[IMAGE]

Jump Into Better Health: The Power of Plyometrics

By Dr. Jeffrey Tucker

Want to run faster, jump higher, move quicker and get in better shape, all at the same time? If you're answer is yes, it's time for a lesson in *plyometrics*. Exercises based on plyometrics repeatedly and rapidly stretch muscles and then contract them, improving muscle power. And don't we all want a little more muscle power, whether it helps us compete in our favorite sport or just perform our daily physical activities a little easier? Here's your introduction to plyometrics and a sample routine you can do *today*.

I recall being in awe watching Jamaican sprinter Usain Bolt flash across the finish line at the 2008 Summer Olympics in Beijing and being so impressed with his speed and ability. I continue to be amazed at top basketball players, tennis players, football players, and other athletes as they jump up in the air repeatedly, skillfully maneuver their arms and legs while airborne, land on a small portion of one or both feet, and then move immediately to the next position - all without falling (usually). I shake my head and say to myself, "Now that is power!" One of the best ways to develop this type of power is through *plyometric training*.

jumping man - Copyright â Stock Photo / Register Mark Plyometric training is used to produce fast, powerful movements and improve the function of the nervous system for explosive power. This helps you create muscular movements in the shortest period of time and is especially beneficial to sprinters and athletes who need to accelerate quickly. Plyometric movements train the muscle to load, unload and then reload in rapid sequence, allowing you to jump higher, run faster, throw farther or hit harder, depending on the desired training goal. In short, plyometrics help us improve our speed because we train the body to jump and land with speed.

If you are active and work out, and you want to stay healthy and even perform faster and better, then plyometric exercises that involve jumping, hopping, leaping and skipping can help you achieve your fitness goals. Plyometric exercise is based on the understanding that a concentric (shortening) muscular contraction is much stronger if it immediately follows an eccentric (lengthening) contraction of the same muscle. Imagine stretching out a coiled spring to its fullest extent, and then letting it go: immense levels of energy are released in a split second as the spring recoils.

The most important part of a plyometric program is developing landing skills. Reducing force is just as important as generating it. Injuries rarely occur during take-off, but a considerable amount of injuries occur because you can't decelerate quickly enough. I'll be describing some exercises that develop this recoil.

Getting Started: What You Need

Common plyometric exercises include jumping rope, squat jumps, lunge hops, overhead medicine ball tosses, medicine ball chest passes, and jumping jacks. Plyometric training starts with body-weight exercises for beginners; more advanced athletes can use equipment such as dumbbells, boxes, medicine balls, hurdles and elastic cords - any of these can make an exercise more challenging.

A bench or step-up box can be used to improve explosive power and overall speed, allowing you to perform single- or double-leg exercises. Using a step-up box allows you to perform forward jumps and lateral (side-to-side) jumps. Hurdle steps can be used to perform power jumps, high-knee drills, and explosive runs.

I've also used tubing anchored to weight plates or cables and the other end attached to the athlete. The base serves as an anchor while the athlete performs forward, backward, lateral, vertical or jumping movements.

By the way, before you try any of the following exercises, keep in mind the following distinctions concerning terminology. First, a *jump* and a *hop* are not the same thing. A jump is two legs to two legs. A hop is right leg to right leg or vice versa. Hopping must be done forward, medially and laterally. Here's another one to remember: A *bound* is right leg to left leg; a *skip* is two foot contacts per foot.

Your Beginning Plyometric Program: Progress Through the Three Phases

Phase 1 starts with jumping up onto a box or bench. This is not really a "true" plyometric, but it teaches jumping and landing skills with stability and introduces the elastic component of jumping. This phase should be practiced for a minimum of three weeks. Do three to five sets of five jumps, two days per week. **In phase 2** we jump or hop over an object. This increases the workload and incorporates a further selection of dynamic exercises before upping the intensity in stage three by using a combination of running drills. In **phase 3**, a bounce is added. This is where we learn to minimize time spent on the ground.

For jumps (using both legs), do three to five sets of five jumps per set. For single-leg plyos, try for a total of 15 jumps per leg (all sets).

Phase 1

Exercise 1: Jump or hop onto a box, bench or platform. We are looking for a "quiet" landing and a landing position that is not deeper than a half-squat position. The height of the box can be anywhere from 4 to 24 inches - challenge yourself!

Exercise 2: Drop-jump from a box, bench or platform. Athletes need to land safely after being airborne, using the largest possible surface area of the foot by landing on their toes before softly rolling down on their heels. This prevents damaging any of the joints and in particular twisting the knee. The knees have a tendency to move inward when jumping off a box onto the floor. This inward movement of the knees has a high risk of injury. Concentrate on landing with the patella (knee cap) over the second toe.

Plyo push-ups - Copyright â Stock Photo / Register Mark *Exercise 3:* Bunny jumps - start with your feet just beyond shoulder-width apart. Bend your knees to a three-quarter squat position and swing your arms back and past your hips. Drive your legs explosively upward to lift your body from the ground and jump forward. Keep your trunk upright during flight. Extend your legs in front of your body to get your feet out in front of you. Land on the balls of your feet and spring into another jump.

Phase 2

Exercise 1: Use a hurdle or object ranging in height from 12 to 30 inches. The idea is to jump over the hurdle with a quiet, stable landing.

Exercise 2: One-leg hurdle hop and stick. Running is a one-leg activity, with full body weight and impact forces being absorbed by one leg at a time, not two. Most athletes begin plyometric programs with two-leg drop-jumping and build up significant coordination and strength with the technique before moving on to one-leg dropping.

squat jumps - Copyright â Stock Photo / Register Mark **Phase 3**

Exercise 1: Start out with side-to-side jumps; eventually progress to starting out on the right leg and bouncing to the left leg. Stand with your feet just beyond shoulder-width apart. Slightly bend your knees, extend your legs and leap to one side. Land with your feet just beyond shoulder-width apart and on the balls of your feet. Immediately react to the ground and jump to the other side (use a relatively low trajectory). Land and jump back across to the other side. Keep your trunk upright and look straight ahead of you.

Be consistent with your training - for plyometrics, that means two days a week. You are also advised to take long rests between sets, especially at the beginning, and always stop at the first signs of fatigue and injury. Diversify the routine and train on your feet, moving in multi-directions, it burns serious calories and allows you to work on movements - and parts of your body - that you may not have used in a long time. As always, talk to your doctor before beginning any new exercise program, particularly if you haven't been active lately and/or you have a health condition that could affect safe performance of the above exercises.

Jumping rope - Copyright â Stock Photo / Register Mark **Common Plyometric Exercises**

1. Jumping rope
2. Jumping jacks
3. Squat jumps
4. Lunge hops
5. Skater plyos (bounding to the left and right, imitating a skating motion)
6. Overhead medicine ball tosses
7. Medicine ball chest passes
8. Plyo floor push-ups (push-ups that involve quick upward acceleration with your hands actually leaving the floor during the upward movement)
9. Medicine ball abdominal twist and throw

Note: For detailed instructions on how to perform some of these exercises, see the "Your Beginning Plyometric Program" section.

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