

Running Injury Free

Strength Training for Runners

By Stephanie Spence

Four years ago Pam Phelan, a Phoenix-native physician's assistant, volunteered for the medical support team for the P.F. Chang's Marathon. It would be a life-changing moment. For Phelan, it was amazing to see so many of the athletes finish the race. Phelan persuaded her brother-in-law to start training with her. The following year she completed the half-marathon, and continued to participate each year until in 2007, when she bravely decided to take on the challenge of the full 26.2-mile course in 2008.

Inspired by her husband, Kevin, and her kids, Josh, 12, and Kelsey, 10,

Phelan decided to change up her workout routine by doing core training. She joined the Foothills Accelerated Sports Training class at Foothills Sports Medicine. A little more than a month into training she started noticing pain in her left groin. On her feet all day at the hospital, the pain became a problem. She tried orthotics and purchased new shoes. As the pain persisted, she went to see physical therapist Doug Howard, MPT at Foothills Sports Medicine and Rehabilitation at Arrowhead, located in Phoenix's West Valley.

Howard put together a comprehensive treatment that included physical therapy, intense stretching, hip flexor exercises with resistance bands and wearing a prednisone steroid patch. But the most challenging part for Phelan was the directive of no running. She was allowed to walk if she did not have pain. Her plan spanned a four-week period for four days a week. She was able to carry on with her long runs, at that point 8 to 10 miles. After her long runs Phelan would take an ice bath for 15 to 20 minutes to prevent post-run soreness. Her pain completely resolved, Pam went on to complete

the marathon this past January. "I don't know that I could have done it without the training and coaching I received," she says.

Perhaps in the past it was a badge of honor to run through pain; no pain no gain was the mantra. No longer. Pain is the body tapping you on the shoulder to get your attention. Now smart athletes and runners seek help from a professional.

Such was the case for Carly Bourland, who began running more than four years ago to stay in shape. She got bored because she did not have goals. Once she started running 5Ks and the New Times 10K she was hooked. She completed a half marathon in 2005, but in 2006 she aggravated her sciatic nerve and could not run in the 2007 marathon.

"I couldn't walk, sit or drive a car," Bourland says. "It was the most pain I have ever been in." Carly's doctor prescribed rest and muscle relaxers.

Convinced she had healed, Bourland started running again and immediately experienced similar pains down her legs from her back. She called Howard for help. He assessed her needs and taught her exercises and stretches to keep her strong and get her back out and running, which is the goal of most injured runners. This 37-year-old athlete no longer runs in pain.

Closed Chain

Howard says the best strength exercises a runner can and should do to improve strength are those that directly address the specific weaknesses or biomechanical dysfunction of the individual runner. "In general, I always prefer closed chain exercises that impact multiple joints and muscle groups," he says. "This not only strengthens, but it trains the neuromuscular system to

develop the desired firing patterns. Closed chain is an exercise that has the foot in contact with the ground. What it is not is the open-chain knee extension that so many people do in gyms. A closed chain exercise is a functional exercise that engages all of the musculature of the core, hip, and throughout the lower extremity. It forces all of the muscle groups to fire or engage simultaneously and work in unison. It not only strengthens but provides the neuromuscular training for all associated muscle groups."

Many running injuries can be avoided if the athlete has sufficient rest, keeps their



COURTESY PAM PHELAN

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CARI BAUER

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that when a runner first has signs of pain after runs, the runner should seek out a professional. A runner himself, Kraemer disagrees with those who encourage eliminating running until they heal. “We have techniques, like ASTYM, that keeps endurance athletes moving because we know they are not going to take time off,” says Kraemer.

Kraemer does agree, however, that strength training allows runners to perform better, builds a better foundation and prevents injuries. Using strength training to rehabilitate after an injury is also critical. “By being strong they will have a more efficient gait pattern or stride which will allow them to perform better,” Kraemer says. “Strength training will produce faster times and longer runs, what every runner wants.”

Common Thread

Whether a runner is recreational or competitive, reaching goals seems to be a common thread with those who put one foot in front of the other for fun. David Bayliff, PT, MPT, clinic co-director at Spooner Physical Therapy in Scottsdale, believes strength training gives a competitive edge.

“I think the most common mistake is that runners typically tend to strengthen the quads and calves primarily, then the hamstrings,” Bayliff says. “They may throw in some ab crunches. Why are these the muscles they strengthen? Because they are in the legs and they are in the front and back of the body. When someone runs, they are simply moving forward. When we break down the mechanics of what the body is doing when we run, we find that the joints are going through a series of side-to-side (frontal plane) and rotational (transverse plane) movements. As a result the body moves forward. Gravity and ground reaction forces are what causes these frontal and transverse plane movements. Our core, hip and abductor/adductor muscles from the hip to the ankle decelerate these forces. Thus, they are the muscles that are working overtime and breaking down; resulting in injuries.

“Again, runners tend to work the muscles in the thighs, hamstrings, and calves because they perceive that those are the muscles that are driving them. All the other muscles tend to be ignored. Which muscle groups do you think are more important for having strength, power, preventing overuse injuries, and providing a physical and mental edge in the long run? A strength-training program is going to be more effective if functionally based and incorporating all three planes of motion. The more planes and body parts that can be addressed simultaneously, the more the athlete will get out of the exercise.” ■

strength training within the capabilities of their bodies to handle stress, and they stretch to strengthen muscles.

“There are many components to injury free running, including strengthening, stretching (flexibility), shoes, and (running) surface,” states Howard, who adds that the quickest way to get back up to speed is to seek out the best rehab and reset. “You can treat specific to the injury, but eliminating and reducing the activity that is causing the problem is the first key. You can then maintain the system that delivers oxygen to the working muscles. Adult runners are conditioned to believe they should be able to run day after day. Runners are resistant to give up actual running time to do the preparatory work necessary to ensure their bodies will tolerate the rigors of running.”

Howard insists that when runners perform the proper type of strength training their muscular system will better absorb or attenuate ground reaction forces (shock, impact) which lead to damage in the joints, ligaments and tendons of the lower extremities.

“Maintaining strength allows us to attain better joint congruency and balance throughout the biomechanical system, significantly reducing the likelihood of injury,” Howard says. “It allows us to more efficiently absorb the adverse stresses of running.”

Matt Kraemer, director of physical therapy at Endurance Rehab in Phoenix, suggests

3 Best STRENGTH EXERCISES

David Bayliff suggests:

- 1) **Skaters** - hopping side to side, landing on one leg, as if skating. Performing skaters uphill is even better. These target the gluteus medius and TFL/ITB as well as the peroneal muscles of the lower leg. They also encourage recruitment of the adductor muscles. This is a great frontal plane exercise that gives strength to the hips.
- 2) **Stride stance shoulder cross punches** - Weights are used. This encourages side-to-side control of the hip and leg while incorporating the transverse movement of the trunk, strengthening the core, upper back, shoulders and arms. Another advantage: this exercise teaches the body to work in sync; the way it needs to do over and over while running.
- 3) **Posterior lunges** - Strengthens the hamstrings and glutes, muscles needed for climbing uphill. The hamstrings do tend to fatigue when running due to their role in decelerating the leg as it swings forward. This exercise will build power.

Matt Kraemer suggests:

- 1) **Ball hamstring curls** - A functional exercise that keeps up with the demand on the quads. Lie down on back, place feet on physio ball and raise hips up in the air and keep body stable while you pull in glutes and go back out. There are many variations on this.
- 2) **Monster walk** - Resistance bands are used around ankles. While squatting, side step 15-20 feet from left to right, forwards and backwards while keeping the tension of the band taught between feet.
- 3) **Running man on step** - Keep one foot on step and with the opposite leg tap toe. With the leg on the step, drive the opposite knee back up. Good quad exercise, and helps with hip stability.