



Heel pain in gymnasts is a real, sometimes mysterious, and serious problem. Many times I've seen young gymnasts sit-out more than a year in order to reduce the pain in their heels.

To understand heel pain in gymnasts you first have to understand gymnastics and its interaction with the leg and foot. Heel pain is a direct result of participation in gymnastics, particularly landings and take-offs.

Young athletes have growth plates that are very active and when combined with intense

work, they usually are the weak areas taking the brunt of their long hours in the gym.

Heel pain in the child and adolescent gymnast is a condition referred to as Sever's Disease. The gymnast's skeleton is made of bones and long bones, and these tend to grow from the ends. Bone growth occurs at the ends of bones or in regions that are well defined. These regions are called "growth plates." Growth plates, because they are active areas of change, are weaker than surrounding mature bone that has completed growth. Sever's Disease is an irritation and an inflammation of the growth plate in the heel.

In gymnastics, we produce the "perfect storm" for Sever's. Gymnasts are encouraged to point their toes, thereby utilizing their calf muscles. These muscles combine to form the Achilles tendon which inserts on the calcaneus or heel bone. It just happens that the Achilles tendon attaches just above the growth plate in the heel. This growth plate can be aggravated by the constant and rapid contraction of the muscles of the calf. The tensile forces applied by the calf muscles through the Achilles

tendon to the calcaneus (heel bone) can be so large that the weaker growth plate is irritated. Bone is a strong material, but bone is strongest when the forces are applied via compression. Bone is considerably weaker when the applied forces come from tension, bending, or shear.

From below, the growth plate can be irritated by running around the gym in bare feet. Many gymnasts that experience heel pain are over-pronated in the feet or have flat feet. Over-pronation refers to a natural foot position where the foot tilts toward the big-toe side. Over-pronation also puts pressure on the growth plate in the heel by a gait that is altered.

Rest rarely decreases the symptoms of heel pain in gymnasts, but if your doctor recommends rest, you should follow through or suggest the following protocol and see if he/she concurs. It is recommended that gymnasts stop doing anything that causes an aggravation of their symptoms. This is important so as not to continue causing irritation to the growth plate.

The following is the Sever's Disease protocol used with thousands of young gymnasts. If you don't think you can follow through with the following protocol, give this protocol to your physical therapist, athletic trainer, massage therapist or chiropractor to allow your gymnast to get maximum benefits from the protocol.

The stretching and icing should be done every hour on the hour the gymnast is at home or inactive at the gym. Stretching and icing hourly is a critical step to reducing inflammation.

The massage should be done every other day by the parents or a professional and compression as much as possible, and definitely overnight.

When doing the full protocol on the same day, massage, stretch, and ice in that order, then repeat the stretch and cold water soak every hour on the hour.