

Ballarmine Prep's Strength Training Program for Wrestling

David J. Grisaffi
Head Wrestling Coach/Strength Coach
Ballarmine Preparatory High School, Tacoma

WRESTLING ENJOYS A LONG and proud tradition as one of the oldest and toughest sports known. It employs several disciplines that revolve around a variety of physical skills and movements. The main emphasis in wrestling is the ability to sustain short, explosive bursts of energy for the duration of the match to execute offensive attacks and defensive counters.

To maximize his strength component, a wrestler must implement several key ingredients in the training program: agility, speed, endurance, strength, and flexibility. A wrestler's success also depends greatly on the ability to sustain anaerobic endurance throughout the match. Most of the energy for wrestling is supplied by the anaerobic (without oxygen) system (10, 11, 12, 17).

Wrestling places very high demands on two of the three main energy systems: the ATP-CP and lactic acid anaerobic systems. Wrestling also places high demands on the aerobic system in strenuous matches, practice, and overtime matches. The main em-

phasis of this article is strength training, but cardiovascular conditioning is also important for resynthesizing ATP production and is vital to the recovery process (11, 16).

■ Bellarmine Prep's Program

At Bellarmine Prep we explain and outline all aspects of our strength training program—power (speed/strength), anaerobic strength, endurance, and flexibility. Most of the training is done in the weight room.

Before beginning his exercise program, each wrestler is evaluated on his experience and training knowledge. We test for the 1-rep max in multijoint movement, large muscle groups only (2). I also use a computer program, "The Fitness Buddy," to help with rep/weight calculation and periodization. This has cut down on time and record keeping.

We use the following tests according to the NSCA guidelines (1, 4): vertical jump; sit and reach; 60-yd shuttle run; body fat %;

bench press max; squat max; and chin-up max reps.

After completing these tests, our athletes are evaluated in each area to determine their exercise prescription. It is important to recognize the different levels of physical development when working with high school students. Each individual's level of physical and emotional development will be different, thus the exercise prescription should correspond.

By defining a wrestler's physical strengths and weaknesses we can outline an appropriate schedule. We individualize some aspects of the strength program for our junior and senior wrestlers because they have a solid foundation of lifting experience (10). Our freshmen and sophomores follow the described program to develop a sound understanding of technique and what they can accomplish through this program.

Strength training improves both physical and mental development, in turn improving con-

© 1996 National Strength & Conditioning Association

confidence and athletic ability. Preexercise testing also provides a benchmark for determining strength gains following a period of training.

The goal of our program is to increase muscular strength/hypertrophy through a full range of motion. The program follows the NSCA guidelines for periodization (1, 4). The 4 phases are:

1. Preseason (Sept. to mid-Nov.)
2. Season maintenance (mid-Nov. to mid-Feb.)
3. Postseason (March-June)
4. Summer (June-Sept.)

The periodization schedule in each phase is based on microcycles that build into each mesocycle that make up the macrocycle of the training year. I like to offer a variety of exercises as well as variation in reps and sets.

Periodization allows us to change our focus as the year progresses. This approach also avoids monotony and helps keep the athletes motivated.

Prior to the start of the training, we stress fundamentals of proper weightlifting technique and safety. We emphasize lifts in the full range of motion, thus reducing the chance of injury. Proper spotting techniques and the use of weightlifting belts are also stressed.

To ensure proper execution, we begin all new lifters with the high pull series before moving them on to the hang clean movement. They must master these techniques before progressing to the power clean or power snatch. Prior to each workout the athletes warm up to increase body temperature and elevate heart rate; this helps prevent injuries (7, 10). A 5-min

warm-up and a 10-min period of flexibility training occurs prior to each workout.

Year-Round Macrocycle

Mesocycle 1

The preseason period is a 10-week program that runs from Sept. 1 through Nov. 15. After the test results have been evaluated, we develop the workout plan with specific reps, sets, and the intensity of each exercise.

Microcycle 1 (2 weeks). The training goal during this cycle is to enhance muscular capillarization and strength in the ligaments, tendons, and connective tissue. The reps are high in number to produce vascularization and increase endurance (9, 13). This gradual progression will build a strong base to help minimize injury when the athlete later participates in higher intensity training. During this cycle some athletes' programs may be modified to better challenge their new ability.

Warm-up followed by a flexibility session precedes all lifting activity. Training is performed 3 days a week to ensure proper rest between exercise bouts (Table 1, Sec. 1).

Microcycle 2 (4 weeks). The objective in this microcycle is to develop strength while also developing a high lactic acid threshold level through light, moderate, and heavy lifting and light plyometrics (1, 5, 9). Additional exercises such as power snatches, split snatches, and split jerks may be implemented depending on the maturity and technique level of the wrestlers. These exercises can replace the power clean or may be added to the program at the coach's discretion.

Twice a week, on Tuesday and Thursday, we conduct a session of light plyometrics and a 2-mile jog

Table 1
Mesocycle 1

Microcycle 1, Section 1 (2 weeks)

Times per week: 3
Sets: 3-4
Reps: 10-15
Intensity: 65-70% 1-RM
Work-to-rest ratio: 1:2

Exercises

Squat, high pull/hang clean, lunge, bench press, chin-up, upright row, biceps curl, Russian twist

Microcycle 2, Section 2 (4 weeks)

Times per week: 3
Sets: Mon, 3-4; Wed, 3-4; Fri, 3
Reps: Mon, 10-15; Wed, 6-8; Fri, 4-6
Intensity: Mon, 70% 1-RM
Wed, 80% 1-RM
Fri, 85-90% 1-RM
W/R ratio: Mon, 1:1; Wed, 1:2; Fri, 1:3

Squat, hang clean/power clean, bench press, stiff-leg deadlift, lat pulldown/chin-up, upright row, Russian twist, lunge

Microcycle 3, Section 3 (4 weeks)

Times per week: Mon/Fri, 2; Wed, 1
Sets: Mon/Fri, 3; Wed, 2
Reps: Mon/Fri, 6-10; Wed, 20
Intensity: Mon/Fri, 80-90% 1-RM
Wed, 60% 1-RM
W/R ratio: Mon/Fri, 1:2; Wed, 1:1

Monday/Friday: Same exercises as in Microcycle 2

Wednesday (circuit): Leg press, bench press, dumbbell shoulder press, chin-up, leg curl, biceps curl, split squat (10 each leg), 30-sec. jump rope burst

or rowing ergometer to strengthen the aerobic component and burn calories in wrestlers who want to lose body fat. The rowing ergometer provides for the same cardiovascular benefits as running. It also enhances the strength and endurance level of the prominent muscle groups used in wrestling (6) (Table 1, Sec. 2).

Microcycle 3 (4 weeks). During Weeks 7 through 10 the core exercises are targeted to the speed/strength component. The exercises are the same as in Microcycle 2, Sec. 2; they are performed on Monday and Friday with the addition of the push press. Abdominal work is kept in a high rep range (Table 1, Sec. 2).

On Wednesday a circuit training is implemented to increase the anaerobic capacity. An intense circuit program helps the lactic acid system by increasing its ability to handle metabolic acidosis (4, 11, 16, 17). Circuit training also allows for greater variation in the training protocol (Table 1, Sec. 3).

On Tuesday and Thursday the athletes undergo moderate plyometric (bounding, bleacher stairs) interval sprint training in 40-yd bursts. This increases the ability to deal with high lactic acid levels. We are careful at the beginning of this part of the cycle not to push the athletes above their anaerobic threshold level. Continual training in the anaerobic threshold level can lead to overtraining and injury (4, 10).

Mesocycle 2

During the in-season period from Nov. 15 through Feb. 20, the main emphasis is to maintain strength and agility throughout the wrestling season. Due to the physical nature of the sport of wrestling, the body becomes very

Table 2			
Mesocycle 3 (Post-Season)			
Core Exer., A		Core Exer., B	
Monday Incline bench press Bench press	Thursday Bench press Push press	Tuesday Power clean Squat	Friday Squat Deadlift or Hang clean
Other power exercises may be implemented based on experience: Split squat, Power snatch, Split snatch, etc.			
Auxiliary Exer., A		Auxiliary Exer., B	
Chest Close grip bench press Flat bench flye Pullover	Shoulders Military press Lateral raise Upright row	Back Chin-up Lat-pulldown Bent row	Legs Leg press Stiff-leg deadlift Leg curl/extension Heel raise (every workout) Lunge
Triceps Lying triceps extension Dip	Neck Four-way neck machine	Biceps Curl E-Z bar curl	Neck Shrug
Abdominals Crunch Russian twist Back extension		Abdominals Crunch Russian twist Back extension	
Auxiliary section provides variety of choices. Athlete chooses an exercise under each heading and uses it for 2 weeks (except neck section).			

vulnerable to injury during competition and practices. During this time it is also important to practice good nutrition, maintain a stable body weight, and employ sensible recovery methods (e.g., hot/cold showers, sauna, swimming).

Workouts are done twice a week and feature a full-body approach. Training days are manipulated depending on match and tournament schedule.

Microcycle 1 (8 weeks). Exercises are the same as in Mesocycle 1, Microcycle 2 (Sec. 2), that is, 3 sets of 4 to 8 reps at 80-90% 1-RM intensity, with a work-to-rest ratio of 1:2.

If time is an issue in your schedule, then the following routine will cut down on time and still produce good results: Power Series: 2 to 3 sets of 6 to 10 reps at 80-85% 1-RM, with a work-to-rest ratio of 1:2.

How to Perform the Power Series:

The Power Series is a combination exercise that is an excellent total body workout. You can vary the workload from light early in the cycle to heavy weight at the end of the cycle. The three exercises—power clean, front squat, and push press—are done in succession without rest between exercises.

The Power Series begins with the power clean to a racked position, followed by a full front squat returned back to a standing position, followed by a push press. The weights used in this series are based on the athlete's push press 1-RM. The push press is the weakest of these movements. The movements are strenuous, thus proper technique must be emphasized (3).

Microcycle 2 (3 to 4 weeks). During the final 3 to 4 weeks before the postseason tournament schedule, a strong circuit training is initiated twice a week. The routine is basically the same as the Wednesday routine in Mesocycle 1, Microcycle 3 (4, 16, 17), but it also includes sprint work and shock plyometrics for lower body speed/strength.

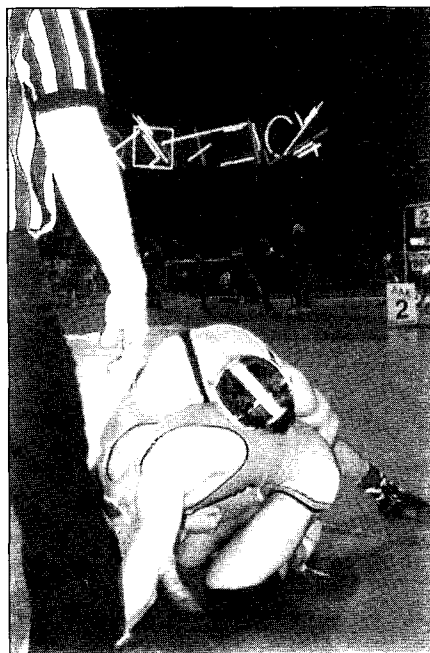
In the final 4 to 7 days prior to the state championships, we cease all weight training to allow for full recovery (4, 10). This is a critical time, and injury prevention is a high priority. Proper rest and nutrition are stressed in addition to workout recovery methods (9).

Mesocycle 3

This is the postseason period, March to June. Following the wrestling season we prescribe a full month of active rest so the wrestlers can fully recuperate from the physical and mental rigors of the season. Some of our wrestlers do not participate in active rest because they are involved in the

freestyle wrestling program during that period.

The emphasis in the third phase of the macrocycle is to redevelop a base of strength and progress to additional strength and mass gains, if desired. Our athletes use a 4-day split routine for strength training. This is a time to enjoy the season's accomplishments and set new goals for next year. This time provides a great opportunity for wrestlers to work on specific areas of need.



The wrestlers choose when to train: during PE or weight training classes, lunchtime, or after school. We outline the program, but the athletes are responsible for keeping a daily journal, as they do all year long. They review this journal with the coaches. It is important for the coaches to be present at the workouts to monitor training intensity. This routine allows for variation. The athlete follows the core schedule, then chooses an auxiliary exercise from each heading. The auxiliary exercises are changed at the coach's discretion.

Microcycle 1 (4 weeks). This is the general hypertrophy phase. The exercises are done in sets of 3 core and 2 auxiliary, 10–15 reps at 70% of 1-RM with a work-to-rest ratio of 1:1.5. Proper warm-up, flexibility, and cooldown need to be stressed again as a way to improve range of motion and prevent injuries (Table 2).

Microcycle 2 (6 weeks). This is the strength phase. During the first 4 weeks the athletes perform 4 core exercises, 6–8 reps at 70–75% of 1-RM, with a work-to-rest ratio of 1:2. During the last 2 weeks the athletes perform 3 auxiliary exercises, 4–6 reps at 75–85% of 1-RM, with a work-to-rest ratio of 1:3.

After Microcycle 2, all core lifts are tested for 1-RM. The final 2 weeks of school are a time for active rest (4). This is the time for school finals and everything else the end of the school year implies (1) (Table 2).

Mesocycle 4

This is the summer session, which runs from June 15 to August 15. Each wrestler is given the option to train at the school or on his own. For those who choose to work out on their own, we provide a summer workout schedule. We require them to keep a journal of exercises during the summer.

Microcycle 1 (2 weeks). This is the general preparation/hypertrophy phase. It follows the same schedule and exercises as the postseason section (Mesocycle 3, Microcycle 1). All lifts are based on the new 1-RM determined before the end of the school year.

Microcycle 2 (4 weeks). This is the strength phase. It follows the same schedule and exercises as the strength phase in the postseason section (Mesocycle 3, Microcycle 2) (Table 2).

Microcycle 3 (2 weeks). This is the power phase. It is important for developing the athletes' overall strength level and pushing them to peak strength. The exercises are done in sets of 4 core exercises, 4-6 reps at an intensity of 80-90% 1-RM, and a work-to-rest ratio of 1:3+, and sets of 3 auxiliary exercises, 8-10 reps at 70-80% of 1-RM, and a work-to-rest ratio of 1:2.

The same exercise protocol defined in the strength phase above is used. After the power phase, our athletes are at their highest strength levels. They are again tested and their strength levels are recorded for further exercise planning in the fall (14).

Two weeks of active rest will follow this phase of the mesocycle. The cycle ends in mid-August, 2 weeks before school starts; it is considered an active rest period. When school starts in September, we begin our strength training from the beginning with new strength goals for the upcoming season.

■ The Overall Picture

We have the wrestlers perform numerous abdominal exercises in each mesocycle to work the rectus abdominus, obliques, and lower back. It is important to develop a strong midsection, legs, and hips in order to execute the techniques and movements in wrestling (8, 9, 11, 15). The movements involve twisting of the trunk and rotating of the midsection. The stronger this area is in conjunction with the hips and legs, the more powerful and successful the wrestler will be.

During the entire macrocycle we aim to decrease body fat and maximize muscle mass and strength. Smaller wrestlers are in a lower weight class and tend to be mainly concerned with developing strength without gaining weight. This is an individual

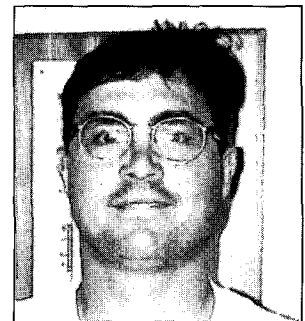
thing, however, since the maturation process is different for each wrestler. The larger wrestlers play football and most of them want an increase in muscle mass along with strength.

I feel that this year-round strength training program, if overseen by a strength professional, can really help develop a student athlete's performance. The structure of this system has proven effective for our wrestlers. It provides variety through an ever changing and physically challenging regimen.

The younger wrestlers witness the overall improvement of their older teammates and soon decide they must participate in weight training to keep up. Our school is not blessed with a huge number of natural athletes, so improving the ones we have is essential to our success. The bottom line is to create a fun and systematic plan that helps everyone involved. ▲

■ References

1. Baechle, T.R. (Ed.). *Essentials of Strength Training and Conditioning*. Champaign, IL: Human Kinetics, 1994.
2. Baechle, T.R., and B. Groves. *Weight Training: Steps to Success*. Champaign, IL: Human Kinetics, 1992.
3. Baker, G. Exercises of the month. *Strength and Cond.* 17(6):58-59. 1995.
4. Case, S., et al. Roundtable on Strength Training and Conditioning for Wrestling, Parts I & II. *NSCA Journal*, 10(2), 10(3). 1988.
5. Chu, D. *Jumping Into Plyometrics*. Champaign, IL: Human Kinetics, 1992.
6. Cipriano, N. Supplemental conditioning exercises and training protocol for an amateur wrestler. *NSCA Journal*, 10(5):32-35. 1988.
7. Fleck, S., and W.J. Kraemer. *Designing Resistance Training Programs*. Champaign, IL: Human Kinetics, 1987.
8. Gastelu, D. *Performance Nutrition*. Santa Barbara, CA: International Sports Science Assoc., 1995.
9. Hatfield, F. *Fitness: The Complete Guide*. Santa Barbara, CA: International Sports Science Assoc., 1992.
10. Johnson, M., and C. Yesalis. Strength training and conditioning for wrestling: The Iowa approach. *NSCA Journal* 8(4): 56-59. 1986.
11. Klinizing, J. Guidelines for conditioning for wrestling. *NSCA Journal* 8(2):58-60. 1986.
12. Kraemer, W.J. Physiological aspects of conditioning for wrestling. *NSCA Journal* 6(1):40, 72. 1984.
13. Lamb, D.R. *Physiology of Exercise*. New York: Macmillan, 1984.
14. Meadors, L. Program design for the junior high school athlete. *Strength and Cond.* 17(2):70-75. 1995.
15. Pederson, S. Strength training for wrestling at Oklahoma State University. *NSCA Journal*, 6(1): 42, 70. 1984.
16. Richardson, T. Practical aspects for strength programming for wrestling. *NSCA Journal*, 6(1):41, 71. 1984.
17. Stucky, J. Strength and conditioning for wrestling. *NSCA Journal*, 7(5):40-42. 1985.



David J. Grisaffi, head wrestling coach/strength coach at Bellarmine Preparatory High School in Tacoma, is president of Personal Fitness Development (Tacoma). He has bronze level certification in the U.S. Wrestling Association and holds membership in several sports organizations.