

The "Shock" Method of Explosive Strength Training for Highly Qualified Weightlifters

By Jim O'Malley

One should not hesitate to draw on non-traditional means when seeking to devise ways of enhancing the effectiveness of highly qualified weightlifters explosive strength training. This article will assess the effectiveness and determine the role and place in the year cycle for depth jumping.

The basis of this "shock" method of explosive strength development is a sharp mechanical stretching of the muscles preceding their vigorous working contraction. The kinetic energy of a falling body is utilized.

The positive effect of a stretching tension on the muscles subsequent contractile working effort is well known. During the takeoff after a depth jump (the athlete drops down from a certain height and after resiliently landing on the feet, the athlete jumps vertically) at the instant of an "elastic" landing the amortization of the slight bending causes the kinetic energy of the athletes body to be partially absorbed by the extensor muscles and is transformed into elastic potential. This elastic potential contributes to switching the muscles to overcoming work during the vigorous takeoff phase and acts as an additional force increasing both the power and speed of the subsequent muscular contraction. Control over the strength of the training effect is realized by varying the height of the fall and the depth of the "braking".

1) Work-power and speed of muscular contraction in the takeoff phase are much larger with the "shock" method than many other ways of stimulating muscular activity. The kinetic energy created by the falling body does not retard the speed of muscular contraction at the takeoff phase (this does occur when resistance is employed). On the contrary, it creates the prerequisites for increased speed of contraction. When lifting weights, the degree of mobilization of the muscles motor potential depends chiefly on volitional effort. In the shock regime, this results from involuntary causes. The athletes motor apparatus needs to respond to the complex conditions created by the amortization phase of the shock so volitional effort is simply insufficient to produce the great muscular activeness that the "shock" creates.

2) The shock method has a very powerful training effect, chiefly affecting the ability of the muscles to switch quickly from yielding to overcoming work under conditions where a maximum dynamic loading is directed against the support apparatus. Strength characteristics improve quickly, but are not maintained as long as when resistance exercises are employed so a special methodical approach is required to optimize sequential intensification and stabilization.

3) This method does not require any special devices. One can easily dose and calculate the loading.

4) One should not employ this method systematically because it possesses such a powerful training effect. However, one should not underestimate its potential. This is only one of the methods of explosive strength training that should play a role in the overall training system.

It is important to point out still another advantage of the "shock" method. It is known that excessive loading can lead to damaging and degenerative changes to the spinal column. Use of the shock method enables one to reduce the volume of exercises with heavy weights, thereby reducing the probability that such negative changes will arise. This should be of great importance to weightlifters. Since depth jumps greatly improve reactive strength, they are a most effective means for improving the "explosion" in both the snatch and the C&J.

It has been stated that this method should not be used systematically or the recommended dosage exceeded. The method should only be implemented 2 to 3 times a year and used in conjunction with a somewhat reduced squatting load. Depth jumping is done 3 times a week for 3 weeks and (as mentioned)

each of these cycles should be carefully periodized over the course of the annual plan.

Both the technique of the depth jump and specific dosage recommendations (important topics in their own right) will be addressed in the following section.

Proper Dosage Levels and Technique of the Depth Jump

The "Drop" Down :

Standing with toes balanced on the edge of a raised surface, step to the rear with one leg and then bring the legs together at the beginning of the fall. Do not bend the legs before "dropping" down. Do NOT jump backwards (the trajectory of the fall should be straight down). Do NOT push off from the raised surface with both feet.

The Landing :

Land on the balls of both feet WITHOUT a subsequent lowering to the heels. If the height forces you to do so then you need to lower it. A collapse onto the heels causes the kinetic energy to dissipate which then defeats the entire purpose of the exercise. The knees are slightly bent at the instant of landing and the muscles are tense. The landing is a crucial part of the depth jump. It should be elastic with a smooth transition to the amortization. One should not land with the knees straight as this causes a rigid shock and excessive loading on the knee joints and hinders the subsequent takeoff. One should place a rubber mat on the landing surface to cushion the shock.

The Amortization :

The depth of the amortization squatting is determined by experimentation. Too deep of a squat makes the subsequent takeoff difficult and too shallow a bend also negatively affects the takeoff. In either case, the work regime of the muscles is essentially altered and the training effect diminished.

The Takeoff :

The takeoff is executed vertically and very energetically. The switch from the amortization to the takeoff should be very fast. Contact with the ground should be minimized. Pausing at this instant greatly reduces the training effect. During the drop, the arms should be swung backward and down and then during the takeoff they are swung forward and up to assist the upward lift.

The Lift :

The upward lift should be vertical. I recommend that you spring upward back onto the raised surface that you dropped from. Land softly and flex the knees.

The Motor Objective :

The effectiveness of the depth jump, and consequently, the training effect, depends on how well the athlete focuses on the takeoff. The amortization and the and the switch to the vertical takeoff should be perceived as a unified whole action with a powerful concentration of effort. The athlete should concentrate on a springy powerful takeoff and try to jump as high as possible.

Mastering the Technique of the Depth Jump :

In order to master the technique of the depth jump one should focus on a springy landing and a swinging movement during the takeoff. One should begin by doing depth jumps from a low height (30 to 40 cm). The object is to form the correct motor habit. Naturally, this is an advanced exercise and should only be undertaken by those with an appropriate strength background and previous experience with plyometrics such as hurdle hops, straight leg bounds, speed bounding, and vertical jumps with a barbell onto a raised surface with a weight about equal to 20% of your best C&J.

The Dosage of Depth Jumps :

1) The height of the drop. Practice and research shows that the optimum height of the drop is 70cm (and no more) for lifters up to the 94kg class. For 105 and 105+ lifters this should be reduced by 10 and 20cm respectively.

2) Outline of the 3 week cycle :

week 1

session one : 2 sets of 10 @ 50cm

session two : 2 sets of 10 @ 50cm

session three : 3 sets of 10 @ 50cm

week 2

session four : 4 sets of 10 @ 50cm

sessions five and six : 4 sets of 10 @ 70cm

week 3

sessions seven to nine : 4 sets of 10 @ 70cm

and recall that 105kg lifters use 40cm and 60cm and 105+kg lifters use 30cm and 50cm instead of 50cm and 70cm.

Methodical Instructions :

1) Depth Jumps can be done after fundamental work with a barbell, however it is better to perform them the next day.

2) Depth jumps should be preceded by a special warmup and with several depth jumps from a lower height.

THE END