

SPECIALISTS' CORNER



When It's Not "Just" an Ankle Sprain?

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Lateral sided ankle injuries are very common in kids. Whether rolling their ankle while scoring the game winning goal or awkwardly falling on a pillow during a sleep over, it's often difficult for parents and providers to evaluate the severity of the injury. Concern amongst pediatricians and sports medicine providers revolves around the growth plates of growing children and preventing any long-term complications from their injuries.

Anatomically lateral ankle injuries can involve the distal fibula physis, the lateral aspect of the distal tibia physis, the peroneal tendons, the base of the fifth metatarsal, or the lateral ankle ligament complex (ATFL, CFL, PTFL) (Figure 1). It is important to examine each of these structures to determine any injury and if radiographs are needed for the patient. Ottawa ankle rules for adults are not as consistently validated in children due to the overlying ligamentous attachment near the distal fibula physis but can be successfully applied to reduce the number of radiographs in children. Clinically it can be very difficult to determine pain in the ligaments vs distal fibula physis in an acutely injured ankle. Careful physical examination for point tenderness and associated swelling/ecchymosis are the main clinical findings that can help differentiate the injuries.

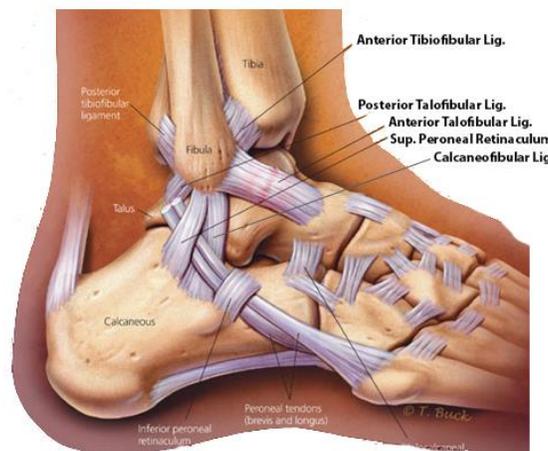


Figure 1: Lateral Ankle Anatomy

Tenderness along the fifth metatarsal or its base should always prompt an x-ray. Clinicians should be aware that an apophysis (Figure 2) lies at the base of the fifth metatarsal and can be confused with an avulsion fracture by radiologists who are unfamiliar with skeletal variants. Though fractures to the fifth metatarsal heal more readily in children than adults, it is an injury that should prompt orthopedic evaluation.



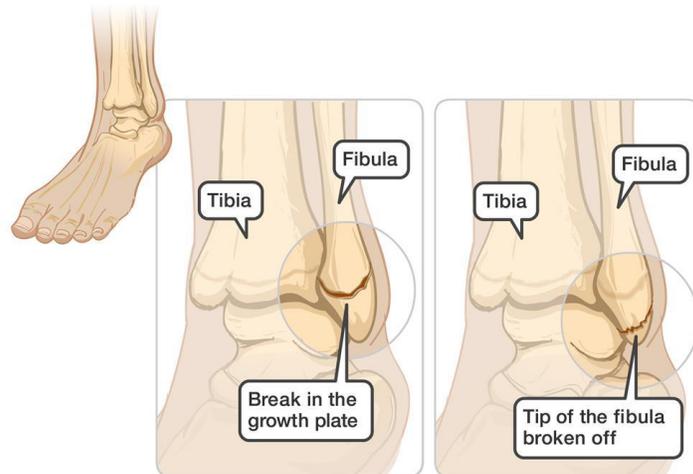
Figure 2: Base of the fifth metatarsal apophysis. Fragmentation and variable widening can be seen in normal variants. Physical examination findings at this specific anatomical point would indicate injury.

Any tenderness around the distal tibia physis should prompt an x-ray because Tillaux fractures (Figure 3) of the lateral distal tibia may require surgical treatment and can present as a lateral ankle injury. These should be referred to a pediatric orthopedist for management; casting or surgical.



Figure 3: Tillaux fractures occur as the distal tibial physis is closing and seen in older children. Because it involves the articular surface, surgery may be required to improve outcomes in these patients.

Distal fibula fractures are common and majority come in two variations. Salter-Harris 1 or 2 fractures of the distal fibula physis or avulsions off the distal fibula (aka: a severe ankle sprain) (Figure 4). The good news is that both injuries respond well to short term immobilization in a CAM boot with weight bearing as tolerated. Typically, three to four weeks later, patients are symptom free and able to get back to their sports and activities.



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Figure 4: Salter-Harris distal fibula fractures are often non-displaced and heal with limited immobilization while avulsions from the distal fibula are treated as severe ankle sprains with immediate ROM and physical therapy.

Understanding relevant lateral ankle anatomy can help focus the physical examination and determine the need for radiographs and orthopedic referral. Confirmation of normal radiographs allows pediatric providers to safely treat lateral ankle injuries with weight bearing, limited immobilization and early range of motion allowing young athletes to get back to sports and activities. Exercises specific to lateral ankle injuries can be found at <https://ortho-institute.org/education/patient-library/ankle-sprains>

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