

Hamstrings of Steel: Preventing the Pull, Part II—Training the “Triple Threat”

Juan Carlos Santana, MEd, CSCS, *D
Optimum Performance Systems, Inc.
Boca Raton, Florida



Juan Carlos Santana
Column Editor

PART 1 OF THIS ARTICLE EXAMINED some of the basic differences between the isolated and integrated functions of the hamstrings. This second part will outline a stability ball protocol that will help develop the hamstrings in a more functional manner. Integrating this protocol into your existing leg routine will provide improved protection and performance.

There are many exercises that work the hamstrings in conjunction with the hips. One of my favorite routines is on the stability ball. It is one of those rare exceptions in which some of the functional specificity guidelines are broken, that is, training functionally in a nonfunctional position.

Using the stability ball, I have put together a 3-exercise protocol in a supine position. I refer to this protocol as the “triple threat.” This protocol targets the hips and hamstrings through similar ranges of motion as those of running. It focuses on the horizontal force vectors associated with running.

The triple threat can be performed 2–3 times per week, prefer-

ably after resistance training workouts. This program is a combination of 3 stability ball exercises put in succession, consisting of the bridge (Figure 1), the leg curl (Figure 2), and the hip lift (Figure 3). All of the exercises require the hips to come up and remain off the floor during the entire proto-

col. This keeps constant tension on the hips and hamstrings.

The progression begins by using both legs simultaneously. On week 1, perform 3 sets of 5 repetitions for each of the exercises. Perform 15 nonstop repetitions per set—5 bridges, 5 leg curls, walk the ball out, and perform 5



Figure 1. The bridge.



Figure 2. The leg curl.

hip lifts. Give yourself about 1–2 minutes of rest between each set. Each week add 2 repetitions to each of the exercises. By week 6, you will be doing 15 repetitions of each exercise, 45 continuous repetitions per set, for 3 sets.

On week 7, the progression gets much more interesting; it goes to single-leg work (Figure 4). The repetition and set scheme starts at week 1 again. Since 1 leg is resting while the other is exer-

cising, there is no need to take a rest between sets. By week 12, you are doing 15 repetitions of each exercise, 45 continuous repetitions per set, for 3 sets, on each leg. Varying the speed can change the focus of the training adaptation, and further loading can be accomplished by wearing a weighted belt.

Although the lying-down position is not specific to running, this is a perfect example of how a non-

functional position can be made extremely functional. This exercise protocol lacks the vertical forces of running but closely simulates the horizontal forces on the hips and hamstrings during the plant phase of forward locomotion. Figure 5 shows the horizontal forces at work during the plant phase of running. The arrows show the planted foot pulling back and the ground reaction forces pushing forward. Thus, the hips are powered forward. Now, let's turn the figure 90 degrees and see the forces acting on the legs and hips during the basic position of the triple threat, shown in Figure 6. The leg pushes against the ball, and the ball pushes against the leg. Thus the hips are lifted upward. See the similarities?

This protocol has been used successfully for several years now. All of my athletes have used this approach to hamstring “prehabilitation” with great success. To date, none of the athletes on this protocol have had a hamstring injury.

Along with proper strengthening of the hamstrings, a good specific and dynamic warm-up and continuous drilling of proper running mechanics are essential for proper hamstring function. We always take great care in making sure our athletes adhere to a dynamic warm-up before every training session and practice running mechanics at least twice per week. This way we cover all of the bases: strength, balance, and neural adaptations.

Hamstring weakness is a symptom of our “mirror perspective, front loaded” society. We always train what we see in the mirror: abdominals, chest, biceps, and quadriceps. Thus, all of the weak links and frequent injury sites are in the rear, the areas we cannot see in a mirror. Take a functional approach to training

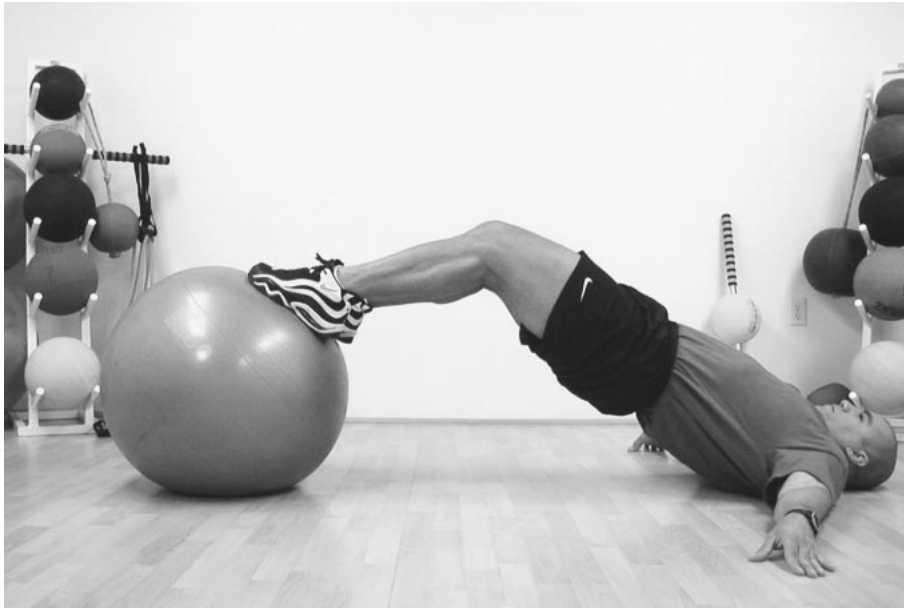


Figure 3. The hip lift.

that focuses on functional biomechanics, not isolated muscle action. Be cautious when prescribing an exercise that resists a muscle's nonfunctional motion for the sake of strengthening that iso-

lated muscle. Doing so will just create a very large and strong, yet possibly dysfunctional muscle—an injury just waiting to happen. Try the triple threat and develop hamstrings of steel! ▲



Figure 4. Single-leg work.

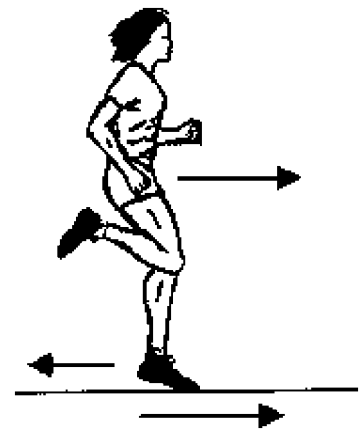


Figure 5. Horizontal forces during the plant phase of running.

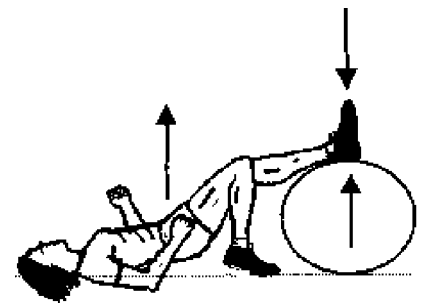


Figure 6. Horizontal forces acting on the legs and hips in the basic position of the triple threat.

Juan Carlos Santana is the director of the Institute of Human Performance in Boca Raton, FL. He is an international speaker and consults for several professional organizations, equipment manufacturers, and sport teams. Juan Carlos is currently pursuing his Ph.D. in Exercise Physiology.