Plyometrics, Power Training & More Plyometrics

by Mark Sias

Bionic Plyometrics

Being a consultant to many trainers & athletes across the country, it has been my experience that **'plyometric"** training is one of the most popular & sometimes misunderstood forms of training by athletes. You no doubt have heard the stories of the explosive power developments this method of training can yield. Plyometrics originated as a training method in the secretive eastern block countries where it was referred to as **'jump training"**. As the eastern block countries rose to become powerhouses in sports, plyometric training was credited for much of their success. By the 1970s this methods of power & speed development was being used by many sports that required *explosive power* for the winning edge.

Plyometrics can best be described as a reflexive form of **power training**. This type of training involves powerful muscular contractions in response to a rapid stretching of the involved musculature. These powerful contractions are not a pure muscular event. In fact they primarily involve & augment the nervous system. It is a combination of an involuntary reflex (Myotatic "stretch-reflex"), which is then followed by a fast voluntary muscular contraction. This is the basic idea behind plyos. Later we will talk about how they can be adapted to various parts of the body for specific goals.

Sprinting & jumping are good examples of pure plyometric events. It's not very ironic at all that most elite sprinters are good jumpers & vise-versa! This stretching of the muscles, prior to the explosive contraction that follows, is often called a loading phase. The faster and greater the load, the more powerful the reflex and subsequent contraction. A good example of this is watching any basketball player jump. They jump higher when they can take a few steps & create velocity before the jump. The reason for this is that the few steps create momentum. This momentum creates a greater loading phase on the planted leg(s) prior to the leap. The response to this greater load is a greater/faster contraction by the legs and more significant jump height. The same phenomenon exists with all explosive actions.

Many times people confuse some forms of power training for plyometrics. **Plyometric training** is only one form of power training. A true plyometric exercise must contain a very fast loading phase. Another way of developing power often confused with plyos are what I call "Maximum Power Output" training. One method of this is using an appropriately determined weight to be forcefully lifted at given speeds. Like a weighted jump to box or chest pass with a medicine ball. I constantly see this variant not only being grossly misused but also passed of as a plyometric by the uninitiated. If you wanted to make a "chest pass" or any given medicine ball drill truly plyometric here's how its done: Remember there has to be a reaction effect, not just simply a forceful action. Therefore, a counter-movement (standing) jump onto a 2ft. platform is a power exercise, but not plyometric. To make it a plyometric exercise you need to jump off say a 12-18 inch box, hit the ground and immediately rebound onto the 2ft.(or higher even!) platform. The landing from smaller box loads the legs rapid enough to create the stretch-reflex needed in plyometric training. In the case of the medicine ball a "catch" is needed to stimulate this effect. Simply standing in front of a wall & performing a quick

reactive toss from the bounce is going to put a whole new twist on medicine ball exercises!

By now you can see how easily this mode of training can be modified to anything from a boxer delivering speedier punches to a batters crack at a fastball!

Who can do plyos? Well, anyone can see progress towards athletic goals by strategically adding them into a typical training routine, however research shows those with an already adequate strength base tend to respond the best to them. Also strengthening the underdeveloped stabilizers of the designated area of desired progress (Ex: legs for jump; Tibialis, Extensor hallucis, iliopsoas, gluteus medius, hip adductor/abductors, Tensor fascia latae) will maximize results & eliminate the likelihood of injury. With properly utilized depth heights a little knowledge & careful progression, anyone can do them. Athletes can achieve significant power development by first learning the "rules" from a true expert. Remember knowledge isn't power...only knowledge put to good use is power! Here's to helping you put this to good use!!!

Part 2

Vertical Jump Secrets Part 2: Beyond Plyometrics!

by Mark Sias

Plyometrics are held up as the Holy Grail of vertical jump & speed training. In this new article we'll cover some new drills & ideas to get you to the top of the rim minus the "grail". You are sure to see some new drills that you will find useful at enhancing you're athletic abilities.

1. **Improve strength –to-weight ratios**. Sounds like a simple idea but there's been a scare going around that lifting weights will slow you down. I want to touch on a few things here real quickly. First of all if you are a high school athlete and even college level training to improve leaping, you're probably still too weak and need strength training to augment the plyos. There are a lot of theories & half-baked ideas about what might improve your jumping & running abilities out there, I know I've read them. The truth it seems is that many just don't really know exactly what it takes. Let's put the baking aside and look at this from a purely logical standpoint. Go sit in a swing and kick your off the nearest pole as hard as you can and see how far you can travel in the swing. Probably significantly higher than what your vertical jump measures right? What changed? Sitting in the swing reduced your body weight, thus changing the ratio. Case closed! If that's not enough go find out what Fred (Dr. Squat) Hatfields vertical measures with his 1000lbs. squatting ability. You need to make a goal of a 3-to-1 Strength ratio, then lifting weights can be considered to silly for you. Next is what strength exercises should you do? Here

again I find a lot of so-called experts with letters after their names spouting non-sense like hang cleans, high pulls, and a half-dozen other complicated Olympic lifts because that's all they know to say. Let me dispel this real quick too, then we'll move on. Are you in the sport of basketball (replace with your desired sport) or are you in the sport of Olympic lifting and going to take all your training time to master new complicated lifts? I didn't think so. So what you need to do is squat heavy & fast. Keep the reps less than 5, you can do simple dead lifts as well but you don't have to get carried away doing clean & jerks right now.

2. **Pool Jumps**. A client of mine asked me to review this amateur program as I so often am asked do & tell him what I thought of it. It was all the run of the muck non-sense save for a couple drills that I found would deliver superior results. Start adding 2 times a week 3 sets of 10 squat jumps out of chest high water for some results out of the water! The genius of this is 2-fold. Jumping out of the water is a perfect acceleration drill because the resistance decreases as you come higher out of the water. This alone will do wonders for your hops! This is non-plyometric because there is no real stretch reflex action. Plus an added bonus is no stress on the joints so injury/rehab patients can perform them as well.
3. **The "Reactive" Viking throw**. The Viking throw is one I developed to build upper body power & helped me get the ability to slam down a 12 & even 15 pound medicineball. Typically medicineball throws are regarded as plyometrics because they are great power builders but most tosses I've seen or heard of aren't truly plyometrics. They actually fit into a class of "max power output training". I'm going to show you how to make the throws plyometric & thereby much more effective. The Viking throw is a simple granny toss motion, where you take the appropriate weight med-ball lowered between your legs and hurl it as fast & forceful as possible behind your head. My reactive version consists of doing this: Flip the ball up into the air slightly higher than your head, catch it slightly higher than the navel but as soon as it hits your hands an immediate turn around of force needs to take place. This is the catch/react idea that makes this a power medicine ball method that will give you upper body vertical boosting ability. Do 1-2 sets of 10 reps!
4. **The Unloading Jump**. At first glance this jumping drill may sound similar to D.B. Hammers "AMT Jump" so some insight is needed. While I agree with many of D.B.'s ideas. They are innovative, but the AMT is truly plyometric using bands to magnify the gravity effect. This next drill that I will describe works in a completely different way, utilizing the fact if you overload the eccentrics muscle contractions, you can create a more powerful concentric contraction which in this case will be a jump! To do this unloading jump all you need is a pair of 10lb. dumbells, step up to the rim to do a counter movement jump, at the peak of your crouch, just before you'd take off, drop the weights and blast upwards. Do one set of 5-10 reps & you'll reap nice rewards!
5. **Fiber Retyping**. I was recently reading an article about some studies done by the Karolinska Institute in Stockholm that just confirmed something I've believed for a long time. This is a fact that people will still have a hard time swallowing . That is that you CAN convert slow twitch type 1 muscle fiber to type 2's. Studies suggest that HEAVY weight training couple with high intensity anaerobics have the highest conversions. There is also strong evidence that elevated thyroid hormone will cause increased fast-twitch conversion. This explains clenbuterol's reports of increasing type 2 muscle levels as it causes elevated body temperatures. **More fast-twitch fibers means more explosive power**, so It could pay off measurably to take supplements that improve natural thyroid production.