

LESSER TOE DEFORMITIES

Deformities of the lesser toes can be caused by internal or external factors. Lesser toes refer to all of the toes (2nd, 3rd, 4th and 5th toes) except for the big toe. Deformities and conditions of the lesser toes may be caused by, but are not limited to:

- External factors, such as improper shoes or improper fit of the shoes
- Neuromuscular factors, such as Charcot Marie Tooth disease, Cerebral Palsy or Multiple Sclerosis
- Peripheral neuropathy, caused by diabetes or leprosy
- Inflammatory processes, including rheumatoid or psoriatic arthritis
- Trauma
- Muscle imbalance (internal factors)

While the cause of the problems can vary greatly, deformities of the lesser toes are dealt with similarly, by determining the most appropriate way to off-load or accommodate the problem. Conditions may include:

CLAW TOE DEFORMITY

Symptoms

- Pain and calluses or corns may occur dorsally on the distal interphalangeal (DIP) or proximal interphalangeal (PIP) joints, or interiorly at the tip of toe
- Pain at the metatarsal phalangeal (MTP) joint region

What is it?

This is a flexion deformity at both the DIP and PIP joints of the toe. These deformities can be fixed or flexible in nature. A flexible deformity can be passively corrected with the use of an orthosis or by passively manipulating the affected joint, but this is not possible with a fixed deformity where more accommodation is required in the treatment plan.

HAMMER TOE DEFORMITY

Symptoms

- An irritation or corn is often seen at the dorsal aspect of the PIP joint, or plantarly under the pad of the toe tip

What is it?

This is a flexion deformity of the PIP joint with an extension deformity of the DIP joint, while the MTP joint remains in a neutral or extended position. This condition can be fixed or flexible.

MALLET TOE DEFORMITY

Symptoms

- Pain and/or a corn may develop over the DIP joint dorsally and possibly on the plantar aspect of the tip of the toe

What is it?

This is a flexion deformity of the DIP joint with an extension deformity of the PIP joint, while the MTP joint is neutral. This condition can be fixed or flexible.

CORNS

Symptoms

***Hard corns:** have a nucleus (cone shaped centre or root) whose tip or point can penetrate into the deeper layers of the skin. Symptoms include:

- Pain usually on lateral aspect of the 5th toe or on the tops of toes (due to pressure/friction of a shoe)
- Usually caused by poor fitting shoes
- Also tend to present under areas of high pressure such as under metatarsal heads

CORNS

***Soft corns:** also have a core, but not always painful. Symptoms include:

- White, damp soft corns are usually found in the web space between toes
- Soft corns occur due to chronic irritation to skin between adjacent toes and can be caused by: o pressure (constant squeezing together of toes) o underlying bony prominence (most often between 4th and 5th toes where the metatarsal heads or phalanx rubs against the base of phalanx of adjacent toe)

What is it?

Corns are conical hyperkeratoses that develop on the skin due to friction/shearing and pressure. Primary causes of abnormal shearing are abnormal subtalar joint pronation or hypermobility of weight-bearing bones. Ill-fitted footwear can also create shearing and pressure leading to the development of corns.

CALLUSES

Symptoms

- Patches of thick, hard skin over an area of high pressure

What is it?

Calluses are areas of localized thickening of skin which develop in response to repeated friction and pressure. A callus formation usually occurs to protect underlying tissue from repeated pressure and friction. As calluses grow and thicken in response to continued pressure, they can themselves cause pain and discomfort. In some individuals with metabolic disorders like diabetes, calluses can develop into open wounds and require careful monitoring and treatment to relieve the cause of the pressure.

PLANTAR WARTS

Symptoms

- Pain on the sole of the foot
- Usually identified as a rough or spongy area with tiny dark spots
- Scraping at a wart may cause it to bleed
- Painful if the area is squeezed side-to-side (a callus is usually painless when squeezed side-to-side)

What is it?

Warts are the most common type of skin infection caused by a virus. Plantar warts occur when the human papilloma virus invades the skin usually through tiny cuts or breaks in the skin. In some cases the virus may die within a period of time and the wart will simply disappear. The virus is often encountered where people share common bathing areas such as public locker rooms, showers and pools.

Pedorthic Treatment

With a prescribing physician's recommendation, Canadian Certified Pedorthists may use over-the-counter devices or may create custom-made orthoses featuring metatarsal pads or metatarsal bars to redistribute pressure away from the painful or affected areas, as well as reducing the metatarsal head contact with the ground. Additionally, cushioned materials may be incorporated into shoes to directly reduce the discomfort of the painful areas, and provide better distribution of pressure over a wider surface area to decrease specific mechanical irritations. Appropriately fitted footwear is important in reducing pressure on prominent joints of the lesser toes.

PEDORTHIC POINTERS FOR PATIENTS

To alleviate the pain caused by lesser toe deformities, Canadian Certified Pedorthists recommend selecting footwear with:

- Wide, deep, square toe box to allow proper room for toes
- Toe box without stitching to avoid irritation
- Rockered sole (where toe part does not touch the ground) to decrease stress and pressure on the ball of the foot
- Proper fit to prevent mechanical irritation.

Where required, Canadian Certified Pedorthists will also spot stretch leather over areas where the shoe rubs to minimize discomfort and

potential irritation. Custom orthoses can be created to reduce pain and pressure on specific areas such as the ball of the foot. Padding can also be used to protect painful corns and calluses.