By Mitchell Prosthetics & Orthotics – Serving Duncan, Nanaimo, Comox
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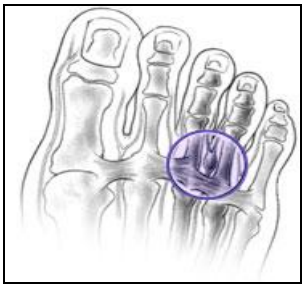
CONSERVATIVE MANAGEMENT OF MORTON'S NEUROMA – A Biomechanical approach

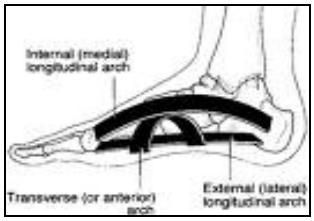
- Most often blamed on poor footwear
- Inappropriate pronation and depressed metatarsal arches likely the cause
- Clinical competency coupled with orthotic design have greater efficacy

This benign neuroma of an **intermetatarsal plantar nerve** is one of the less common foot ailments but can result in frustration both for the physician seeking conservative solutions as well as for the client looking for relief. One of the recommended treatments is custom foot orthotics. These will have various success rates depending on the type of orthotic dispensed and the knowledge of the dispensing clinician. Without a thorough understanding of the relationship between the arches of the foot and how they each contribute to the overall health of the foot, successful management of Morton's neuroma may be compromised.



Morton's Neuroma is most often blamed on poor footwear selection. However, a significant number of clients have no history of wearing inappropriate footwear. It may be time to consider **biomechanical influences** as the likely cause of Morton's neuroma.

The **Medial Longitudinal Arch,** the **Lateral Longitudinal Arch** and the **Transverse or Metatarsal Arch** all work interdependently to form a plantar "vault". This architectural design optimizes strength yet permits sufficient flexibility to accommodate changes in terrain.



When the Medial Longitudinal arch becomes too elongated or stays elongated too long (**excess or prolonged pronation**) the forefoot abducts and becomes unstable. Abduction causes the forefoot to stray laterally into the side of the shoe giving the impression that the shoe width is no longer appropriate. Overpronation also "unlocks" the 1st metatarsal ray. It becomes hypermobile during push off, allowing it to move upwards when ground forces are applied, thus transferring some of the push off force to the lesser rays. This excess workload on the lesser rays results in increased compression of the interdigital spaces.

The integrity of the **Metatarsal Arch** is important for the alignment of the metatarsal heads relative to each other. A laxity in the ligament structure maintaining this arch could result in plantar flexed rays and/or a widening of the ball of the foot as the metatarsal rays splay outwards. This again gives the impression that the footwear is causing compression across the toe box.

Success when prescribing custom foot orthotics can be optimized by ensuring your orthotic provider fully understands the biomechanics of the feet and is able to provide a product that can effectively control the overpronation as well as integrating sufficient metatarsal support to lift and separate the joint space irritating the neuroma.