

## What Is a Tarsal Arthrodesis and How Can an Orthosis Help?

A tarsal arthrodesis may be recommended when a patient has severe degenerative joint disease (DJD), severe osteoarthritis, mal-union due to fracture or ligament laxity, or if the patient has experienced trauma at the joint level. An arthrodesis involves using hardware to eliminate joint motion with the goal of a complete bony fusion.

The tarsus is composed of 4 joints arranged in 4 levels: 7 tarsal bones, 2 crural bones (tibia and fibula), and 4 (rarely 5) metatarsal bones below. There are multiple ligaments holding this structure together. Injuries can occur at any of the joint levels (tarsocrural, talocalcaneal, talocalcaneocentral, calcaneoquartal, cetrodistal, and tarsometatarsal); additionally, any of these associated bones can be displaced (luxated) or fractured.

Your veterinarian may recommend a partial or pan tarsal arthrodesis. A partial tarsal arthrodesis may be performed to stabilize the distal tarsal joints and the proximal tarsal joint remain unaffected. A pan tarsal arthrodesis may be recommended when numerous tarsal joints are affected and range of motion is ill-advised due to pain, discomfort or functionality. Some patients may eventually need the hardware removed.



Pantarsal Arthrodesis A/P



Pantarsal Arthrodesis Lateral



Partial Tarsal Arthrodesis A/P



Partial Tarsal Arthrodesis Lateral

### What will your vet be looking for?

Your veterinarian will complete a full evaluation and will utilize radiographs (x-rays) to determine whether a pan or partial arthrodesis is appropriate.

### When should my veterinarian make the impression?

For surgical procedures that involve locking out a joint, we recommend the fiberglass impression be taken either immediately post-operatively or 10-14 days post-operatively to allow some skin healing as well as to allow the swelling to decrease. We recommend post-op radiographs be included with the case when it is sent in.

Because an orthosis is not the correct therapy for all patients, before choosing an orthosis the following points are important to keep in mind:



1. **Device design is paramount to success.** Careful consideration is taken in prescribing a device and its specific components. Important clinical variables surround use of a paw segment and whether articulation by way of hinges is possible.
  - a. The paw segment is required typically for all tarsal arthrodesis cases as without a paw segment these patients are at risk for poor control of their pathology and most importantly, serious skin trauma/wounds due to uncontrolled pressure and friction. Without the paw segment, suspension will be difficult due to implanted metal hardware restricting the orthosis contact to portions of the limb segment.
  - b. Articulation (hinging) is ideal whenever possible in order to provide as close to normal limb use as possible. Articulation may be possible with a partial tarsal arthrodesis at both the level of the tarsus and the paw. If we are able to allow normal tarsal flexion in the orthosis, we may recommend Motion Limiting components at the joint to limit tarsal range of motion. This recommended device design will be discussed with the veterinarian once the Case Manager has received the impression, paperwork and all of the media
2. **Adjustments are expected and are a normal part of the custom orthosis process.** The device is custom-made for your dog. Every effort is made to accurately fit the device. If adjustments are required, it will be necessary to ship the device to OrthoPets with a turnaround time of 1-3 business days excluding shipping time. Even so, your dog is much more active at home than here at the clinic. Think of the last time you bought a new pair of hiking or ski boots; they needed some break in time, right? Increased activity and activity intensity can expose fit issues requiring adjustment.
3. **Follow-up is critical to success.** An orthosis is considered a “durable medical device.” This means that proper use is necessary to meet therapeutic goals and to ensure its safe application over the lifetime of your dog or the duration of injury healing. Please discuss a follow up plan with your veterinarian.
4. **Rehabilitation, the first key for success.** Most dogs adapt quickly to wearing an orthosis. Behavioral techniques can facilitate this. Also, your dog will need to learn basic skills while wearing the device. These include: transitions (sitting, lying down, and getting up), stairs, getting into vehicles safely, managing on different types of surfaces (ground, carpet, hardwood floor, etc.). Finally, orthopedic injury leads to compensatory abnormal movement and associated muscle strain and weakness. The best way to ensure the highest level of success with an orthosis is to follow a rehabilitation schedule.
5. **A proactive approach to arthritis management is the second key to long-term success.** If the joint itself is injured rather than a ligament alone, osteoarthritis may develop. Just as rehabilitation is important, arthritis management is key as well. Steps taken early and continued throughout your dog’s lifetime will make a difference in terms of regaining and maintaining comfort and an active life-style well into the senior years. Consult with your doctors for a comprehensive pain management plan.