More Power for Endurance Runners

Anyone would agree that leg power is important in sports involving sprints, jumps, and agility, but what about distance runners? Increases in power are traditionally achieved through specific power lifting (i.e., power cleans and push jerks); however, leg power can also be increased through plyometric training ("plyos"), which is much more feasible for the everyday athlete. But the question remains whether increasing leg power is important for endurance athletes.

The answer is yes. The difference between strength and power is in the speed of movement, with powerful movements being performed more quickly. A plyometric exercise is a quick, powerful movement using the spring-like action of the tendons. In other words, the tendons in your legs have the ability to store energy and release that energy into explosive movements. Jumping rope is an excellent example of a plyometric activity as the legs recoil and the knees bend slightly in the instant before push-off. Each time your feet come into contact with the ground you are in fact loading the tendons with elastic energy. Imagine yourself jumping as high as you can five times in a row without hesitating between jumps, and you've got a pretty good idea of plyos.

Strength versus Power

It's also important to understand that resistance training (weight lifting) designed to add muscle or strength will not guarantee improved performance. Rather, it is leg power that is better linked to performance. Muscle size, strength, and power are three different concepts, and should not be lumped together in training. For instance, gains in muscle strength usually occur before gains in muscle size. Although increasing strength is a step in the right direction, scientific research shows that increased leg strength alone does not lead to improved running performance.

Power, on the other hand, has recently been associated with improvements in running economy in distance events. This result is best understood in that any time a muscle group becomes stronger and more powerful, fewer muscle fibers are recruited to perform the given task, thus giving the muscle group more muscle fibers available in reserve for continued work. Basically, this means you can use less energy for the same distance traveled. Since the discovery of this concept, it has been shown that power training, not just strength training alone, will lead to enhancements in running economy, which is one of the most important physiological predictors of endurance performance.

Four studies have recently appeared in the scientific literature demonstrating that eliminating portions of endurance training in favor of explosive activity (sprints, plyos, etc.) or adding plyos to the existing running program for six to nine weeks improved 3K and 5K race times and running economy without a change in VO2max (maximum oxygen consumption). These benefits are evident regardless of ability, gender, or age.

Getting Started

Since not everyone has a gym membership, plyos remain a relatively easy method for runners to increase leg power. All you need is a suitable landing surface (grass, track, rubber) and perhaps a few cones. If weight lifting is not possible, plyos can be easily adapted and do not incorporate any additional external loads.

Of course there is no substitute for running if you want to run faster and farther. But what about those of us who are doing the running and still want an advantage over the rest of the field? During your peak racing season, you will no doubt reduce the volume of running as you increase the intensity. If you are looking for a way to decrease your training volume while still maintaining the appropriate intensity, then plyometric drills could be an easy solution. And if winter weather typically takes a day or two away from your running schedule, consider putting a new twist on the expression "get off your feet!"

Before you begin, however, we recommend that you complete at least six weeks of general strength training in order to strengthen the joints, tendons, etc., that incur more stress during plyos. You also need to know how to land! For instance, a lack of balance, usually accompanied by unequal strength between legs, might make you susceptible to injury if your landing mechanics are incorrect. So first strengthen the joints in your lower legs and work on improving coordination, both of which can be accomplished with a balance board.

A plyos program is typically done one or two times a week and is based on the total number of foot contacts. For beginners, the recommended range is between 80 and 100 total contacts, while those experienced with plyos can progressively work their way toward 140 contacts. Also keep in mind that anything done in a single-leg support stance, such as single-leg hops, should be reserved for the advanced athlete.

For some examples of specific plyometric exercises see www.sport-fitness-advisor.com/plyometricexercises.html. (Note: I have no affiliation or sponsorship with this Website).

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