

PERIODIZATION FOR POWERLIFTING

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The Powerlifter 1(February 1981): 16-17.

Preface: In 1979, Terry and I moved to Auburn, Alabama, where Terry opened the National Strength Research Center at Auburn University. With funding from exercise equipment company Diversified Products, the Center's goal was to bring together academics studying strength—like exercise physiologist Mike Stone and biomechanicians John Garhammer and Tom McLaughlin—with elite-level athletes in varsity sports as well as powerlifting and weightlifting. Most athletes in the early 1980s were still relatively unsophisticated about training methodologies, and the idea of varying the volume and intensity of workouts was not commonly practiced. The unique mix of athletes at the Center—powerlifting greats like Bill Kazmaier, Lamar Gant, Joe Hood, and Lars Hedlund; our collegiate teams in Olympic weightlifting and powerlifting; and, of course, the highly successful varsity athletes of Auburn University—allowed Stone and these other pioneers of strength science to experiment with training methodologies and to help others know what worked best.

In 1981, after being introduced and experimenting with the idea of using periodization—a still relatively unknown training method outside the Soviet bloc—Terry wrote this article for the official United States Powerlifting Federation magazine, The Powerlifter. There was only one national powerlifting federation in America at that time and the magazine was sent to all registered members. This was the first article ever written about using periodization as a training methodology for powerlifters. Based on the number of letters Terry received after its publication, it had a major impact on the sport.

~ Jan Todd



In response to several recent letters and telephone calls, we decided this month to discuss the basic principles of cyclical training or, as it is sometimes called, periodization. To “cycle” simply means that instead of using the same sets and repetitions for months at a time you would pick a certain period of time (three months, for instance) and then vary your sets and reps within that three month period, after which you would begin the cycle again. Through trial and error, athletes in many sports found that if they tried to maintain maximum strength or condition at all times they would go stale and suffer setbacks in their training. Many of them noticed that if they began with a lot of moderately hard work early in their cycle and then as their contest or meet got closer switched to heavier work but less of it that they had better results.

Through the 1960s and 1970s many powerlifters discovered this on their own and most of the top men and women used some sort of crude cycling or periodization. One of the principles used by these powerlifters was that of doing high repetition and lighter weight early in a cycle,

then switching to moderate repetitions and heavier weight, and finally concluding the cycle with low reps and very heavy weights. One of the reasons this works well was brought out in some research by Morehouse and Miller in 1978 which observed that enlarged (hypertrophied) muscle has a greater potential to gain strength and power than non-enlarged (non-hypertrophied) muscle. And, since Morehouse and Miller along with some earlier research had shown that muscle enlargement could, most effectively be achieved by doing 3-5 sets of between eight to ten repetitions, the top powerlifters were “proven” to be doing the right thing by beginning their cycles with high rep, “body-building” movements.

Back in 1961, the Russian sports scientist Matveyev first described how this concept of periodization worked when he analyzed the yearly training cycles of hundreds of world class athletes. This analysis showed that these athletes went from a high volume-low intensity program early in their cycle to a high intensity-low volume program just before their competition. In powerlifting, “volume” would be the number of total repetitions done

and “intensity” would be the heaviness of the weight. In other words, a program of five sets of ten reps in the bench press with 200 pounds would be a high volume-low intensity routine whereas a program of three sets of two reps with 300 pounds would be a high intensity-low volume program, assuming a best in the bench of around 315.

In the late 1970s, Dr. Mike Stone adapted Matveyev’s findings to several research studies in weight training in an attempt to determine whether or not periodization was a better way to produce strength and power than the traditional method advocated by most physical education textbooks (three sets of six reps at maximum weight). One of the studies involved a high school football team, lasted 12 weeks, and used the bench press, power clean and squat as the testing lifts. The 30-man team was divided into two groups, one of which used the traditional method of three sets of six reps the other of which followed an approach involving four stages—hypertrophy, basic strength, strength and power, and peaking—each of which used increased intensity (weight) and decreased volume (repetition).

Listed above is the training program and the results in centimeters (cm) and kilograms (kg). Each group trained four times a week. Both groups squatted and benched on Monday and Thursday and did pulls from the floor, pulls from the mid-thigh and shrugs on Tuesday and Friday, with Thursday and Friday being a lighter (85-90%) day.

This study and several other similar ones Stone conducted all suggested that a cyclical approach to training works better than a standard approach in which the same sequence of sets and reps is used over an extended period of time. One of these studies has involved Olympic lifters and the results have led Dr. Stone to put the lifters at the National Strength Research Center on a sophisticated system of cycling in which several mini-cycles are put inside the larger 12-week cycle, in which two workouts a day are taken during most of the cycle, and in which the predicted poundages include seven different levels at an intensity ranging from very heavy (100-120%) to very light (65-70%). This approach has produced excellent results for the NSRC Olympic lifters and we will have more to say about it in future columns.

High School Football Study— Training Methods						
	Weeks 1-3	Weeks 4-7	Weeks 8-10	Weeks 11 & 12		
Periodization Group	5 sets x 10 reps	3 sets x 5 reps; 1x10 lighter	3 sets x 3 reps; 1x5 lighter	3 sets x 2 reps; 1x5 lighter		
Group Using 3 sets x 6 reps	3 sets x 6 reps	3 sets x 6 reps	3 sets x 6 reps	3 sets x 6 reps		
Changes After 12 Weeks						
	Body Wt (Kilos)	Vertical Jump (CM)	Squat (Kilos)	Clean (Kilos)	Bench (Kilos)	Total (Kilos)
Periodization	2.2	4.3	23.4	9	14.7	47.1
3 x 6	3.2	2.6	15.7	5.9	11.1	32.7

At this point our men and women powerlifters here at Auburn follow a program which is similar in basic nature but far less sophisticated in approach. In time, as we learn more, we hope to refine it. It should be pointed out that the program used here by our collegiate powerlifters is also the one which forms the basis for the routines of Bill Kazmaier and Jan Todd. Bear in mind that there are many approaches to cycling or periodization. Many paths exist to the top of the mountain.

PERIODIZATION PROGRAM FOR POWERLIFTERS

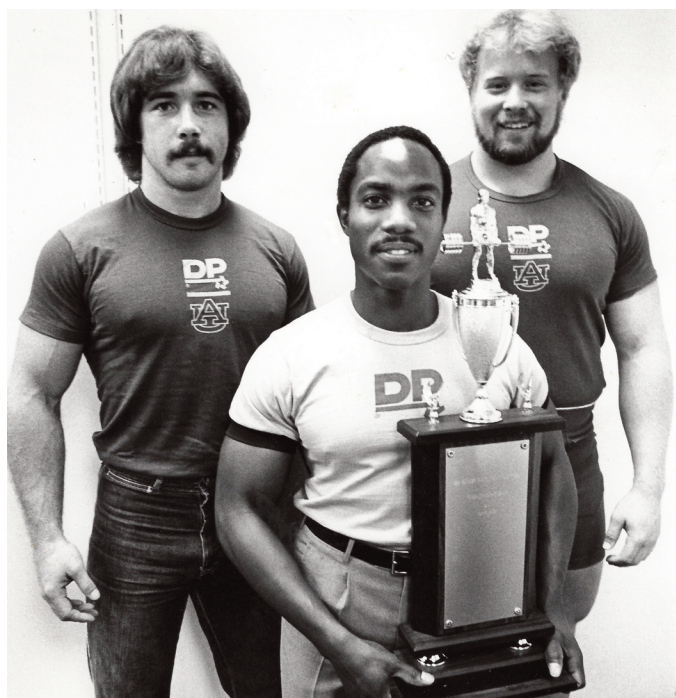
In all cases the sets and reps indicated on this routine are indicative of the goal or desired workload for the day and not the entire number of sets of that particular exercise that should be done during the workout. For instance, during the hypertrophy phase, each exercise marked 3x10 would also include a warmup set x10, an intermediate set x10 and then, the final 3x10 at the goal weight for the day. In the peaking phase, the 2x2 would also include a number of warmup sets before the lifter was ready to try his two heavy sets of doubles. However, to get the full results of the cyclical approach, the lifter should not, under any circumstances, max out during the earlier mini-cycles when the routine calls for sets of 10, 5, or 3. Work up to your heavy sets for the day, try to do them well and then let it go for the next week when you’ll try to move up in your poundages.

Hypertrophy: January 11-February 1

Sunday: Squat 3x10, Rack DL (below knee) 3x8

Monday: Wide Pulldown 3x10, Dumbbell Row 3x10, Cable Row 3x10, Shrug 3x10, Curl 3x10

Tuesday: Bench Press 3x10, Narrow Grip Bench Press



Fifteen-time world champion Lamar Gant (holding trophy) was coached by Terry at the National Strength Research Center and used a periodization-training program similar to the one described in this article. Standing with Lamar in this photo from 1981 are Auburn students George Herring (left) and Bill Davis. The three men had just competed in the USPF Senior National Powerlifting championships where the trio won the team trophy. Herring took third in the 165-pound class, Davis won fifth in the 242-pound class, and Lamar—to no one's surprise—placed first in the 132s. For college students to do so well in the Senior Nationals was unusual and helped validate periodization's efficacy in Terry's mind. Terry later wrote an article on Lamar for *Sports Illustrated* called "He Bends, But He Doesn't Break." It is in the 22 October 1984 issue.

3x10, Forward Raise 3x10, Triceps Press 3x10

Wednesday: Rest

Thursday: Medium Squat (85-90% of Sunday's workout) 3x10, Deadlift from Floor 3x8

Friday: Same as Monday except do Barbell Rowing first for 3x10 and skip the Dumbbell Rowing

Saturday: Same as Tuesday

Basic Strength & Power

February 2 to February 24

Sunday: Squat 3x5 plus 1x10, Half Squat in Power Rack 3x5, Partial Deadlift (below knees) 3x5

Monday: Pulldown 3x5 plus 1x10, Dumbbell Rows 3x5 plus 1x10, Cable Rows 3x5 plus 1x10, Shrugs 3x5

plus 1x10, Curls 3x5 plus 1x10

Tuesday: Medium Bench Press 3x5 (90% of previous Saturday), Narrow Grip Bench 3x5 plus 1x10, Forward Raise 3x5 plus 1x10, Triceps Press 3x5 plus 1x10

Wednesday: Rest

Thursday: Deadlift 3x5, Light Squat (80% of Sunday) 3x5 plus 1x10

Friday: Same as Monday except do Barbell Rowing first and skip the Dumbbell Rowing

Saturday: Bench Press (heavy) 3x5 plus 1x10, Assistance work as outlined on Tuesday

Peaking: February 25 to March 14

First week: do previous week's workouts but do triples with the same weights you did fives with the previous Sunday, Tuesday, Thursday and Saturday. This will allow freshness to return.

Second and Third Weeks:

Sunday: Squat 2x2 plus 1x10 (light), Partial Deadlift 2x2

Monday: Pulldowns 3x5, Dumbbell Rows 3x5, Cable Rows 3x5, Curls 3x5

Tuesday: Bench (90%) 3x2 1x10, Narrow Grip 3x2 plus 1x10

Wednesday: Rest

Thursday: Deadlift 2x1, Squat (Medium Light) 3x2 plus 1x10

Friday: Same as Monday

Saturday: Bench Press (heavy) 3x2 plus 1x10, the rest as on Tuesday

Note: Last heavy squat day should be the Sunday before the meet, and the last heavy bench day the Saturday before. The last heavy deadlift day should be the Thursday nine days before the Saturday meet on March 20. If you have to combine workouts, combine Monday and Tuesday or Friday and Saturday. The final week should be as follows:

Monday: Same as the previous Monday with 90% of the weight

Tuesday: Same as the previous Tuesday

Wednesday: Squat 2x3 (75% of the previous Sunday's session) Deadlift 2x1 (75% of previous Thursday workout)

Thursday: Same as previous Monday but 15% lighter

Friday: Rest

Saturday: Competition