

Metatarsalgia

Definition

Metatarsalgia is a generic term for pain or discomfort in the sole of the forefoot (the ball of the foot). It is an inflammatory condition of metatarsal heads due to a drop or collapse of the metatarsal arch. The arch flattens and the bone ends (metatarsal heads) move closer together causing the soft tissue to be pinched or trapped between the bones. With every step, the arch rises and falls causing repeated stress to the area. More specific types of Metatarsalgia can

- Morton's Neuroma (nerve issue)
- Bursitis
- Arthritic joint change
- Stress Fractures

Symptoms

- Vague pain, ache or burning in the sole of the forefoot, during weight-bearing activities
- Tingling / numbness in toes
- Sharp or shooting pain in toes
- Aggravated when dorsiflexing (lifting) toes
- Callousing under 2nd, 3rd and 4th toes
- Feeling of "walking on pebbles"

Causes

Anything that puts extra stress on the forefoot can cause Metatarsalgia. Common examples are:

- Use of improper footwear (i.e. high-heeled shoes and boots)
- High-arched or "cavus" foot or flat arch feet "pes planus" which causes the bones in the front of the foot (metatarsals) to point down into the sole to an excessive extent, or a long metatarsal bone which takes extra pressure
- Claw or hammer toes which press the metatarsals down towards the ground
- A nerve problem near the 3rd and 4th toes
- A stretched or irritated nerve in the ball of the foot (inter-digital neuroma) or behind the ankle (tarsal tunnel syndrome) can produce pain in the ball of the foot
- A bunion or arthritis in the big toe can weaken the big toe and throw extra stress onto the ball of the foot. Increase activity may get stress fractures of the metatarsal bones
- Tightness in calf muscles, or a change in shoe heel height
- Arthritis, gout or inflammation of the joints in the ball of the foot (metatarso-phalangeal joints) can produce local pain
- Diabetes can produce irritation of the small nerves in the foot leading to a burning pain



Treatment

FOOT ORTHOTICS

Foot orthotics is the most effective, permanent way to treat Metatarsalgia and to avoid re-injury. The orthotic is fabricated with a dome, which is placed behind the ball-of-the-foot to relieve pressure, 'create a metatarsal arch' and redistribute weight from the painful area to more tolerant areas.

FOOTWEAR

If improper fitting footwear is the cause of the pain, the footwear must be changed. Footwear designed with a high, wide toe box (area around the toes) and a rocker sole are ideal for treating Metatarsalgia. The high, wide toe box allows the foot to spread out while the rocker sole reduces stress on the ball-of-the-foot. Wear shoes with a moderate heel height. We recommend a heel height of 1/2" to 3/4". A lower heel height tightens the Achilles tendon.

FOOT EXERCISES

Stretching:

Tight calf muscles lift the heel earlier than normal when walking. Hence you are standing and walking on your toes most of the time, stressing the metatarsals. A flexible tendon and calf muscle decreases strain on the injury, so stretching the calves will help the symptoms but will not fix the problem.

Icing:

Helps to reduce swelling, thus reduce internal pressure. We recommend once or twice a day for no more than 20 minutes at a time.

Stop:

Running and extended walking. Rest the foot, try other forms of exercise. Varying your workout with a less foot-dependent sport (e.g. swimming or cycling) may be all you need in the early stages. If you've just started to notice a tender area you may get over it quickly just by resting the affected foot.

Anti-Inflammatory Medicine:

Cortisone injections or oral anti-inflammatory medication may relieve symptoms, but does not address source of the problem.

SURGICAL OPTIONS

The great majority of people with Metatarsalgia will be helped by the measures outlined above. In some instances, an operation may help to:

- Release a trapped nerve or removal of an irritated nerve
- Straighten a hammer or claw toe to take pressure off the metatarsal bones
- Reshape or shorten prominent metatarsal bones (Weil osteotomy)

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