

Focus on High-Yield Tests for Running Injuries

BY ROBERT FINN
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SAN FRANCISCO — When a patient with a running injury arrives in a busy primary-care office, there's usually not enough time for the provider to do a full orthopedic examination, but several high-yield static assessments can help the provider conduct an efficient exam within the standard 15-minute office visit, Dr. Anthony Luke said at a conference on sports medicine sponsored by the University of California, San Francisco.

The first thing to evaluate, according to Dr. Luke, of the department of orthopedic surgery at the university, is the patient's alignment. Dr. Luke asks the patient to stand with ankles together, and if he can fit four fingers between the patient's heels, the gap indicates a significant valgus condition.

Then he asks the patient to stand with feet placed apart a distance equal to the shoulder width, and—while watching the patient from both the front and the back—he instructs the patient to rise up on the toes and then go back down again.

"I want to see how high the arch gets, and, as they come down, how it rolls in. This helps you know [whether it's] a flexible flat foot. If they go up and they don't recreate the arch, then there's a problem there, either a tendon problem or a struc-

tural problem, such as tarsal coalition."

This test also allows for further evaluation of varus and valgus conditions, either of which could be behind pronation or other foot problems.

Next, Dr. Luke has the patient squat while keeping the heels flat on the floor. "If they don't get too far, sometimes they have limited dorsiflexion in their ankles, and that could lead to a problem."

While the patient is squatting, Dr. Luke instructs the patient to do a duck walk, which will indicate whether there are any problems with the hips or knees.

Then he recommends conducting four tests of flexibility: ► **The Thomas test** is used to assess the hip flexor.

The test is conducted by having the patient lie back on the examination table and then raise both of the knees up to the chest. The patient should then hold one knee up while allowing the other leg to drop down.

Meanwhile, the physician should have a hand on the patient's pelvis. At the moment the pelvis begins to rock, the physician should note the angle between the lowered thigh and the table. An angle of greater than 30 degrees indicates a significant loss of flexibility.

► **The Ely test** assesses the quadriceps and is done while the patient is prone. The physician should flex the ankle toward

Evaluate alignment first. If the patient stands with ankles together, and you can fit four fingers between the heels, it indicates a valgus condition.



One of four tests measuring flexibility, the Thomas test (patient position shown above), assesses the loss of flexibility in the hip flexor.

the buttocks and see how tight the patient is on each side.

► **Ober's test** assesses the iliotibial band. It is done with the patient lying on one side and holding the lower knee in a flexed position.

The physician should stabilize the patient's pelvis with one hand and, with the other hand, hold the patient's ankle and abduct and extend the hip. The physician should then lift the hand that is holding the ankle while continuing to stabilize the pelvis.

In a patient with normal flexibility, the leg will remain parallel to the table. In an

especially flexible patient, the leg will dip down a bit farther. However, if the leg hangs up, this would indicate a tight iliotibial band.

► **The popliteal angle test** assesses hamstring flexibility, and is done with the patient supine.

The patient should first bend the hip to 90 degrees and the knee to 90 degrees. The physician should then passively extend the leg, noting the angle of the knee. Low popliteal angles (as little as 120-130 degrees) are common in long-distance runners and indicate a lack of hamstring flexibility. ■

Give OTC Orthotic Soles a Test Run Before Going Custom

BY ROBERT FINN
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SAN FRANCISCO — There's no truth in the belief that a person can become dependent on orthotic soles—in fact, orthotics can be very useful in correcting certain foot problems, according to Dr. Anthony Luke, at a conference on sports medicine sponsored by the University of California, San Francisco.

"Do you want to wear more comfortable shoes, or do you want to wear crummy shoes? Because that's really all you are doing," said Dr. Luke of the department of orthopedic surgery at the university.

"You're putting an insert in. You're not doing surgery on [patients], and you're not taping it to their foot for the rest of their lives. I don't know how you necessarily become dependent, [although] I certainly run into people who really love their orthotics and never want to go without them," he commented. It is not certain, however, that \$400 custom-made orthotics are substantially better than over-the-counter brands available in stores.

There is little compelling evidence that custom orthotics are significantly better than the brands bought over the counter—and they can cost substantially more.

The primary purpose of orthotics is to improve the efficiency of a person's gait by helping to control excessive or unwanted motion. It's also possible to use them to relieve the weight load on sensitive areas of the foot. If a patient has metatarsal pain, for example, then pads can be added to the orthotic to decrease pressure on the painful area.

To determine whether a runner would benefit from orthotics, one should first examine the foot when it's not bearing weight and when it's in the subtalar neutral position—neither pronated nor supinated. Many methods for determining subtalar neutral have been proposed, and there is controversy in the literature about which is best.

Dr. Luke said that he has the patient lie prone on the examining table, then lifts the patient's foot by the fifth metatarsal. He then places his other hand on the opposite side of the ankle and rocks the foot back and forth, causing the calcaneus and the talus to invert and evert. The aim, he said, is to "find that position where the talus is no longer banging into my fingers.

That's going to be subtalar neutral."

Next, he looks at the Achilles' tendon and the angle of the calcaneus. A heel that is turned inward indicates a heel varus, which suggests the patient has trouble unlocking the midfoot. Conversely, if the heel is valgus, then the patient is starting off in a bad position, and it is no wonder they're pronating, he said.

Orthotics can be customized to correct specific problems. For example, they can include a lift if there is a discrepancy in leg length. And they can have posts added in areas needing special support to achieve a subtalar neutral position.

A number of different materials can be used to construct orthotics, but Dr. Luke noted that he is suspicious of especially rigid materials. "It's kind of like running on a very hard surface."

But before prescribing custom orthotics, Dr. Luke suggested that patients try an over-the-counter pair. There's little compelling evidence that custom orthotics are significantly better than those that are bought over the counter—and custom orthotics are as much as 10 times more expensive.



Orthotics can be customized to help correct a patient's specific problem, such as pronation or a discrepancy in leg length.

If nothing else, the cheaper orthotics can be used as testers, and although the correction may not be perfect, the patient will likely experience at least some improvement.

An easy way of testing whether an orthotic is doing its job or not, is to have the patient take it out of the shoe, put it on the floor, then stand on it. The doctor should then compare the patient's stance in the orthotic with the stance when he or she is standing on the floor. If the device corrects a patient's pronation (for example) in the static position, then there is a good chance it will correct the pronation in motion. However, if the orthotic doesn't even correct the static position, then it will probably not be that useful for a patient in motion. ■