

# DIABETES

Diabetes is one of the most prevalent diseases of our time, and is affecting more and more Canadians. It is a disease where the body is unable to produce insulin (Type I - juvenile onset), or the body does not produce enough or cannot effectively utilize what insulin it does make (Type II - late onset). There is a third type of diabetes that occurs during pregnancy called Gestational Diabetes.

Although diabetes affects several parts and systems of the body, long-term complications are frequently manifested in foot problems. Since the extreme consequence of these complications can be amputation, footcare for someone with diabetes must become a daily priority. In fact, foot problems such as infection, ulceration or gangrene that may lead to amputation, are a leading cause of hospitalization for Canadians who have been identified as having diabetes.

## Symptoms

There are various effects of diabetes on the lower limbs ranging from slight skin discoloration to severe skin breakdown (ulcers) and infections. Some of these symptoms are:

- **Skin blanching:** refers to the "white" discoloration of the skin when pressure is applied to an area and then removed. If significant skin blanching is present it can indicate that circulation is compromised to that area. Precautions must be taken to increase circulation and decrease pressure points in order to minimize potential skin damage due to pressure such as calluses and blisters which can lead to further complications and health issues.
- **Redness:** refers to the remaining "red" areas that appear even after shoes are removed. Typically the joint of the big toe, the tops of the toes, or the dorsum of the foot are areas to consider carefully. To healthy patients, these skin irritations might not pose any problems, but are of great concern to people with diabetes as they indicate areas of high pressure from the shoe that could ultimately turn into ulcers and infections (secondary to limited blood flow required for adequate healing).

- **Leg hair:** as hairs need oxygen to grow properly, patients with very limited circulation will often have dry, flaky skin with very little hair on their calves and feet.
- **Numbness or tingling (neuropathy):** constant elevated blood sugars can damage nerve endings, causing numbness or a tingling feeling in the feet. Patients may notice lessened feeling in their feet, or that they get cold easily - possibly followed by sensations of pain and burning. Patients may be equally unaware of this loss of sensation.
- **Ulcers:** open sores and wounds can easily become infected when bacteria invade brittle skin. If left untreated, these infections can become serious, and involve the underlying bone (osteomyelitic ulcers). Very advanced stages can develop gangrene, and the infected part of the limb may need to be amputated.

## **Pedorthic Treatment**

For people with diabetes, gradual loss of feeling in the feet can interfere with their ability to monitor the health of their feet. As a result, friction or rubbing can go unnoticed and worsen into a break in the skin, or an ulcer. Shoes can be tied too tightly, hindering circulation. For these reasons, it is important for all people living with diabetes to have annual checkups and have shoes professionally fitted.

Patient treatments will vary according to the presence of ulcers, foot deformity, and loss of sensation. With a prescribing physician's recommendation, Canadian Certified Pedorthists may use over-the-counter devices or may create custom-made orthoses to "offload" risk areas of the foot, or simply to increase cushioning to the soles of the feet. This is particularly important for patients with neuropathy. Canadian Certified Pedorthists can also modify a patient's existing footwear to relieve pressure areas by removing stitches at heavy seams, on the joint of the big toe for example, or stretching the shoes. Additionally, Canadian Certified Pedorthists can offer a range of stockings and socks including graduated compression stockings that help control swelling, and seamless socks that reduce pressure across the tops of the toes. The goal of treating a patient with diabetes is to educate the person and train them to visually examine their feet rather than relying on how their feet "feel." It is also important to reduce any pressure areas to reduce risk to the foot and to control abnormal motion to allow the foot to work as efficiently as possible.

## **PEDORTHIC POINTERS FOR PATIENTS**

People living with diabetes often have reduced circulation and sensation in their feet, and are not able to feel if something in the shoe is irritating their feet. If the foot is irritated by the shoe, it can cause a wound or ulcer, which can be very dangerous for a person with diabetes.

### **Shoe selection and footcare are vitally important.**

For patients with diabetes, Canadian Certified Pedorthists recommend the following footcare and shoe fitting tips:

#### **Footcare**

- Check your feet daily by visually inspecting them. Be alert for redness, swelling, broken skin, sores or bleeding. See your doctor immediately if any of these problems arise
- Wear shoes around the home - as well as outdoors - to protect feet from injury
- Wash your feet with soap and warm water every day, but do not soak them
- Avoid heat pads or hot water bottles even though your feet might get cold easily because with a lack of sensation it is easy to burn the feet if the water is too hot
- Avoid socks with heavy seams, as they can cause irritation of the skin and lead to breakdown or ulceration
- Avoid tight constrictive socks and clothing that can limit blood flow to the extremities

#### **Shoe Selection**

- Have your shoes fitted properly by a trained specialist such as a Canadian Certified Pedorthist
- Key features for diabetic footwear include soft uppers with minimal seams, firm but cushioned soles, removable insoles, a strong heel counter, and a roched sole
- Avoid restrictive footwear such as high heels with pointed toes or shoes that are narrow in style
- When buying new shoes, a good practice is to remove the insole from the shoe and stand on it to see if your foot overlaps the insole, indicating that the shoe is too narrow or short for your foot

- There should be a full finger width between the end of the longest toe and the end of the shoe
- Avoid seams over the toe area of your shoes. Seams resist stretching and Create bumps that can rub against the skin and cause it to break down or ulcerate
- If you have a problem with lower limb swelling, graduated compression stockings can help control swelling and improve the fit of shoes over the course of a day