

Hallux Limitus / Rigidus



Hallux limitus is the term used for the condition that is associated with limited movement of the big toe joint in the upward direction. In other words, the big toe joint does not bend enough when the heel rises off the ground with walking or wearing a heeled shoe. Hallux rigidus is the term that is sometimes used interchangeably, but usually refers to the condition when the joint mobility is more severely limited, or rigid.

When the big toe joint does not bend enough when the heel rises off the ground with walking or wearing a heeled shoe, the joint jams and can cause pain. Over a period of years, the joint cartilage may become worn out by repetitive jamming. Furthermore, the joint may develop bony prominences on top of the joint (called osteophytes), or enlargement of the joint as a whole. These joint changes are degenerative arthritis, and can progress over the years.

Pain usually is felt at the top of the joint, resulting from joint jamming at the top of the joint with walking or other activities that require the joint to bend (like running, squatting, or wearing high heels). In some cases, the bony prominence can become painful from direct shoe pressure. In advanced cases, the degenerative joint disease (degenerative arthritis) can cause deep aching in the joint at the end of the day as well.

The condition usually develops as a result of abnormal mechanics of the big toe joint. The most common cause of abnormal mechanics of the big toe joint that leads to hallux limitus is an inherited malposition of the first metatarsal bone (either too long or too elevated). Therefore, heredity is the leading cause. Nevertheless, there are other causation factors and sometime there are combinations of these factors that ultimately lead to hallux limitus.

Factors that can lead to hallux limitus / rigidus

Heredity / Abnormal mechanics of the foot and big toe joint

Injury

Arthritis disorders (like gout)

Demanding activities – ballet, running, squatting

Poor shoes – high heels

Neuromuscular conditions

Treatment of the condition falls into non-surgical and surgical categories. The goal of non-surgical treatment is to eliminate pain and/or prevent progression of the deformity. The goal of surgical treatment is to eliminate pain and correct the deformity. Non-surgical treatment usually does not correct the deformity.

Non-surgical Treatment

- q Wear appropriate shoes. Stiff-soled shoes are preferred over flexible shoes. Clogs or hiking boots are two examples of stiff-soled footwear, and of these, clogs are the best. The shoes should have ample toe box width and should be made of soft upper materials. High heels must not be worn. Purchase your shoes only after being properly measured for your length and width, and preferably later in the day.
- q Have your shoes stretched at a shoe repair shop. Ask the shoe repair person to “spot stretch” just the spot on the shoe that is overlying any bony prominence.
- q Use orthotic inserts in your shoes. Foot orthotics help to control the abnormal mechanics of the foot that may be at the root of the problem. Over-the-counter orthotics are pre-fabricated, usually based on shoe size, are less expensive than custom-made orthotics, and may be less effective than custom foot orthotics. For over-the-counter foot orthotics, we recommend Superfeet orthotics, which can be purchased at The Deport Store next to the Department of Foot and Ankle Surgery. Custom foot orthotics are made from plaster molds of your feet, are more expensive than over-the-counter orthotics, and are usually more effective than over-the-counter foot orthotics. Custom foot orthoses are not a covered benefit of the Kaiser Health Plan. However, custom foot orthoses are available through the Department of Foot and Ankle Surgery on a fee for service basis.
- q Use padding. There are numerous types of pads that are available over-the-counter. We recommend the Gel Bunion Guard – a silicone pad for the bunion, which can be purchased at The Deport Store next to the Department of Foot and Ankle Surgery.
- q Perform calf stretching exercises for 30-60 seconds on each leg at least two times per day. (Stand an arm’s length away from the wall, facing the wall. Lean into the wall, stepping forward with one leg, leaving the other leg planted back. The leg remaining back is the one being stretched. The leg being stretched should have the knee straight (locked) and the toes pointed straight at the wall. Stretch forward until tightness is felt in the calf. Hold this position without bouncing for a count of 30-60 seconds. Repeat the stretch for the opposite leg.)
- q Use ice on the painful area for 5-10 minutes, 1-3 times per day - especially in the evening. Fill a styrofoam or paper cup with water and freeze it. Peel back the leading edge of the cup before application. Massage the affected area for 15-20 minutes. CAUTION: AVOID USING ICE WITH CIRCULATION OR SENSATION PROBLEMS.
- q Use an oral anti-inflammatory medication. We recommend over-the-counter ibuprofen. Take three 200mg tablets, three times per day with food – breakfast, lunch, and dinner. To obtain the proper anti-inflammatory effect, you must maintain this dosing pattern for at least 10 days. Discontinue the medication if any side effects are noted, including, but not limited to: stomach upset, rash, swelling, or change in stool color. IF YOU TAKE ANY OF THE FOLLOWING MEDICATIONS, DO NOT TAKE IBUPROFEN: COUMADIN, PLAVIX, OR OTHER PRESCRIPTION OR OVER-THE-COUNTER ORAL ANTI-INFLAMMATORY MEDIATIONS. IF YOU HAVE ANY OF THE FOLLOWING HEALTH CONDITIONS, DO NOT TAKE IBUPROFEN: KIDNEY DISEASE OR IMPAIRMENT, STOMACH OR DUODENAL ULCER, DIABETES MELLITUS, BLEEDING DISORDER.)
- q Use over-the-counter glucosamine sulfate, chondroitin sulfate, and/or MSM.
- q Your doctor may inject the joint with cortisone. Injection of cortisone is a potent way to reduce inflammation and joint pain. The risks of cortisone injections for hallux limitus/rigidus include, but are not limited to: increased pain for 24-72 hours following the injection, depigmentation of the top of the joint, weakening of remaining joint cartilage and progression of degeneration, and infection. Systemic side effects of this type of injection are extremely rare.

Surgical Treatment

- q There are a number of different procedures that are used for the surgical correction of hallux limitus/rigidus. If the limitation of range of motion of is severe, or if the joint is significantly involved with degenerative arthritis, salvage of the joint is probably not possible. On the other hand, if the limitation of range of motion is not severe, and the degenerative arthritis is mild, then it might be possible to salvage the joint.

If the joint is not salvageable, there are three possible surgical options – fuse the joint (called arthrodesis), replace the joint, or simply remove the joint. Arthrodesis is the most common approach, offering a lasting correction of the pain and bony prominence. Arthrodesis eliminates all motion of the big toe joint (although the amount of motion present before surgery is already quite limited and painful). Joint replacement retains motion at the joint, but is not favored as much as an arthrodesis because replacement is more likely to result in pain under the ball of the foot near the base of the second toe, and the joint replacement can wear out and require future surgery. Simple removal of the joint is seldom suggested because it significantly destabilizes the joint – leaving it as an option only for those patients that cannot tolerate arthrodesis or replacement.

If the joint is salvageable, then removal of spurring around the joint (called cheilectomy) is usually combined with various bone cutting and repositioning procedures of the first metatarsal bone in order to reduce pain and improve joint mobility. It is possible that even if the joint is successfully salvaged, pre-existing degenerative arthritis may still progress over the years and cause recurrent symptoms years after the procedure.

Typically, surgery is performed on only one foot at a time. Usually bone screws are used to stabilize bone cuts or fusions and stay implanted permanently. The surgery is usually performed on an outpatient basis. Depending on the actual procedures required, you may or may not be allowed to walk on the foot after surgery and you may or may not be required to be in a cast.

Full recovery may take 4-6 months. Depending on the type of work that you do, you will be advised to remain off work for as little as 2 weeks (for a completely sedentary job with no mobility requirements) to as much as 2-3 months (for a job that requires standing/walking).

The success rate is dependent on the procedure and the severity of the condition, but usually approaches 85%. Approximately 12% are improved, but may still have some limitations or footwear or activities. About 3% are no better or worse. Risks include, but are not limited to: undercorrection, overcorrection, recurrent deformity, stiffness of the big toe joint, weakness of the toe, transfer of pain or callus to an adjacent bone or area, broken pins or hardware, intolerance of pins or hardware, delayed or non-healing of bone, nerve injury or entrapment, delayed incision healing, painful or unsightly scar, prolonged recovery, recurrent pain, incomplete relief of pain, no relief of pain, worsened pain, and circulation impairment or loss of the toe.)