

Metatarsalgia is a very common condition that usually affects only the bottom of the ball of the foot. Occasionally, there will be some symptoms at the top of the forefoot near where the toes join the foot, but only after or concurrent with symptoms on the bottom of the ball of the foot.

Metatarsalgia typically affects the bottom of the second metatarsophalangeal joint (where the second toe joins the foot). However, any of the other metatarsals can be affected. In more unusual cases, more than one metatarsal can be affected on one foot. When metatarsalgia affects the second metatarsophalangeal joint, it is also sometimes called “second metatarsophalangeal stress syndrome”.

The primary cause for metatarsalgia is repetitive application of excessive force to one metatarsal area more than the others. The second metatarsal is most commonly affected typically because there are a number of factors that can lead to excess force on that bone/joint area.

Factors that can lead to metatarsalgia

Metatarsal bone longer than the others

Adjacent unstable first metatarsal

Associated hammertoe

High heeled shoes

Overweight

Metatarsal bone lower than the others

Adjacent bone higher than the others (transfer loading)

Tight calf muscle

Shoes with inadequate cushioning

Overuse

The pain typically feels like a deep bruise. Sometimes, it will feel like there is a rock under the ball of the foot. These symptoms are usually worse when walking or standing barefoot on a hard surface or poorly cushioned shoe, and better when in well-cushioned shoes. At the end of a day with substantial standing and/or walking, the area can throb a bit. It is not uncommon to have a callus located under the affected metatarsal.

Pain usually is first noticed at the bottom of the ball of the foot and there is no swelling. With progression, swelling can appear, along with tenderness at the top side of the joint. In some cases, bursitis will form adjacent to the metatarsal. In even more advanced cases, the joint capsule and ligaments on the bottom of the joint can wear out and rupture, leading to the progressive development of a hammertoe.

The diagnosis of metatarsalgia is usually easily made with a careful history and physical exam. X-rays are usually not helpful in making the diagnosis. Special tests, such as bone scans, MRI, and laboratory tests are usually not required.

Mimickers of metatarsalgia include intermetatarsal neuroma (also called Morton’s neuroma), stress fractures, and arthritis. Neuromas can be differentiated fairly well by the examination. Stress fractures can be differentiated by pain and swelling more on the top of the foot, as well as with a bone scan. Arthritis usually has more pain and swelling on the top of the joints, and usually more than one joint is involved.

Non-surgical treatment of metatarsalgia can be quite effective. This form of treatment should be comprehensive and continuous until the pain has been resolved at least 2 months. If cases fail to respond to non-surgical treatment, either permanent alteration of footwear, lifestyle, and activities or surgical correction might be necessary.

What can I do for myself?

You should use as many of these treatments as possible concurrently:

- q Wear appropriate shoes. The shoes should have ample cushioning. High heels must not be worn.
- q Add a good cushioned insole in your shoe. (We recommend ProLab PreFab Insoles – these insoles can be purchased at The Depot Store next to the Department of Foot and Ankle Surgery.)
- q Perform self callus care or have calluses trimmed on a fee for service basis. (Callus care can be performed by filing the area on a weekly basis with a pumice stone or callus file after a bath or shower. Callus care is not a benefit provided by the Kaiser Health Plan.)
- 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 Modify your activities. (Avoid squatting, going up on your tiptoes, downhill walking, and high heels. Decrease the time that you stand, walk, or engage in exercise that puts a load on the balls of your feet. Convert impact exercise to non-impact exercise – cycling, swimming, and pool running are acceptable alternatives.)
- q Use ice on the painful area for 15-20 minutes, at least 2-3 times per day -especially in the evening. (Option A - 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. Option B – Rest the affected area on an ice pack 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 See your doctor when you have failed to respond to the above regimen after three months of application.

What can my doctor add?

- q Refer you for custom-made 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 Add an accommodative forefoot extension to your orthotics (designed to float or unweight the metatarsal bone).
- q Add metatarsal pads to your insoles or orthotics - these pads can also be purchased at The Depot Store next to the Department of foot and Ankle Surgery.
- q Teach you splinting or padding techniques so that you can use them on a daily basis.
- q Prescribe physical therapy. (Ultrasound and interferential electric current therapy can be useful methods of reducing inflammation.)
- q Administer cortisone injections. (Injection of cortisone is a potent way to reduce inflammation and expedite the recovery process. Cortisone does not replace the need for supportive shoes, foot orthoses, calf stretching, and other physical measures. The risks of cortisone injections for metatarsalgia include, but are not limited to: increased pain for 24-72 hours following the injection, fat pad atrophy, depigmentation of the top of the forefoot, weakening of adjacent joint ligaments with potential dislocation of the toe, and infection. Systemic side effects of this type of injection are extremely rare.)
- q Put you in a cast. (To rest the area and allow it to heal.)
- q Perform surgery. (Surgery may involve a number of procedures, including hammertoe repair and/or metatarsal osteotomy / bone repositioning, and/or bunion surgery. The surgery is done 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. Recovery may take 3-6 months. The success rate is approximately 75%. Approximately 20% are improved, but may still have some limitations or footwear or activities. About 5% are no better or worse. Risks include, but are not limited to: infection, recurrent pain or callus, transfer of pain or callus to an adjacent metatarsal, recurrent hammertoe deformity, broken pins or hardware, delayed or non-healing of bone, nerve injury or entrapment, delayed incision healing, prolonged recovery, incomplete relief of pain, no relief of pain, worsened pain, and circulation impairment or loss of the adjacent toes.)