

The Ankle

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The ankle is actually composed of 3 smaller joints and connects the lower leg to the foot. The joints of the ankle include the talocrural joint, the subtalar joint and the inferior tibiofibular joint. The ankle is an important joint for walking and allows the foot to move up and down and side to side. Small movements at the ankle joint also help us keep our balance on uneven terrain.

Bones:

- *Tibia* – The large “shin bone”. The lower end of the tibia, the medial malleolus, is the bony bump that is felt on the inside of the ankle.
- *Fibula* – The skinnier long bone that runs next to the tibia. The lower end of the fibula, the lateral malleolus, is the large bony bump that is felt on the outside of the ankle.
- *Talus* – The bone that sits under the tibia and fibula and on top of the heel bone.
- *Calcaneus* – The “heel bone”.

Joints:

- *Talocrural joint* – Consists of the ends of the tibia and fibula (malleoli) and the talus. This joint allows the foot to move up and down.
- *Subtalar joint* – Between the talus and the calcaneus. This joint allows the foot to move side to side.
- *Inferior tibiofibular joint* – The point where the two long bones of the lower leg, the tibia and fibula, meet. Very little movement actually occurs at this joint.

Ligaments:

- *Lateral collateral ligament (LCL)* – The LCL group connects the joints on the outside of the ankle and is the most commonly injured ligament complex in the ankle.
- *Medial collateral ligament (MCL)* – This group, also known as the deltoid ligament, connects the joints on the inside of the ankle. This ligament group is not commonly injured, but can be torn with severe fractures of the ankle bones.
- *Tibiofibular ligaments* – The area where the tibia and fibula meet is supported on the front and back by the tibiofibular ligaments that run between the two long bones.

Muscles:

- *Anterior compartment* – This group consists of the muscles on the front of the lower leg. It moves the foot up and inward.
- *Posterior compartment* – These are your calf muscles. The tendons cross on the back of the ankle and attach to the heel. This muscle group moves the foot down.
- *Lateral compartment* – This group consists of smaller muscles on the outside of the lower leg. It moves the foot outward.

Common Pediatric Ankle Conditions:

- **Broken Ankle:** A fracture of the bone, most commonly in the tibia or fibula.
- **Ankle Sprain:** This is the most often sprained joint in the body. It occurs when a ligament is stretched or torn.
- **Calcaneal Apophysitis:** Also known as Sever's disease and characterized by inflammation of the growth plate in the heel. It typically effects children between the ages of 8 and 14 and is the most common reason for heel pain in kids. It is caused by overuse and stress on the heel bone.
- **Toe Walking (Equinus):** This is a condition that limits upward motion of the foot and is commonly caused by tight calf muscles. The tightness effects how the child walks, limiting the ability to put their heels on the floor. Some children are born with shortened heel cords while others may acquire it as a result of being casted.

How to Keep the Ankle Strong

Strengthen

Improving the strength in the muscles around the ankle joint will help improve joint stability, reduce the risk of injury and improve balance and agility for sports performance.

- **Ankle alphabet** – moving only your foot, trace the letters of the alphabet from A to Z. This will get your foot moving in all directions!
- **Heel/toe raises** – Keep your heel on the floor while lifting your toes; then lift your heel while keeping your toes on the floor. Hold each position for 5 seconds; complete in sets of 10 repetitions. Begin sitting in a chair, then progress to standing, holding on to a chair to help you balance.
- **Stand on one leg** – Standing on one leg requires all of the muscles around your ankle to contract at the same time. Try brushing your teeth while standing on one leg, then comb your hair while standing on the other.
- **Toe pick-ups** – Use your toes to pick up small objects such as toy dinosaurs or marbles and put them into a bucket. Begin sitting in a chair, then try it standing.

Stretch

Improving the flexibility of your ankle joint will help reduce your risk of ankle sprains and other injuries.

- **Calf stretch** – While standing near a wall, place your heel on the floor and your toes up on the wall. Keep your knee straight and lean in towards the wall so your leg moves closer to the wall. Hold for one minute. Also try with a slight bend in your knee. This will stretch the muscles in the back of your lower leg.
- **Pointed toes** – Sit with one leg crossed over the other. Use one hand to hold your lower leg steady while your other hand pulls your foot and toes back towards you, as if you were pointing your toes. Hold for one minute.