

**Definition** A Morton's neuroma is an enlarged nerve that situates itself in the 2<sup>nd</sup> or 3<sup>rd</sup> interspace of the foot. It occurs about 60% of the time in between the 3<sup>rd</sup> and 4<sup>th</sup> metatarsal and 40% of the time between the 2<sup>nd</sup> and 3<sup>rd</sup> metatarsals. It is found under the subcutaneous tissue in the ball of the foot and has the deep transverse ligament above it. Many factors contribute to the irritation of the nerve including foot biomechanics (flat feet, close metatarsals, bunions), type of shoes (narrower ones cause more compression and high heels shift weight to forefoot), trauma and sometimes tumors. The compression of the nerve causes it to get inflamed and larger in a confined space.

**Signs and Symptoms:** The pain is mainly found in the ball of the foot, but could radiate on top. It can be sharp, shooting, burning and numb in any combination. Walking barefoot on hard surfaces and stepping on uneven surfaces can send sharp pains in the foot. Increased activity and running can aggravate it. Patients usually state that "it feels like something is moving inside my foot," "feels like a pebble is inside my shoe," "feel a clicking," "feel a sharp shooting pain when stepping on uneven surface," and "have some numbness and/or burning in my toes," or "feels like my toes are falling asleep."

**Treatments:** If the pain is significant, I generally recommend a cortisone injection to reduce the inflammation and size of neuroma (1 or 2 recommended). Anti-inflammatories and ice may be used in conjunction with wearing wider shoes with a soft insole. Croc sandals are very effective also. Orthotics may be indicated if conservative treatment is wanted and usually works about 40-60% of the time. A metatarsal pad is generally added to the orthotic so weight is distributed behind and in front of the neuroma. They also help widen the space between the metatarsal heads, so the neuroma becomes less impinged. If these measures fail, alcohol sclerosing injections of the nerve is

recommended to desensitize the nerve (it generally takes 4-7 injections 10-14 days apart to notice a difference). It has minimal side effects and no time off is needed from work and is effective up to 80% of the time. Surgical excision of the nerve is generally the last resort. Side effects include development of a Stump neuroma, which can be as or more painful as previous, hematoma and infection. The treatment for a stump neuroma is injection with the alcohol sclerosing agent and/or further surgery. New treatments are coming that do not require surgery, but will wait until more data and research is conducted.

I always try to treat neuromas by all conservative means first, as surgeries always carry a risk!

