

# Monthly Newsletter

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**Accepting new patients**

Contact Your Foot

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## Shoe Series – Shoe Construction - Last

The “last” of the shoe is a bit confusing. It is a term used to describe the shape of the shoe **and** the manufacturing technique used.

When shoes were all made by hand, the last was a piece of wood carved into the general shape of the recipient’s foot that the cobbler would use to build the shoe around to get a specific shape and fit.

Nowadays that is only done to make custom shoes. A cast of the person’s foot is taken by a chiropodist and sent to a cobbler who makes a last and then hand-makes a shoe based on that last. It is a highly skilled, time-consuming process that makes the perfect fit for that one person, hence the hefty price for custom shoes. Similarly, custom orthotics use a similar process.

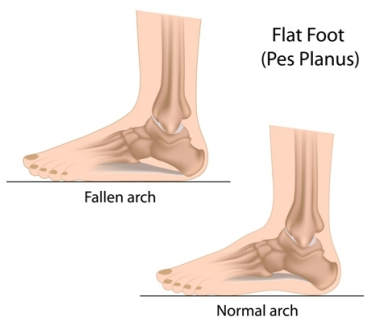
That process has been simplified for the mass-produced shoes of today.

Through huge amounts of data, shoe companies have found “average foot shapes”. Any given company will have a certain number of lasts that they build their shoes around, which might range from a few, to many. They might have a “flat foot last”, that takes foot shapes from thousands of people with flat feet and makes an average flat foot shape out of it that all their shoes for flat feet are designed around. Likewise, they might have one for middle and higher arched feet. Then they repeat this process for men and women across all sizes.

As you can imagine, the more last shapes, the higher cost in research and production there

## Oh No!!

*In Dec, we had 12 patients that failed to attend their appointment! Please do let us know if you cannot attend so we can offer your slot to a patient on our waiting list*



## Shoe Series – Shoe Construction – Last (Cont'd from previous page)

will be. If you only made 3 last shapes you would not need nearly as much data to design them, or materials to make them.

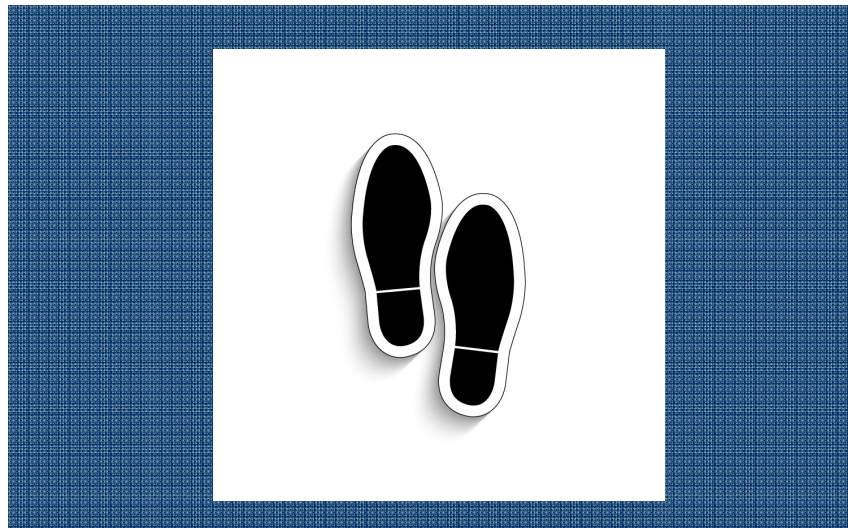
With more last shapes comes more time, data and material options, as well as extra time to set up machines to make different sizes and shapes of materials. For the consumer that means more shoe shapes, widths and depths. One of the reasons orthopaedic shoes cost more is because of this process.

Orthopaedic shoe companies have **many** last shapes to fit an individual's specific foot type.

Simply categorized, shoes have 1 of 3

last shapes: curved, semi-curved or straight. High arch feet fit curved lasts, low arch feet fit semi-curved lasts and flat feet fit straight lasts. The width and depth of the shoe is also based on the last.

As we said earlier the “last” refers to both the shape (described above) and the manufacturing technique. In the manufacturing technique sense of the word, a last is the portion of the shoe that the upper attaches to, which is sandwiched to the midsole or outsole. A last can either be a slip last, a board last, a strobel last or a combination last. A board last is where there is a cardboard (or plastic) board under the foot that the upper is stitched to. A slip last is where the two sides of the upper are



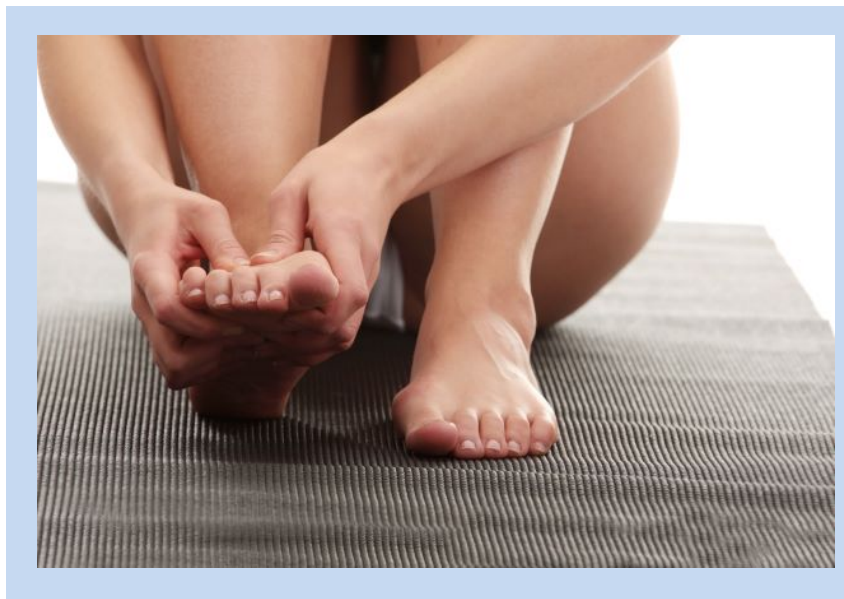
wrapped and stitched to one another. A strobel last is much like a board last, but instead of a firm material, a softer, lighter material is used to attach the upper to. A combination last is where there is a board last on the heel portion of the shoe for added stability and slip or strobel last at the forefoot part of the shoe for flexibility.

The insole covers the last for comfort. Most insoles are simple - just some padded foam on top of the last for some cushion and comfort. If you are buying a shoe to use orthotics with, make sure the insoles are removeable!

## Morton's Neuroma

What is it? Morton's neuroma is a benign growth on the nerve that runs between the metatarsal bones and supply sensation to the toes. Most commonly, Morton's neuroma develops between the 3<sup>rd</sup> and 4<sup>th</sup> metatarsal heads. When the growth gets compressed, between the metatarsal bones, it causes pain. Typically, the pain is on the ball of the foot and may radiate to the ends of the toes. "Nervy" This condition usually develops because of microtrauma to the nerve. This microtrauma happens

because there is not much space for the nerve to pass between two metatarsal bones (on either side of the nerve), the ground (underneath the nerve), and the deep transverse ligament (on top of the nerve). Add compression and pressure to an already small space and you have a recipe for Morton's neuroma. Compression is added by tight or pointed footwear, heeled footwear, overpronation, generally wide feet, hammer toes and bunions (makes shoes tighter).



Diagnosis can be made clinically based on history, symptoms and in-clinic testing. Findings can be confirmed via imaging such as ultrasound or MRI.

So how do you treat it? Firstly, it is best to talk to a foot specialist such as a chiropodist about your condition. You will be guided through treatment using conservative treatments first, then progressing based on how the foot typically responds. The goal is pain resolution.

Conservative treatments include general rest, activity modification to avoid aggravating activities, footwear changes to wider fitting shoes, and custom foot

orthotics with metatarsal pads.

If conservative measures fail, there are injection therapies which are quite effective. Typically, cortisone injections are used first. Cortisone is a potent anti-inflammatory that can be injected into the area 1-3 times based on how symptoms react to the first injection.

If cortisone does not help, denatured alcohol injections are a logical next step. These injections are performed weekly for 4-7 weeks. Alcohol concentrations vary from practitioner to practitioner between 4-20%. The lower concentrations minimize risk of post-injection pain, so many practitioners opt to use 4% concentration. The goal of

## Morton's Neuroma (Cont'd from previous page)

alcohol injections is to gradually desensitize the nerve and reduce the size of the neuroma. These weekly injections are continued until complete resolution or until they are no longer making improvement.

If all treatments up to this point have failed, then surgery should be considered. There are two commonly

performed surgeries. 1 – a neurectomy. A neurectomy is the surgical excision of the neuroma. Lasting side effects include numbness to the toes the nerve supplies (usually 3<sup>rd</sup> and 4<sup>th</sup>). The other surgery performed is a deep transverse ligament transection. In this surgery, the nerve and neuroma are left intact. Instead, the deep transverse ligament

is cut, which gives the nerve more space, so it is no longer irritated.

If you have any pain on the ball of the foot, be sure to contact a chiropodist for an assessment and treatment. ♦



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