

Run and Plyometric Workouts

When 2004 Stanford graduate Adam Tenforde placed ninth in the Olympic 10,000 Meters Trials in 28:46, his strong finish capped two years of steady improvement. It all started on the day that Stanford's then athletic training director, Donald Chu, Ph.D., added plyometrics to Tenforde's routine. "Plyo is a big part of why my times have come down so far," says Tenforde, "and it has also improved my closing speed, flexibility, and injury resistance."

Plyometrics may look a bit like child's play--lots of hopping, skipping, and jumping. Yet these simple drills that simulate explosive actions such as blasting out of the starting blocks or leaping to sink a layup are an efficient and effective way to get stronger and faster. "Plyo is reactivity training," says Chu, who popularized the training method in the United States with his book, *Jumping Into Plyometrics* (Human Kinetics, second edition 1998). "It teaches the proprioceptors of your muscles and joints to push off the ground with greater force." You don't have to know what a proprioceptor is (an internal receptor in a muscle, tendon, or joint that enables coordinated movement and balance) to know that plyometric training will put more spring in every step you take, which is the key to better running.

A recent University of Nebraska study found a significant correlation between vertical jumping ability and 10-K time in a comparison of 36 runners. This study and others have also shown that plyo training improves running economy, lower-body flexibility, and stride length, in addition to strengthening all lower-body muscles, tendons, and ligaments.

Perhaps the best thing about plyometric training is that while it can subtract time from your race results, it doesn't add much time to your training routine. John Cissik, a strength and conditioning consultant to collegiate track and cross-country teams, says just one or two quick plyo sessions a week is plenty. And those sessions should only take a few minutes.

You can add plyometric drills to any running workout, as long as you first do a 10-minute warmup jog. Tenforde does his plyo exercises at the beginning or the end of speed sessions--either as a transition between his warmup and all-out track intervals, or after the intervals are over to simulate the end of a race, when an all-out sprint is required of fatigued legs. For most plyo drills, you only need a few yards of space, and a variety of surfaces will do (grass, dirt, track, or cushioned gym floor), as long as they're relatively flat, stable, and provide a bit of give.

Just remember that you shouldn't be timid when adding plyometrics to your training. As the saying goes, jump into it with both feet. "We're talking about some maximum-effort moves here, so use everything you've got," says Cissik. "That is how you will become a stronger, faster runner.

John Cissik, coauthor of *Sport Speed and Agility* (Coaches Choice Books, 2004), recommends beginning your plyo training with the following three drills. Try all four per session, once or twice a week.

Vertical Jump

Stand with both feet hip-width apart and place your hands on your hips. Tilt your hips back and bend your knees, and without pause, leap straight up as high as you can. Land with both feet flat in the same spot. Make sure you bend your knees to absorb the impact.

Reps: Begin with one set of 10 jumps in rapid succession. As you get stronger, build up to three sets, with each set separated by a one-minute rest.

Surface: Grass, dirt, track, or cushioned gym floor; any surface that will prevent injury if you fall forward in your jump

Strengthens: All of the muscles, tendons, and ligaments from the waist down

Split Jump

Place one foot a step ahead of your center of gravity and the other foot two to three steps behind your center of gravity, with your knees slightly bent and hands on your hips. The front foot should be flat and your rear heel should be off the ground. Tilt your hips back and jump as high as you can while maintaining your leg positioning. Land in the same spot, allowing your bent knees to absorb the impact.

Reps: One set of three to five jumps. Build up to three sets with one-minute rests between.

Surface: Grass, dirt, track, or cushioned gym floor

Strengthens: Entire lower body, but emphasizes the quadriceps and hip flexors; also enhances balance

Ankle Hops

With feet hip-width apart, balance on the balls of your feet, with heels elevated. Bend your knees, place hands on hips, and repeatedly hop forward, pushing off and landing only on the balls of both feet. Stay on the ground as little time as possible between hops and never let your heels touch the ground. For variety, ankle-hop backward.

Reps: Start by hopping 10 yards. Build up to 20 yards, then add a second and third series of 20-yard hop sequences with one-minute rests between them.

Surface: Grass or track in shoes--or barefoot on grass (advanced) or sand (very advanced)

Strengthens: Everything below the knee, but especially Achilles tendons, shins, calves, and the flexors that support the ankles

1. Alternate bounding: This is a very long running stride with exaggerated knee lifts. Bound for 30 yards, rest 1 minute. Do four repetitions. In later sessions, gradually increase the distance to 80 yards.

2. Skipping: Skip for 30 yards; rest 1 minute. Do four repetitions. In later sessions, increase the distance to 80 yards.
3. Split-squat jump: Start in a lunge position, and jump upward and forward, pushing off the front leg. Land in the lunge position, and repeat continuously for 10 yards. Rest 45 seconds. Do three repetitions, and work up to six. In later sessions, gradually increase the distance to 80 yards.
4. Two-foot ankle hops: Stand up straight, and hop forward for 10 yards, keeping feet together; rest 45 seconds. Do three repetitions, and work up to a maximum of six.

Runners can get more miles per gallon by:

1. Adding Plyometrics

Try the following exercises two to three times per week after an easy run on a soft surface, such as grass or wood chips.

Power Skip. (40 meters, 2 to 4 repeats) Drive the lead thigh parallel to the ground. Accent with powerful opposite-arm action.

Bounding. (40 meters, 2 to 4 repeats) The emphasis here is on distance not height. Imagine tires several feet apart that you're trying to land in with each foot as you bound forward and drive with opposite arms.

Two-Legged Forward Jumps. (5 jumps, 2 to 4 sets) Take 5 forward jumps for distance, jumping frog-style with both legs. Swing both arms forcefully in the direction of the jump.

2. Adding Intensity

Even just adding one of the following tempo runs or interval workouts a week will improve your running economy.

6 minutes at 10-K pace, 5-minute recovery, 3 to 4 repeats

4 minutes at 10-K pace, 4-minute recovery, 4 to 6 repeats

3 minutes at 5- to 10-K pace, 3-minute recovery, 6 to 8 repeats

20 to 30 minutes at comfortable hard pace (about 20 seconds per mile slower than 10-K pace), and take a 60-second break halfway if needed