

# Extra Bone in Feet Cause Problems for Dancers

Many people are born with oddly shaped bones, extra bones, or fused bones and never know about it. In fact, studies show up to one-third of the general population have what is called an accessory (extra) bone. Sometimes these extra bones are in the joint and sometimes they occur embedded in a tendon or muscle.

Most of the time, unless the bone is prominent, no one knows about them. But dancers and other athletes are often the first to notice problems. The strain and stress on the feet from repetitive movements, wearing special (toe) shoes (dancers), and the positions assumed (up on toes, feet turned out) can cause tenderness and pain in the foot and/or ankle.

The navicular bone of the foot is one of the small bones on the mid-foot that is often an accessory bone. The bone is located at the instep, the arch at the middle of the foot. One of the larger tendons of the foot, called the posterior tibial tendon, attaches to the navicular before continuing under the foot and into the forefoot. This tendon is a tough band of tissue that helps hold up the arch of the foot. If there is an accessory navicular, it is located in the instep where the posterior tibial tendon attaches to the real navicular bone.

In this report, two dancers with painful accessory navicular bones are featured. The article is intended to help those who treat dancers to recognize the possibility of accessory navicular (or other) bones and what to do about it. Treatment can be conservative (nonoperative) or surgical. The goal of the dancer is to return to full participation in dance. The decision to do surgery is usually after conservative care fails to provide pain relief or improve function.

The most successful nonoperative approach to a painful accessory navicular bone in a dancer's foot has not been determined. Some methods used include cryotherapy (cold) to help manage the pain, iontophoresis (treatment for inflammation), passive and active range-of-motion for the foot and ankle, and strengthening exercises for the leg and hip. Other areas to address may include balance, endurance, and proprioception (awareness of joint position).

Care must be taken to avoid making things worse for the dancer. Prescribing supportive shoes won't work for someone who needs to dance barefoot or wear thin slippers, toe shoes, or flat-soled leather shoes. A program to return the dancer to practice (dance classes), performance, and competition must be gradual but progressive. At the same time, the injured tissue must be protected and allowed to heal.

Other considerations in prescribing rehab include age of the dancer and status of his or her skeletal maturity. Younger dancers who have not reached full growth yet may still have open growth plates that could be injured or damaged during retraining.

For the best and fastest results, dancers are encouraged to follow the therapist's and physician's recommendations for activity restriction or modification. The therapist will help the dancer identify areas of weakness that may be contributing to the problem.

For example, weakness in the hip muscles or decreased hip motion can cause a change in the alignment of the knee, ankle, and foot. The result can be overloading of the soft tissues and bones and then injury (or reinjury). By correcting these dance technique faults, the dancer may be able to return to dance without having the symptoms come back.

Surgery may be unavoidable. This is most likely in cases where the extra bone is large or connected to another bone by a bridge of bone. The use of taping, padding, or modalities (e.g., cryotherapy,

iontophoresis) just isn't enough to change the structure. Once the extra bone or bony bridge has been removed, then a gradual return to activity is allowed. Rehab and specific training for return to dance (or other sport) begins. The dancer or athlete should be advised that the process can take several months but the end result is often excellent.

Reference: Teresa Riemer Smith, PT, DPT, CSCS. Management of Dancers with Symptomatic Accessory Navicular: 2 Case Reports. In JOSPT. May 2012. Vol. 42. No. 5. Pp. 465-473.