

DEVELOPING LEG STRENGTH

By A.A. Zeinalov

Tyazhelaya Atletika, 29-31, 1976. This is a very traditional view of strength training, included here to remind us of the “classic” approach – Ed.

Results in the snatch and clean and jerk depend upon the strength preparation of the sportsman. Very frequently it depends on leg strength which carries the main load during execution of these lifts. However, the methods of developing leg strength have still not been fully explored.

Over the past 6 years, we have accumulated a tremendous amount of data on 105 weightlifters of various qualifications (ranked sportsmen, Master of Sport, and Master of Sport, International Class). Many of them became record holders and champions of the Beylorussian Championships. These weightlifters used an original method of leg strength development.

In our work, it was noted that for achieving a training effect in leg strength work, it is not necessary to train with near maximum and maximum barbell weights all the time. A great increase in results can be achieved by using primarily light (up to 70%) and moderate (up to 80%) weights. These weights are combined with great and maximum weights, however, and their percentage, on the average, should be only 16% of the total volume of squat training.

In addition, it was found that increased results in the squats occurs, on the average, after 6 weeks of specialized training. With primary use of small and moderate weight in the squats, a good functional state is maintained, which is necessary in the process of systematic training.

In our method of developing leg strength, the entire 6 week training cycle is divided into 2 stages. In the first stage, there is an increase in load volume with relatively steady mean barbell weight. In the second stage, the volume decreases and load intensity increases. Each stage consists of 3 weekly cycles. It is necessary to keep in mind that this program is only for use in the preparatory period.

Squat training load volume is increased in the first stage and subsequently decreased in the second stage. This alternating pattern is followed throughout the training process. The load, however, remains standard and plays a role in active rest. In the weekly cycle, squats are executed 3 times per week and not more frequently than every other day.

The 6 week cycle begins with the standard training. (See Table 1) During the first stage, in each odd numbered training session, the number of repetitions with the

main training weight in each set, increases by one lift. Even numbered trainings are standard. The total squat load volume in the first stage consists of 204 lifts with a mean barbell weight of 78.7% of maximum.

TABLE 1

Load Distribution in the Squats in the First Stage*						
Weeks	Training Session	Warm-Up Weight		Main Training Wt	Number of Lifts	Mean Weight
1st	1st	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{2}$	16	78.1
	2nd	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{3}$	22	78.6
	3rd	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{2}$	16	78.1
2nd	4th	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{4}$	28	78.9
	5th	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{2}$	16	78.1
	6th	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{5}$	34	79.1
3rd	7th	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{2}$	16	78.1
	8th	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{6}$	40	79.2
	9th	$\frac{70}{2}$	$\frac{75}{2}$	$\frac{80}{2}$	16	78.1

*Barbell weight is shown in % of maximum.

If the weightlifter trained with only low and medium weights during the first stage, then in the first training session in the second stage, the barbell weight is raised to 85%. Then, after each standard training, the main training barbell weight increases by 5% and the number of sets and repetitions in each set decreases by one. (See Table 2)

At the end of the second stage on the 18th training session, the lifter usually squats with the barbell weight at 105% of maximum. Of course, this does not exclude the possibility that the increase will be somewhat smaller or greater. The total load volume in the squat in the second stage is 139 lifts and the mean

training weight is 81.8% of maximum. This is 3.1% higher than in the first stage. Of the 139 lifts, the sportsman squats with heavy weights (81-90% of maximum) 41 times and with the barbell at maximum weight (over 90%), 14 times.

During the entire 6 week cycle, the weightlifter executes 343 lifts with the mean barbell weight equal to 80% of maximum. If the sportsman executes 1,000-1,100 lifts in one month (in a 4 week cycle) during the preparatory period, then the total number of squats executed make up approximately 20-23% of the total load volume in all exercises. This conforms to the needs of contemporary training.

TABLE 2

Load Distribution in the Squats in the Second Stage*						
Weeks	Training Session	Warm-Up Weight		Main Training Training Wt	Number of Lifts	Mean Weight
4th	10th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{85}{5}5$	29	83.3
	11th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{80}{2}6$	16	78.1
	12th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{90}{4}4$	20	86.5
5th	13th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{80}{2}6$	16	78.1
	14th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{95}{3}3$	13	88.1
	15th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{80}{2}6$	16	78.1
6th	16th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{100}{2}2$	8	86.2
	17th	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{80}{2}6$	16	78.1
	18th**	$\frac{70}{2}1$	$\frac{75}{2}1$	$\frac{105}{1}1$	5	79

*Barbell weight is shown in % of maximum.

** In the 18th training session, warm-up and main work for determining the maximum result can be done differently by adding some sets when the barbell is at warm-up and maximum weight.

In the last training session, the athlete determines his new maximum result. This is used as his new 100% of maximum in order to calculate the main training weights in the following cycle.

In some cases, the lifter is not capable of executing the loads in the second half of the first training stage, as, for example, when he cannot do the required number of repetitions in all 6 sets in the 6th and 8th training sessions. When this happens, it is necessary for him to again repeat the loads called for in the 2nd and 3rd weeks. After this, he can go on to the second stage.

In executing the standard loads in the following cycles, squat execution can be modified. For example, the first standard load is the squat with the barbell on the shoulders. The second is a squat with the arms extended overhead. It is executed in a square (parallel) foot position stance and the amount of weight is 55-65%. The third variant is a squat with the barbell on the chest with the feet in a split position. The fourth variant is a front squat.

If the weightlifter begins to work out after a break in training (when his maximum results in the squats are naturally lower), then in the first stage, the main training weight should be equal to 70% of the maximum which was achieved in the preceding stage of preparation. In this situation, exercises with the barbell at 60-65% are included in the warm-up. In the second training stage, the lifter works out according to the above program.

For improving joint mobility and elasticity of the muscles and ligaments, attention should be given, not only to squats, but also to cross-country runs, accelerations, jumps for height and jumps for distance, from place and from an approach run and sports games.

It has been estimated that results in the squat should be (on the average) 134% of the maximum achievement in the clean and jerk, i.e., the maximum weight in the squat should be 134% of the maximum weight used in the clean and jerk. If achievement in the squat is behind this amount, the volume of squats can be increased up to 30% of the total load volume.