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4 ways runners can strengthen foot muscles

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During a one-hour run, your feet push off the pavement about 10,000 times – enough of a workout to build some pretty impressive foot muscles, you'd figure.

"Considering the countless miles that runners put in, most think that they have very strong feet," says Matt Ferguson, the president of Vancouver-based Progressive Health Innovations. "And they do – but only for one motion."

Running does wonders for the muscles involved in plantar flexion – pointing your toes toward the floor – but leaves a host of other small muscles throughout the foot and ankle weak. The result is an increased risk of common running injuries like plantar fasciitis, shin splints, Achilles tendon problems and even ankle sprains.

"What many don't understand is that all those miles running straight forward on flat ground can cause very significant muscle imbalances," says Mr. Ferguson, whose company recently introduced an all-in-one foot strengthening tool called the AFK Ankle Foot Maximizer. "Those imbalances can affect their performance and be a major source of injury."

Here are four approaches to making sure your feet are strong enough to handle the pounding:

Run barefoot

Without the support provided by running shoes, the stabilizing muscles in your feet and ankles are forced to work much harder. "The key is to be cautious," says veteran coach and two-time U.S. Olympic marathoner Pete Pfitzinger. Start with some barefoot walking on grass, then try adding 30 seconds at a time of jogging, keeping your stride short. Build up until you can run five or 10 minutes at a time; doing this twice a week after finishing your "normal" run will strengthen your feet and lengthen your Achilles tendon.

Elastic bands

Use Thera-Band (or similar) elastics to provide resistance. Tie one end around your foot, the other to a table leg. Do three sets of 10 pulls in different directions: lifting your toes toward your shins, rotating your foot inward and rotating your foot outward. You can also use gravity for resistance: Put a soup can in a big sock, tie it around your foot and then lift your toes.

Towel pulls

Put a towel on the floor. Pull it toward you by scrunching up your toes while keeping your heel on the ground; add resistance by putting a book on the towel. This exercise strengthens the muscles on the front of the shin, and is particularly good for preventing or rehabbing from shin splints.

Foot machine

Strap your foot into Mr. Ferguson's Ankle Foot Maximizer, grab the handles, and you're ready to strengthen and stretch pretty much all the components of the foot-ankle complex. The ergonomic design means the whole foot is engaged, enabling you to move your foot up, down and side-to-side against an adjustable resistance. Initial tests with the Simon Fraser and University of British Columbia basketball teams showed improved balance and vertical jump after 12 weeks.

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