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Québec 

**Educational
program for people
with diabetes**

5

**Diabetic Ketoacidosis
Long term complications
Sexuality
Footcare**

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PREVENTION

Maintain your blood sugar as close to target as possible by eating healthy, exercising regularly and taking your medication as prescribed.

Have your blood pressure checked by a health care professional at every medical visit.

Stop smoking. Smoking impedes blood flow and delays healing, significantly increasing amputation risks.

Have your feet checked once a year by your doctor or a foot care specialist. The exam must include a sensitivity test. It is done with a small tool including a small wire, called a monofilament.

WHEN IS IT TIME TO SEE A DOCTOR?

See a doctor **without delay** if you notice:

- Signs of infection at the wound site (redness, pain, heat upon touching, swelling, discharge that smells peculiar, fever);
- Abnormal coloration or insensitivity in your legs or feet.

PROBLEMATIC SITUATIONS

Cold feet

Wear socks if your feet get cold at night.

Move your feet and ankles for a few minutes, a couple of times per day, to improve blood circulation.

Never put a hot-water bottle or a heating cushion on your feet. Avoid putting your feet on heating devices to warm them up. You could burn yourself without noticing it because of decreased sensitivity.

Treating a minor foot wound

Clean the wound with a clean cloth and cool salted water.

Salted water recipe:

- Bring 250ml (1 cup) of water and 2.5 ml (1 /2 tsp) of salt to a boil for 1 minute.
- Let cool.
- May be stored in the refrigerator for 24h.

Rinse and dry gently.

Cover the wound with a dry dressing without tightening it around the foot. Do not apply adhesive directly on the skin.

Do not apply antibiotic ointment without a medical prescription.

Avoid walking on the wound.

Check the wound daily to detect signs of infection.

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WHY IT IS IMPORTANT TO TREAT DIABETES?

The advantages of treating your diabetes are:

- ◆ Improving your quality of life;
- ◆ Avoiding the side-effects of abnormal blood sugar level, that is too high (hyperglycemia*) or too low (hypoglycemia*);
- ◆ Avoid ketoacidosis and hyperosmolar coma.
- ◆ **Reduce your risks of developing long term health problems.**

To do this, you must:

- Reach and maintain blood sugar levels as close as possible to a normal reading, for as long a period of time as possible;
- Adopt healthy lifestyle habits (eating, physical activity, weight control, stress management);
- Eliminate anything which harms your health (e.g.: smoking, etc.);
- Follow your treatment for diabetes and associated conditions (cholesterol, high blood pressure, etc.) as recommended;
- Meet with your doctor regularly.

* You will find more information about hypoglycemia and hyperglycemia in Booklet 4.

SOCKS AND SHOES

Change your socks every day, and more often if you perspire.

Favor light-colored socks, to be able to detect any wound- or cut-related discharge.

Buy seamless socks to avoid that source of pressure on your skin. Avoid tight socks and stockings that compress blood flow.

Buy your shoes at the end of the day, when your feet are more swollen. The sole must be soft and the heel must not be higher than 5 cm (2 inches).

Examine the inside of your shoes before putting them on, to detect the presence of an object or a pucker in the lining, which could hurt you.



Wear rubber sandals in public places such as pools, beaches or showers.

Avoid walking barefoot, even at home.

If skin is dry, apply a thin layer of unscented moisturizing lotion on all the foot surface, except in between toes.

Examine your feet closely, under a good light. It might be necessary to use a mirror to see the sole of your foot well. Ask for help from someone, if necessary.



REGULARLY, AFTER YOUR BATH OR SHOWER

File your nails, always in the same direction, avoiding back-and-forth motion. Avoid nail clippers or any other sharp or metallic object.

Make sure your nails are not shorter than the tip of your toes, to avoid ingrown nails.



Scrub calluses softly with a damp pumice stone, always in the same direction, avoiding back-and-forth motion.

Do not try to take off all calluses at one time.

Do not try to take out corns yourself, and do not use over-the-counter products and accessories to deal with that problem.

If you have mobility or vision issues, or if you notice lesions, important calluses or corns, or ingrown nails, it is recommended to see a foot care specialist.

KETOACIDOSIS (TYPE 1 DIABETES)

What are ketones?

If there is not enough glucose to feed the cells or if there is not enough insulin to make the glucose enter the cells, the body begins to transform fats for the energy they contain. This brings about the production of ketones, acid chemical substances, which are harmful to the body if they are in large quantities. The ketones circulate in the blood, are partially filtered by the kidneys and are excreted in the urine.

What is ketoacidosis?

Ketoacidosis is a dangerous accumulation of ketones in the blood secondary to a lack of insulin. It must be treated immediately.

Ketoacidosis = extremely unbalanced diabetes

SYMPTOMS

- ◆ Thirst;
- ◆ Increase in the frequency of urination;
- ◆ Headaches;
- ◆ Blurred vision;
- ◆ Nausea, vomiting;
- ◆ Abdominal pain;
- ◆ Dizziness;
- ◆ Accelerated pulse;
- ◆ Difficulty breathing;
- ◆ Shortness of breath;
- ◆ Fruity breath (bad taste in the mouth);
- ◆ Often associated with rapid loss of weight.

Ketone testing is done by taking a blood (fingertip) or urine sample.

When should you check for ketones?

- ◆ If you have type 1 diabetes and your blood sugar remains higher than 14 mmol/L;
- ◆ If you have type 1 diabetes and you are experiencing diabetic ketoacidosis symptoms (see previous page);
- ◆ During episodes of vomiting or diarrhea, no matter what the blood sugar level is;
- ◆ When you are sick (cold, infection, hospitalization);

Ketone testing is preferable with a blood sample (ketonemia, possible with certain blood sugar meters and special strips) than a urine sample, because it is more precise.

FOR MORE DETAILS CONCERNING KETONE TESTING, SEE BOOKLET #4—SICK DAYS.

FOOT CARE

Be good to your feet. This is necessary in daily life. Wound risks are frequent and any wound, no matter how small, can have dramatic consequences. Those risks are even more important if :



- ◆ You have had diabetes for a long time (over 10 years);
- ◆ You are older than 65 years old;
- ◆ You have problems with blood circulation;
- ◆ You have less sensitivity to pain or heat.

Those troubles may start to show slowly, without you noticing, it is then important to **prevent** them.

TO DO EVERY DAY

Wash your feet in warm water with a unscented soap. Dry the space between and under your toes well, because excessive humidity may promote infection. Avoid long footbaths (ideally less than 15 minutes).

Check water temperature with the wrist or elbow to avoid burns.

General advice to help you prevent difficulties and maintain an active sex life:

- ◆ Keep diabetes under control;
- ◆ Adapt yourself as best you can to the limitations posed by your diabetes;
- ◆ Adopt good lifestyle habits;
- ◆ Avoid smoking and alcohol;
- ◆ Give yourself pleasurable moments.

LONG-TERM COMPLICATIONS

DID YOU KNOW THAT PROLONGED HYPERGLYCEMIA
(SEVERAL YEARS)
**INCREASES THE RISK OF LONG-TERM
COMPLICATIONS?**

RETINOPATHY



NEPHROPATHY



**CARDIOVASCULAR
DISEASE**



**NEUROPATHY
(feet and other systems)**



RESEARCH PROVES IT

LONG-TERM COMPLICATIONS

In this part of the booklet, you will learn about different complications that can arise as the result of prolonged hyperglycemia. We invite you to talk to your doctor about the ways of avoiding these complications or lessening their severity.

ARE LONG TERM COMPLICATIONS ALWAYS VERY SERIOUS?

No, because we can **slow** the progression of complications when they are detected in time. It is also possible to prevent them in the first place.

Stopping smoking is most important in preventing complications. The combination of diabetes and smoking spells trouble for your health. Smoking **significantly increases** the risk of developing long-term complications of diabetes. It is not easy to stop smoking but many smokers succeed after several attempts. The important thing is to keep trying to quit. Various methods of support are available :

- ◆ Quit Smoking Centers in your CSSS
- ◆ Quitnow helpline (1-866-JARRETE or 1-866-527-7383).

Men with diabetes

PROBLEMS	SYMPTOMS	TREATMENT
More frequent yeast infections (balanitis)	Redness at the tip of the penis Burning sensation when urinating Pain during intercourse	Cream or pills prescribed by the doctor Better control of blood sugar levels
Erectile disorder: Whether or not associated with diabetes Of various origins (anxiety, medication, vascular or neurological problems, smoking, alcoholism)	Difficulty in getting or maintaining an erection	See your doctor to identify the cause and treatments (medication, external erection, pump, penis implant, etc.) Seek professional help if necessary (psychologist, sex therapist).

Prevention :

Avoid excessive drinking or smoking that could cause vascular or neurological problems and interfere with the erection mechanism.

Women with diabetes

PROBLEMS	SYMPTOMS	TREATMENT
Decrease in vaginal lubrication	Irritation or pain during intercourse	To discuss with your doctor Sterile lubricant sold at the pharmacy (e.g.: Wet, Replens) Do not use vaseline.
More frequent vaginal infections (yeast infections)	Itching and redness in the vulva area. Pain during intercourse Thick, white-ish vaginal discharge.	Cream, tablets or vaginal suppositories prescribed by your doctor or suggested by your pharmacist Better control of blood sugar.

Prevention :

- ◆ Maintain good personal hygiene and use a mild soap (e.g.: Dove);
- ◆ Use unscented products (tampons, sanitary napkins, toilet paper, etc.);
- ◆ Avoid bubble bath and bath oils;
- ◆ Wear cotton underwear rather than those made of synthetics (nylon); they absorb humidity better, thereby decreasing the risk of yeast infections;
- ◆ Avoid wearing pants that are too tight.

The following parts of your body may be affected:

1. Eye (retinopathy)
2. Kidneys (nephropathy)
3. Heart and blood vessels (cardiovascular disease)
4. Nervous system (neuropathy) = feet, bladder, digestion, sexuality, etc.

Certain measures can be taken to decrease the risk to **all complications** :

A	A1C —good blood sugar control (usually ≤ 7%)
B	Blood pressure control
C	Cholesterol control
D	Drugs for diabetes and lower risk of cardiovascular disease
E	Exercise goals and healthy eating
S	Screening for complications—regular exams to monitor heart, feet, kidneys and eyes health
S	Smoking cessation
S	Self-management —stress and other barriers

RETINOPATHY

What is retinopathy?

The retina (the sensitive membrane at the back of the eye) is covered with tiny blood vessels that carry blood to the cells. In retinopathy, the retina slowly deteriorates and as it does, it loses its characteristics. This is caused by prolonged hyperglycemia in which the tiny blood vessels in the eye are broken or obstructed. Tiny hemorrhages can occur and you could lose part of your vision.

How can this be prevented?

- ◆ Report any change in vision to your doctor;
- ◆ Have an optometrist or ophthalmologist examine the retina depending on their recommendation (every year or 2 years).

How is it treated?

- ◆ Only an **ophthalmologist** can treat this problem;
- ◆ Retinopathy can be treated with a laser treatment or injections into the eye;
- ◆ You must realize that the treatment is a only a palliative measure and the retinopathy may progress if the diabetes is not well controlled.

SEXUALITY

Can diabetes affect your sex life?

Many people with diabetes have a very satisfactory sex life. However, certain difficulties may be encountered by others. It is, therefore, important for both men and women to talk about these difficulties.

If you feel weakness, fatigue or any other symptom related to **hypoglycemia** or **hyperglycemia**, you will probably not have much interest in sexual relationships. But if you are able to maintain your blood glucose level near normal, any physical discomfort associated with poor control of blood sugar levels will disappear and your interest in sex could thus be revived.



Maintaining good control over diabetes is an important factor in maintaining an active sex life. This is another advantage to keeping your diabetes well under control.

Signs of nerve damage :

FEET	<ul style="list-style-type: none">◆ Numbness, tingling;◆ Burning or pain sensation;◆ Decrease in sensitivity (heat, cold, pain).
DIGESTION	<ul style="list-style-type: none">◆ Bloating, reflux (stomach);◆ Constipation, diarrhea (intestines).
BLADDER	<ul style="list-style-type: none">◆ Frequent urination in small amounts or urinary retention;◆ Urinary infections.
SEXUALITY	<ul style="list-style-type: none">◆ Decrease in the ability to get or maintain an erection;◆ Decrease in vaginal lubrication.
OTHER	<ul style="list-style-type: none">◆ Disappearance of symptoms of hypoglycemia;◆ Hypotension (low blood pressure) when changing position.

How can neuropathies be prevented?

- Take care of your feet every day;
- Watch out for pain, swelling or lesions that do not heal;
- Ask your doctor to examine your feet at least once a year;
- See a doctor right away if you have a wound.

How are they treated?

Your doctor will be able to advise you about how to lessen pain in your feet (medication, creams) or deal with other symptoms affecting the digestion, elimination and sexual problems.

NEPHROPATHY

What is nephropathy?

The kidneys can be readily compared to a filter. When hyperglycemia is prolonged, the filter is damaged and allows important elements, **proteins**, to pass into the urine. The amount of protein found in the urine is related to the severity of damage to the kidney. Significant deterioration in renal function may require dialysis treatments.

How can you prevent nephropathy?

- ◆ A urine analysis will be done at least once a year to detect the presence of microalbuminuria (protein in the urine).

How is it treated?

- ◆ If there is an abnormal quantity of protein (microalbuminuria) in the urine, your doctor will prescribe medication that will decrease the excretion of proteins;
- ◆ Strict control of blood pressure;
- ◆ A low-salt (sodium) and low-protein diet may be helpful, speak with your nutritionist about it.

CARDIOVASCULAR DISEASE

What is cardiovascular disease?

Prolonged hyperglycemia may damage the major blood vessels (the **arteries**) causing hardening of the arteries and promoting deposits (atherosclerotic plaque). Over time, the arteries shrink and obstructions develop. The heart must therefore work harder to pump blood.

This carries a greater risk of:

- ◆ Heart attacks;
- ◆ Paralysis or stroke (CVA);
- ◆ Hypertension (high blood pressure);
- ◆ Circulatory impairment;
- ◆ Sexual problems (decrease in erection).

Signs of impairment

- ◆ Chest pain accompanying any exertion;
- ◆ Pain in the calf when walking or going up stairs;
- ◆ Slow healing of wounds of the lower members;
- ◆ Abnormal colouring of the extremities;
- ◆ There may be no symptoms, the disease may be detected during a resting or stress electrocardiogram (treadmill).

How can you prevent cardiovascular diseases?

- ◆ Practice physical activity regularly;
- ◆ Aim for a healthy weight;
- ◆ See your doctor if you have chest pain or breathlessness, cramps when walking, or a change of color in your toes.

How is it treated?

- ◆ Healthy lifestyle (diet, physical activity, stress management);
- ◆ Medication (cholesterol, hypertension, circulation);
- ◆ Medical interventions (dilation, bypass, surgery).

NEUROPATHIES **(Feet and other systems)**

What are neuropathies?

The nerves conduct electricity (neural impulses) throughout your body. They may be damaged by prolonged hyperglycemia. The transmission of information (through neural impulses) becomes more difficult. Neuropathy affects primarily the extremities (the feet) but may also affect the internal organs (the intestine, stomach, bladder and sexual function).