

# Eccentric Unloading

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I have written about overspeed eccentrics, citing why it is so important to lower the bar as fast as possible to produce the most powerful stretch reflex as possible. If you triple your velocity, the kinetic energy is 9 times as great. Without bands, a lifter will lower the bar in roughly 1 second. Using Jump-Stretch bands on the bar, the length of the eccentric phase can be cut in half, to 0.5 second. In plain terms, 500 pounds in contact with the box will cause a force of 750 pounds as a result of overspeed eccentrics.

A further example occurs when sprinting. A 200-pound sprinter will experience a force per step of 200 pounds. However, while sprinting at top speed, he is able to produce 5 or 6 times body weight by overspeed eccentrics, caused by the speed of the foot colliding with the track. This is a virtual force effect, a force that is present but not recognized. Although bands do accommodate resistance—this is obvious to the observer—they also produce added kinetic energy to produce a powerful stretch reflex.

I have written previously about optimal eccentric training. We all know that one can produce more muscle activation when lowering weight, up to 50% more. This is a good thing if you want added muscle soreness. But who wants that? Most hypertrophy occurs when lowering weights. One can lower more weight than one can raise. This is where the problem arises. Most tend to lower the barbell too slowly, destroying the stretch reflex. If lowering the barbell slowly is correct, then depth jumps and plyometrics are wrong. And we know that plyometrics work, unquestioningly.

An experiment with Matt Smith, when his best contest squat was 930, was conducted with the help of Dr. Akita, a calculus professor. Matt first squatted with 550 pounds of barbell weight to a parallel box. The eccentric and concentric phases were roughly 0.90 second. Bands were added to the bar and the bar weight was reduced so that the total weight at the top of the lift was 750 and the weight on the box was 550. By the bands pulling down on the bar, causing an overspeed eccentric phase, the eccentric phase was reduced to 0.57 second and the concentric phase was 0.54 second. That's right, 0.4 second faster with 200 pounds more resistance at the top and the same 550 pounds on the box. How? By increasing velocity.

If you triple your squat kinetic energy, the overspeed eccentrics causes a virtual force effect when contacting the box. Why is this important? Muscle tension on the eccentric phase can be lessened to some extent, although the resistance is reduced somewhat by band shrinkage. The added bar speed increases kinetic energy when contacting the box, much like weight releasers. Your brain thinks the weight or resistance is the same at the top as it is in the bottom. A benefit is that the band causes an accommodating resistance to the bar.

For me, the hardest part of a squat is unracking the bar from the Monolift. When the eccentric phase begins, all that eccentric muscle strength takes over. But how can optimal eccentrics be trained? One of the best methods is the lightened method. Here, two bands are connected to the top of the power rack. Depending on the band strength, a predetermined weight is reduced at the bottom of the lift. As the bar is lowered, some of the resistance is reduced, as is the muscle tension to some extent. A strong band at Westside will lighten the load 155 pounds. If only 155 pounds is on the bar at the bottom of the lift, one can totally relax all muscle tension at that point. This means that you go from relaxed to dynamic. This is one of the greatest ways to build explosive and absolute strength. Many will fight the bar eccentrically until fully lowered, but with this method, if you lower 310 pounds, it requires half the eccentric strength to lower the bar. In addition, you will learn to lower the bar faster, causing a greater stretch reflex. This method can be used for all power lifts and Olympic lifts.

There is a second method that can take enormous loads eccentrically by catching the bar or plates or even the lifter himself. It requires two foam blocks. The lifter takes the bar off bench racks and lowers it until the plates touch the blocks and sink into the foam. How far the plates sink into the foam depends on the bar weight. We have benched over 800 pounds by this method. Very heavy squats and good mornings are also done. This method breaks up the eccentric/concentric phase, which is a must for power and strength.

When box squatting, we place a 7-inch foam pad on the box. As you sit on the foam, it sinks until you are sitting all the way on the box. The box itself represents a collision, producing kinetic energy for a strong stretch reflex. The foam causes a dampened effect. This promotes muscle work. If you have ever run in sand, you know how much it fatigues the muscles. The foam has the same effect. I watched a tape of a world class thrower doing plyometrics on a gym floor with hard-sole weightlifting shoes. In a different segment, he was wearing cross-training shoes and the floor was covered with gym mats. This time his reaction time on the automatization phase was much slower. Why? He was using more muscle work on the mats and less connective tissue work. A top sprinter said that 80% of running comes from kinetic energy from the ligaments and tendons. But by doing both methods, the thrower is using all of his potential by jumping on both soft and hard surfaces. I thought why not squat and bench the same way. We now train mostly off a foam box, but always do the circa-max phase or an all-time P.R. off a hard box. We have used this method for 2 years with great success. You will see this progress on our website and on our record boards at the gym.

For deadlifting, stand on a thin foam pad and it will bring your legs into the lift. Give this a try and see the results for yourself.

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