Explosive Power And Strength

By: Louie Simmons

It is essential that explosive strength play a large role in training, as it is not only a means of developing absolute strength but also a method of raising physical fitness that is directed toward solving a specific sports task.

Of course, many sports combine jumping as part of the sport itself, such as ball games and gymnastics. Here jumping, or Plyometrics, aids greatly in raising GPP. In sports like powerlifting, explosive strength can be developed with the reactive or contrast method, which includes the use of weight releasers, bands, or chains or by special means such as jumping onto a box of a designated height or standard Plyometrics, which refers to depth jumps, altitude jumps, or bounding drill on one foot or both. The reason for including these exercises is the development of powerful legs and hips.

It is important to direct a series of work to closely duplicate your sport, in our case, the squat, deadlift, and bench. Two types of training methods are used to develop explosive strength. The first is the use of a barbell with special attachments, such as bands, chains, weight releasers, or a combination of all three. The second method involves jumping exercises.

Jumping exercises and/or plyometrics cause the fastest rate of explosive strength because as resistance is lessened, the motion time becomes shorter. This is caused by a sudden eccentric stretch of the muscles and connective tissue preceding a voluntary effort. Of course, the faster the eccentric phase, the faster the concentric phase through an increase in kinetic energy. How can this be accomplished with a barbell?

Explosive strength can be developed by using moderate resistance with maximum speed. This is the dynamic method. Two simple training methods to accompany the dynamic method are the box squat fro squatting and pulling strength and the floor press with dumbbells or a barbell. For both exercises, after the eccentric phase, many of the muscles are in a relaxed state. This is followed by any explosive concentric motion. This will increase the rate of force development (RFD). We also find that maximum concentric work also increases RFD. With the use of extremely heavy weights, bar velocity may be slow, but nevertheless, overcoming a large load dynamically causes a fast RFD.

At Westside we do quite a lot of concentric squats, benches, and good mornings, that is, without an eccentric phase. I believe this would help weight lifters greatly in the United States. They lift their weights fast enough, but can’t move world class poundage.

Let’s look at the contrast methods. We will load a barbell with 80% of a 1RM and place 20% on weight releasers. For example, 400 on the bar at the top equals 320 pounds of bar weight and 80 pounds on weight-releasers or, preferable, chains. After the eccentric phase the 20% is released from the bar, making the load lighter on the concentric phase and building explosive strength. A more advanced method would be using Jump-Stretch bands on the bar, using a moderate amount of bands to increase the lowering phase. This added acceleration downward will increase kinetic energy. A light amount of bands plus a light weight (40-60% of a 1RM) causes an overspeed eccentric phase and accommodates resistance in both the yielding and the overcoming phases.

A third method is box squatting. Always use a box when doing your dynamic day squats. Learn to box squat properly, i.e., the Westside way. Box squatting allows you to over come a load concentrically after a static phase where some muscle groups are relaxed. This produces a higher RFD than all other types of squatting.

Note to track and field trainers: At top sprint speed, 5-6 times bodyweight is being imposed on the runner, many times causing stress fractures. At no time have I seen stress fractures from box squatting, nor is it possible to use 5-6 times body weight.

A forth method is to attach two sets of bands to the bar. After performing the first rep, re-track the bar. Have your training partners remove a set of bands and immediately do a second rep.

I will give one more method: the lightened method. Hook strong bands in a power rack or Monolift at the top. Next, place a loaded bar in the bands. It should be lightened by 20% of max in the bottom. For example, a 750 pound squatter would first load the bar to 150. Then add weight. Train with 50-60% of you 1RM, representing the weight at completion, for explosive strength. A 750 squatter would use 375-450 for 10 sets of 2 reps with short rest intervals, no more that 60 seconds.

The lightened method works well for floor press as well as regular benching, power cleans, high pulls, and push press or jerk in front or behind the neck with a barbell or dumbbells.

It is advantageous to use bands for the overspeed eccentric phase. For upper body explosive strength, use Jump-Stretch bands to enhance the eccentric phase during ballistic benching. Lower the bar as fast as possible and catch it before it touches the chest. Reverse to the concentric phase as fast as possible.

How can explosive strength be trained in the deadlift? Use the lightened method. Attach bands at the top of the rack to reduce 135 pounds to zero at the start. Next, stand on a platform that does not permit the plates to hit the floor.

Take the bar off a set of pins and lower until the bar is 9 inches off the floor. Reverse and pull explosively to completion. This works much like a hang clean and will serve the same purpose. By using the lightened method, one can get an explosive start. It works great for both explosive and absolute strength.

This brings me to a question that I was asked recently at a seminar: Why is the box squat superior to the power clean? It's simple. The box squat has an eccentric phase, a power clean does not. The eccentric phase utilizes the property of kinetic energy adding to the stretch reflex. Most lifters can hang clean more than an actual power clean for the same reason. But, remember, the squat weight can easily exceed clean weights and is more beneficial when done with the same speed.

Absolute explosive power causes a much greater increase in power with respect to time by nature of a lighter load, most often bodyweight, i.e., jumping. In the United States, when power development is discussed, the Olympic lifts come to mind. But in Europe, where they are much more sophisticated, jumping and plyometrics are used. The greatest amount of power is developed with lighter loads. I recommend that everyone, except for the lightest lifters (165 pounds and below), do only jumping on boxes for explosive power.

First if you are to jump, you must avoid detraining by doing: small loads of jumping, first to condition yourself for more directed work toward improving your sport. You must choose the right amount of jumps per week and per month, leading into a yearly plan. Most importantly, you must choose a jumping exercise that is specific for you training.

Start by doing basic jumps. Drop down and flex quickly to start a stretch reflex. Jump on boxes of different heights. We like to have two jumping days per week: moderate jumps on Wednesday, no less than 12 and no more than 24 jumps at about 70% of the height of the box used on Sunday, or maximum jump day. For example, if your max jumps are on a 30 inch box, then use a 21 inch box on the light jump day. For those who use a 40 inch box, the light day would call for a 28 inch box. From only a background of box squatting, John Stafford's top day was 44 inch box at a bodyweight of 285. A friend 5 sets of 5 jumps on and former Olympian, Jud Logan, U.S. record holder in the hammer, normally worked on a 44 or 48 inch box. His best is 5 jumps on a 54 inch box at 285 pounds bodyweight. His greatest increase in the throws came with an increase in his box height. This is because the greater speed with which you leave the ground, the higher you jump. First, muscular force becomes equal to you body weight. When it exceeds it, you jump upward and accelerate until maximum height is reached and speed returns to zero.

If you are extremely slow to start a load, here is a drill that works well. Kneel down on a gym mat with your hips relaxed. Then jump to your feet. When you have mastered this, kneel again but this time with a bar on your back and do the

same. Next, kneel down with the bar held across you lap and jump into a power clean. For the last stage, kneel down and jump into a power snatch. This will greatly increase you reactive time.

For specializing in pulling or squatting my favorite method of jumping is done like this: Squat down onto a low box, about 10 inches. Relax and then jump onto a box about 20 inches high. After a warm-up, hold weight or use a weight vest. I have never had strong front legs, but have seen amazing results with this exercise, even at 55 years old. Eighteen jumps are adequate for a great workout. Jud Logan advised me to do the heavy jumping on Sunday, the day before max effort day for the squat and deadlift, to eliminate delayed onset of muscle soreness (DOMS). This has paid off for me. After all, Jud gained his knowledge from the former East Germans.

Remember these points for jumping:

1. Get in shape to jump
2. Specialize
3. Plan you jump loads
4. Land on the middle of the box
5. Keep all reps at maximal velocity.