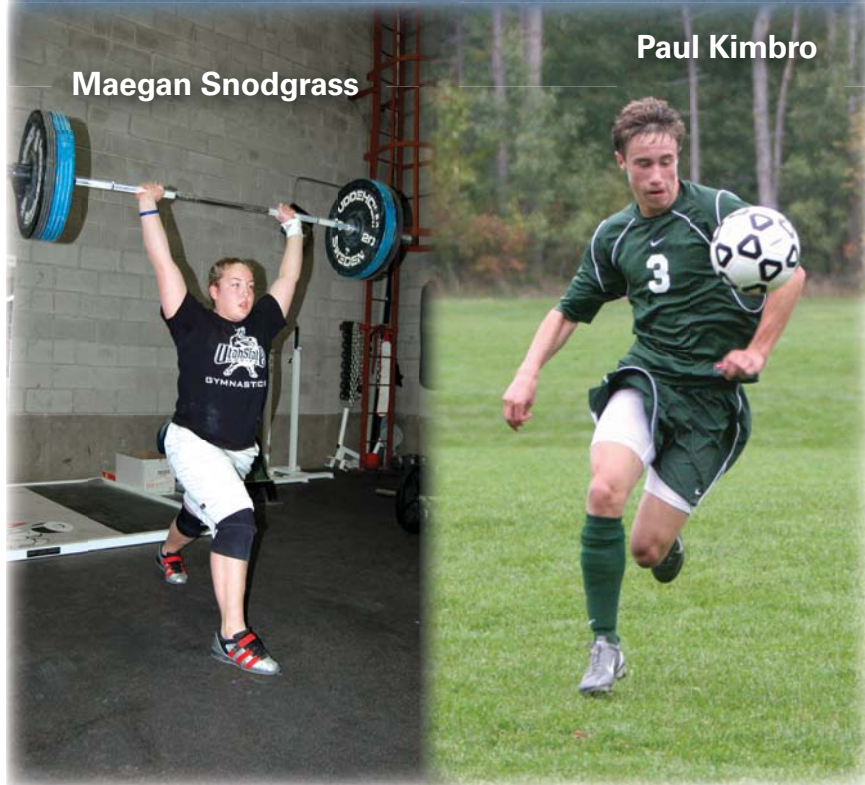


THE ULTIMATE GUIDE TO *Fixing Flat Feet*

Amanda Jenkins photo



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Action Sports Photography

If you think that a pricey pair of shoes is the secret to athletic success, think again

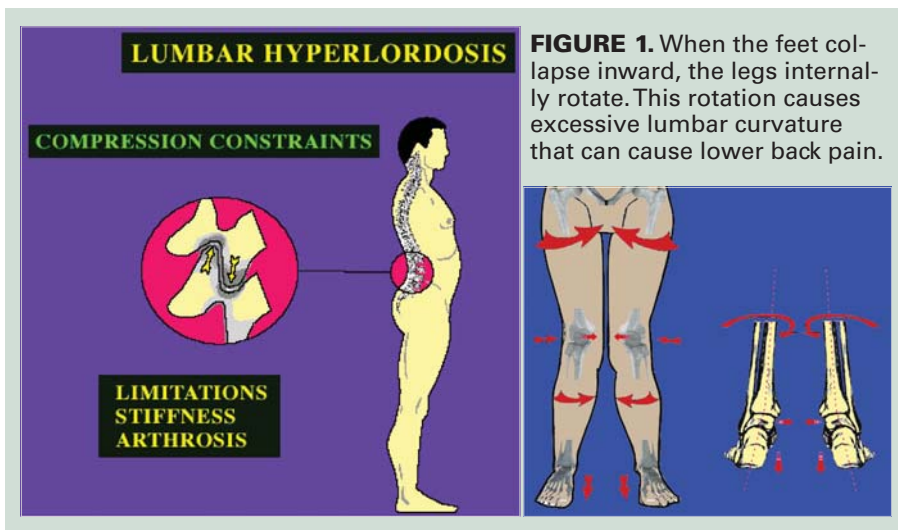
BY **KIM GOSS**

According to legend, when Arnold Schwarzenegger moved to the US he realized that his skinny calves could prevent him from winning the Mr. Olympia, the most prestigious title in professional bodybuilding. His solution? Cut off his pants at knee level to call public attention to his weakness and thereby motivate him to prioritize his calf training to bring them up to par with his tremendous upper body. And just as in the bodybuilding community, many in the strength coaching community seem to neglect exercises for the lower legs.

In addition, there is a problematic tendency of many strength coaches to become obsessed with training fads. First there was plyometrics, then speed-train-

ing gimmicks, and now there's the so-called "core" and "functional" exercises. However, all the Swiss ball sit-ups and Cirque du Soleil moves in the world mean little if your feet are twisting

Every sport places different demands on the feet, and disorders such as flat feet will affect performance and increase the risk of injury.



2. specific strengthening and stretching exercises for the muscles that support the arch.

The Big Three: Shoes, Orthotics and Postural Insoles

Flat feet are increasingly common among today's athletes because of, interestingly enough, higher-quality shoes. "Shoes decrease the sensitivity of the skin on the bottom of the foot, and the nerves in the skin are one of the major sources of postural information to the brain," says Gagné. "Further, the arch of the foot was not meant to be in constant contact with a surface. Shoes with insoles that press against the bottom of the arch cause a reflex reaction that causes the arches to collapse even further – in effect, they cause the muscles of the arch to become lazy. The same problem applies to orthotics."

Although Joubert says there are medical conditions that require the continual use of orthotics, generally they should be used in sports that may require additional support, such as weightlifting or hockey. An optimal approach is to use orthotics, if needed, during sports practice and competition and then use postural insoles with your regular footwear (Figure 2).

and turning the rest of your body out of alignment. The feet are, both literally and figuratively, the foundation of the body.

One of the most serious effects of neglecting the lower extremities, and therefore the focus of this article, is when the arches of the feet collapse inward: a condition commonly referred to as *flat feet*.

Balance of Power

To learn the true story about the rise and fall of foot arches, we consulted two of the foremost experts on the subject, posturologist Paul Gagné and his colleague podiatrist Dr. Michel Joubert. Joubert says that fallen arches are referred to technically as *valgus*, and the degree the arches fall is based on a scale of one to three. A rating of three is the most severe and fulfills the classic definition of flat feet.

Why is having fallen arches a bad thing? "The first problem is that your base of support is not the same," says Gagné. "A valgus foot causes internal rotation of the lower limbs, and this faulty alignment increases the risk of ankle strains, sprains and knee injuries. Also, this rotation increases the risk of lower back injuries because it increases the curvature of the lower back.

Excessive lumbar curvature increases muscular tension in the lower back and increases the risk of disc injury because the spine loses much of its shock-absorbing ability – it's basically bone on bone." (Figure 1)

Joubert adds that although he endorses the use of specific abdominal and lower back exercises for individuals who have excessive lumbar curvature, particularly gymnasts and figure skaters, their effectiveness is compromised if foot problems are not addressed first. And he says treating flat feet consists of two major components:

1. the use of postural insoles and possibly orthotics, and

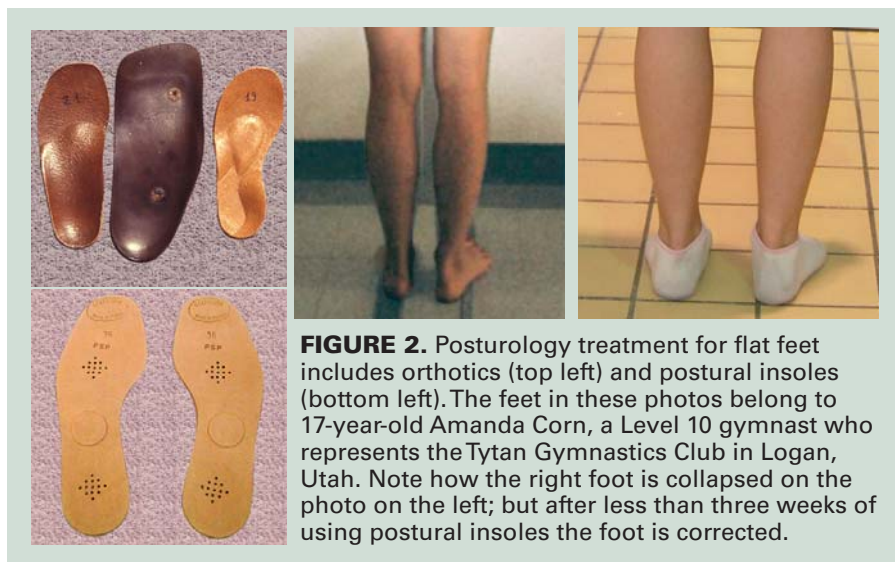


FIGURE 2. Posturology treatment for flat feet includes orthotics (top left) and postural insoles (bottom left). The feet in these photos belong to 17-year-old Amanda Corn, a Level 10 gymnast who represents the Tytan Gymnastics Club in Logan, Utah. Note how the right foot is collapsed on the photo on the left; but after less than three weeks of using postural insoles the foot is corrected.

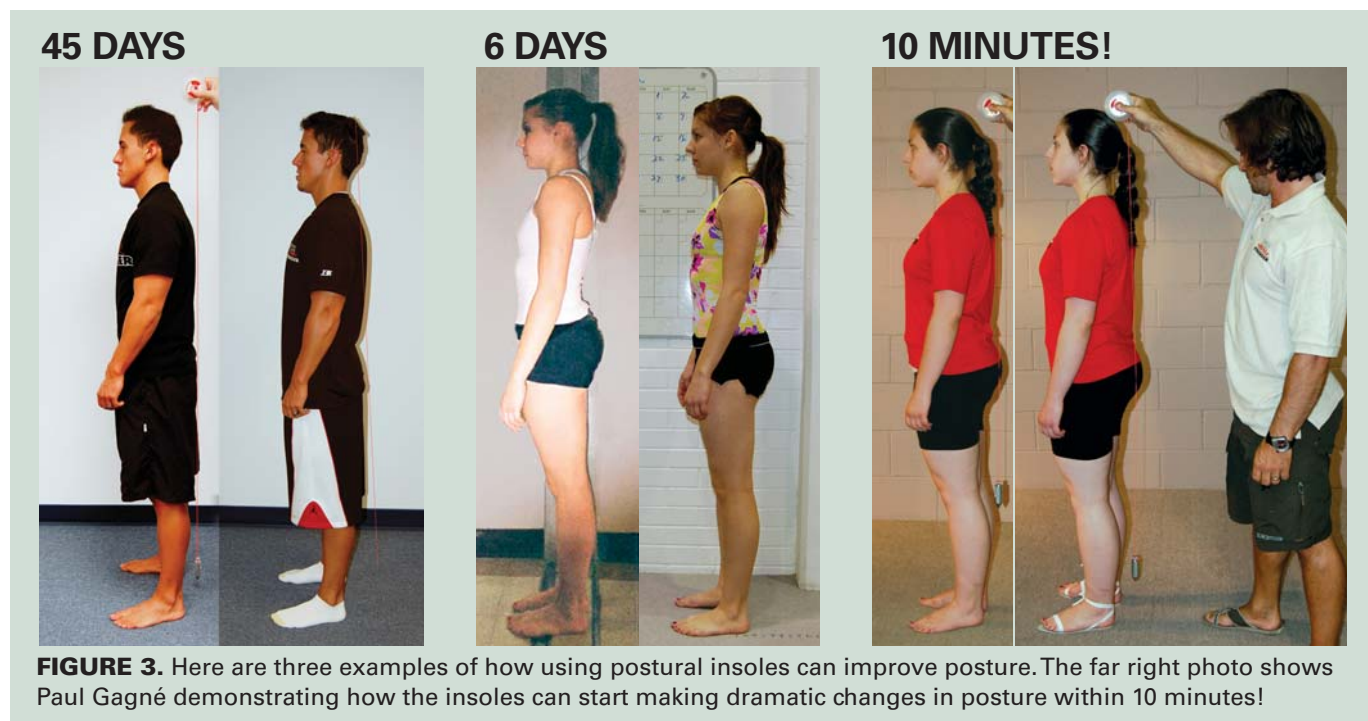


FIGURE 3. Here are three examples of how using postural insoles can improve posture. The far right photo shows Paul Gagné demonstrating how the insoles can start making dramatic changes in posture within 10 minutes!

Postural insoles will cause the arch to reform by stimulating several muscles of the feet (especially the adductor hallucis, flexor digitorum longus and brevis) and thereby cause the arch to reform. Gagné adds that with many of his clients the insoles can often completely resolve valgus feet so that orthotics may not be necessary at all (Figure 3). Also, Gagné says that standing on vibration platforms provide a similar effect as the postural insoles, but to obtain similar results such training would probably need to be performed daily.

Specifically for weightlifting and weight training exercises such as squats, Gagné recommends that athletes who have valgus feet wear weightlifting shoes. “If a person with flat feet squats, they often lift their heels up right away because their subtalar and talus joints are internally rotated. Because lifting shoes have a 5/8-inch heel lift, they will tend to realign these two joints and as such will allow them to squat deeper.”

As for a general guideline about buying shoes, Gagné says that unfortu-

nately you often don’t get what you pay for. “Research has shown that the shoes with the most padding have been found to place the most stress on the body, so often the most expensive pairs of shoes are often the worst shoes for athletes.”

In addition to the insoles and orthotics, the next part of the formula is stretching and strengthening exercises.

Pumping Up the Calves

There are many muscle groups that are involved in helping to keep a proper arch, and specific exercises are recommended to strengthen them. Let’s start with the big toe.

The primary muscle that lifts the big toe is the extensor hallucis longus, and Joubert says this is one of the most



FIGURE 4. Exercising the muscles that lift the big toe are key to correcting flat feet. One exercise that is very effective is to stand on one leg, lift the big toe up, and then rotate your hips towards that foot.



FIGURE 5. Standing calf raises (top) and seated calf raises (bottom) work the gastrocnemius and soleus, muscles that are important for maintaining proper foot alignment.

important muscles to strengthen because it creates a lateral tension on the foot. One simple way to work this muscle is to stand on one leg barefoot, lift the big toe up, and then twist your body towards your toe (Figure 4). Do this exercise slowly for about a minute each day. Eventually, you should try to hop, twisting your foot clockwise and counter-clockwise, for about a minute. Another good exercise, and one that is very practical in the high school environment, is to simply lift your big toes up during your warm-up sets when performing Hex bar deadlifts.

The next emphasis are on the major calf muscles: the soleus and the gastrocnemius (Figure 5), muscles that are often atrophied in those with flat feet. To strengthen the gastrocnemius, you can perform calf raises with your legs straight; to strengthen the soleus, you can perform seated calf raises. Performing these exercises in bare feet increases the effectiveness of the exercises, so athletes

could consider performing their first set without shoes before adding weight and using heavier weights.

For variety, when performing calf raises it's a good idea to change the position of the legs, such as pointing the feet inward or outward. Feet inward works the outside (lateral) part of the calf, while feet outward emphasizes the inside (medial) part of the calf. Also, because the soleus is more of a slow-twitch-fiber muscle group and is therefore designed for endurance, higher repetitions should be performed. For example, you could perform straight-leg raises for 15 reps and seated calf raises for 25 reps.

Finally, because the calf muscles are often shortened in those with flat feet, it's important to stretch both of these muscles. Standing on an angled surface, such as a plyo ramp, offers a simple, effective way to stretch both muscles. To stretch the gastrocnemius, you stand

on the surface with your knees straight; and to stretch the soleus, you stand with your knees bent (Figure 6). Gagné notes that these stretches and strengthening exercises are also effective in helping to prevent shin splints, which are especially common in those with flat feet.

Regarding the practice of running in sand, Gagné generally advises against it: "Sand training places huge stresses on the feet that can often result in an overuse injury to the sole of the foot called plantar fasciitis. If you insist on this type of training, you must be very conservative in your exercise protocols or wear shoes rather than running barefoot."

Although training the feet may not seem as challenging as performing power cleans or running sprints, serious athletes must address this important but frequently neglected aspect of training. Just ask Arnold! **BFS**

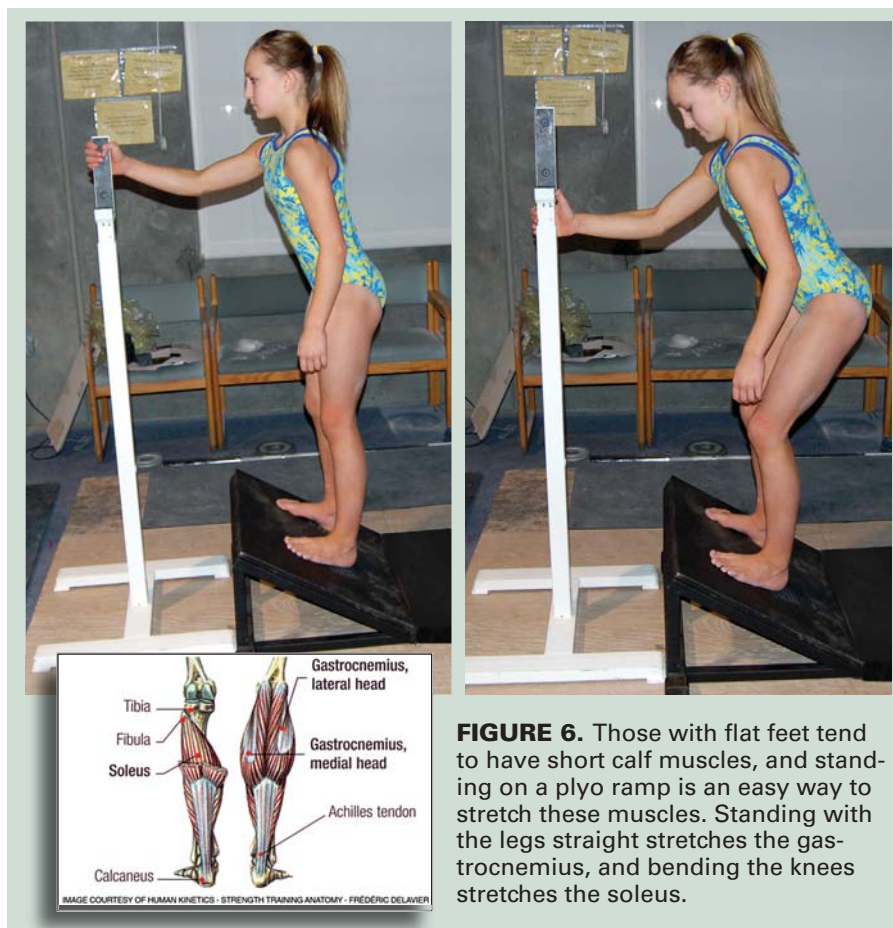


FIGURE 6. Those with flat feet tend to have short calf muscles, and standing on a plyo ramp is an easy way to stretch these muscles. Standing with the legs straight stretches the gastrocnemius, and bending the knees stretches the soleus.