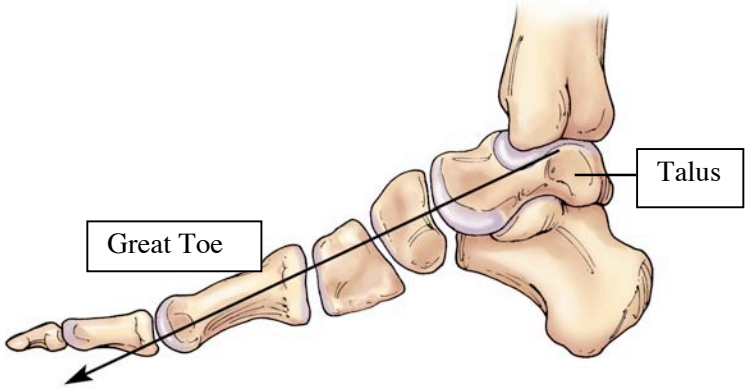
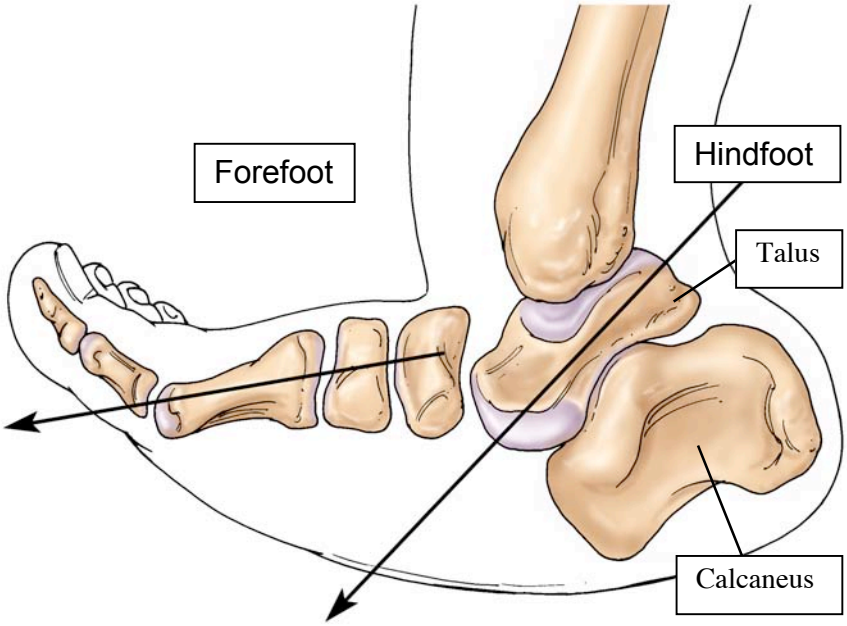
VERTICAL TALUS

The foot can be divided into two major parts. The front of the foot or forefoot includes the toes, the metatarsal bones, the cuneiforms, and often the navicular. The hindfoot includes the ankle bone (talus) and the heel bone, (calcaneus). A normal arch is described as a straight line drawn through the talus to the great toe bone.



There is a rare congenital birth abnormality, which is called a vertical talus. In this condition, a profound neurologic condition abnormally affects the growth and development of the foot, resulting in the ankle bone and the heel bone pointing downward rather than pointing towards the great toe. The forefoot, which includes the toes and the bones associated with the arch is abnormally pointed upward and the normal alignment of the talus with the forefoot is lost. The bottom of the foot has an abnormally curved or rounded appearance, and is called a rocker-bottom foot.



When the foot is examined, the pediatric orthopedic surgeon is able to determine that the muscles on the back of the foot are abnormally short and tight causing the ankle bone and the heel bone to point downward rather than forward, and that the muscles on the front of the shin, which attach to the toes, are abnormally tight and short as well. The x-rays are helpful in determining if the deformity is fixed. The differential diagnosis of a vertical talus includes all the conditions that are associated with an abnormal muscle imbalance in a newborn including paralytic disorders, abnormal intrauterine compression, arthrogryposis, spina bifida and trisomy 13, 15 and 18.

The treatment of a vertical talus is aimed at establishing normal alignment of the bones of the foot and creating a normal arch. Initially, the foot will be casted in a slightly downward position. The cast is changed frequently and the position of the foot is improved with each cast. Once the maximal improvement from casting is obtained, the remainder of the correction is done with surgery. Surgical correction is individualized, depending on which structures remain out of alignment and which tendons remain tight after casting.

The long term studies show that casting followed by surgical release results in a functional foot in 75% to 80% of cases. Additional surgeries may be necessary as the foot grows, because the underlying cause of the vertical talus is weakness of the muscles of the leg and foot. The underlying muscle weakness can interfere with normal bone growth and cause the tendons to become tight again. Most children are able to wear regular shoes without difficulty, while some may require a small removable insert worn inside their shoe.

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