multi-year development plan to ensure our athletes are constantly improving from the time they are freshmen to the time they are seniors. We classify our programs into three levels based upon our athlete's preparedness level. We have a developmental or red-shirt program that most athletes start out on, and we use our school colors for our other programs: Blue, the transitional program and Gold, the advanced program. Once our athletes arrive on campus we perform a movement screen test with them to see how their bodies function. Additionally, we measure their posterior chain strength, hip flexibility, core stability, shoulder flexibility, single leg strength, and posterior shoulder girdle strength and stability. The movement screen includes an overhead squat, a single leg squat, glute ham raise, pull-up and an inverted row (horizontal

pull-up) test. An athlete's test score will determine what type and how much extra work they will perform to eliminate their deficiencies. The strength training program where the majority of our student athletes start their development on is the developmental level. This program's goals are to work on learning lifting technique, increasing general physical preparedness (GPP) and increasing relative and maximal strength levels. This program utilizes mainly the RE method of training in the beginning stages to build work capacity and technique. The latter stages of the program progress the athletes into the SE method training in order to develop maximal strength. During this program we also incorporate body weight strength training exercises to raise our athlete's relative strength levels. We do this with pull-ups and pull-up variations, push-ups and push-up variations, single leg box or supported squats and inverted rows. We have found a high degree of transfer of strength to body weight ratio in our athletes and their performance on the field or court. Depending on the sport that the athlete participates in, he or she will have a three or four day a week program for the first semester, or red-shirt year, in our program. Figure 1 is an example of the lifting template that we

Montana State Sports Performance													CL	SQT	BN
													0	0	0
Figure 1 Sample Developmental 3 Day Lifting Template													DEVELOPMENTAL		
MONDAY				WEDNESDAY				FRIDAY							
%	wt	reps		%	wt	reps		%	wt	reps		%	wt	reps	
0%	0	3 Position	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	
0	0	Clean	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	
			0.0%	0	0 x3	0.0%	0	0 x3	0.0%	0	0 x3	0.0%	0	0 x5	
		1 Shrug	0.0%	0	0 x3	0.0%	0	0 x3	0.0%	0	0 x5	0.0%	0	0 x5	
		1 Clean Pull	0.0%	0	0 x3	0.0%	0	0 x3	0.0%	0	0 x5	0.0%	0	0 x5	
		1 Clean	0.0%	0	0 x3	0.0%	0	0 x3	0.0%	0	0 x5	0.0%	0	0 x5	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
0%	0	Box Squat	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	
0	0		0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	
			0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x3t5	0.0%	0	0 x8	
		Work on Technique	0.0%	0	0 x8	0.0%	0	0 x6	0.0%	0	0 x6	0.0%	0	0 x6	
			0.0%	0	0 x8	0.0%	0	0 x6	0.0%	0	0 x6	0.0%	0	0 x6	
			0.0%	0	0 x8	0.0%	0	0 x6	0.0%	0	0 x6	0.0%	0	0 x6	
			0.0%	0	0 x8	0.0%	0	0 x6	0.0%	0	0 x6	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
			0.0%	0	0	0.0%	0	0	0.0%	0	0	0.0%	0	0	
A1	0%	Pullups	0.0%	0	0 x10	0.0%	0	0 x10	0.0%	0	0 x10e	0.0%	0	0 xMax	
0	0		0.0%	0	0 x10	0.0%	0	0 x10	0.0%	0	0 x10e	0.0%	0	0 x-20%	
			0.0%	0	0 x10	0.0%	0	0 x10	0.0%	0	0 x10e	0.0%	0	0 x-20%	
A2	0%	Bar Split Squat	0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x10e	
0	0		0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x10e	
			0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x10e	
B1	0%	Db 1-Arm Row	0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x8	0.0%	0	0 x10	
0	0		0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x8	0.0%	0	0 x10	
			0.0%	0	0 x10e	0.0%	0	0 x10e	0.0%	0	0 x8	0.0%	0	0 x10	
B2	0%	45 Back Hypers	0.0%	0	0 x12	0.0%	0	0 x10	0.0%	0	0 x12	0.0%	0	0 x12	
0	0		0.0%	0	0 x12	0.0%	0	0 x10	0.0%	0	0 x12	0.0%	0	0 x12	
			0.0%	0	0 x12	0.0%	0	0 x10	0.0%	0	0 x12	0.0%	0	0 x12	

form very general anaerobic training with our strength / power sports and progress to sport specific metabolic conditioning as their competitive season nears. Our sport specific metabolic conditioning program mimics the energy system demands that will be placed on the body in a given sport. With that program work to rest ratios are set by each specific sport. For example, with football we give our athletes 25 – 30 seconds rest between reps to mimic the amount of rest they will usually receive between plays.

Some other components that may help to accomplish our goals of injury prevention and maximizing athletic performance include nutritional advice, body composition management, instilling and promoting our core values and our pre-hab program. We provide our athletes with nutritional advice concerning what type of diet will help them perform optimally and if they want individualized diet plans we refer them to a nutritionist on campus that specializes in sports nutrition. Body composition management is essential to athletic performance. Here at Montana State we have weekly meetings with those athletes who either need to gain or lose weight to ensure they are using proper methods to get to where they need to be. One often overlooked component that is a major point of emphasis for our program is core values. Our core values are honesty, integrity, positive attitude, and excellence in training. All of our athletes know that if they become bigger, stronger and faster they will most likely be more successful in their sport, but if they do not abide by our core values they are never going to get there. If our athletes are not doing their best when they come into train, or are not disciplined enough to eat right or hold their teammates accountable, or give a bogus story about why they missed a training session they will not reach their potential athletically or socially. Therefore we take advantage of the time we have with our athletes to instill these values which will help us to increase their athletic performance. Last is our pre-hab program. This program addresses the potential high risk areas for injury in the sport that our athlete participates in. These exercises strengthen weakened areas from previous injury or maintain strength in those high risk areas to try to prevent injuries. While contact injuries cannot be prevented, we do our best to eliminate soft tissue, overuse and misuse injuries through the pre-hab program.

In closing, remember that this is just a brief overview of the programming that we employ to train our college athletes. While some of our programming we have developed in house, we try to keep a beginner's mind when it comes to training and incorporate training methodologies from other successful programs throughout the country, if we think it will make our program better. There is no one best program to use to improve athletic performance otherwise everybody in the country would be doing the same thing. We feel the way we currently write our programs is what is best for our athletes and their development. If you have any questions about our programming or would like to discuss our philosophy or training methodologies further, feel free to contact me through email at dsamuelson@msubobcats.com.

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Doug is in his first year as Head Strength and Conditioning Coach at Montana State University after spending the last three as the Assistant Strength Coach. Prior to coming to Montana State he was a Graduate Assistant Strength Coach at Indiana State University and an Intern Strength Coach at Drake University. He holds a Bachelor's Degree in Exercise Science from Colorado State University and a Master's Degree in Exercise Science from Indiana State University. He is certified by the NSCA and USA Weightlifting. Doug is directly responsible for training MSU's Football, and Men's and Women's Basketball Teams.

Suggested Readings:

1. *A System of Multi-Year Training in Weightlifting*
A.S. Medvedyev
2. *Programming and Organization of Training*
Yuri Verkhoshansky
3. *Special Strength Training* Yuri Verkhoshansky
4. *Science and Practice of Strength Training*
Vladimir Zatsiorsky
5. *Supertraining* Mel Siff
6. *The Development of the Russian Conjugate Sequence System*
Tom Myslinski
7. *The Coach's Strength Training Playbook* Joe Kenn
8. *Stress of Life* Hans Selye
9. *Elite Fitness Systems Articles and Q&A*
www.elitefts.com
10. *Westside Barbell Club / Louie Simmons Articles & Videos* www.westside-barbell.com
11. *Joe DeFranco Strength Training*
www.defrancostraining.com
12. *Martin Rooney – Parisi Speed School DVD's and Personal Communication* www.parischool.com