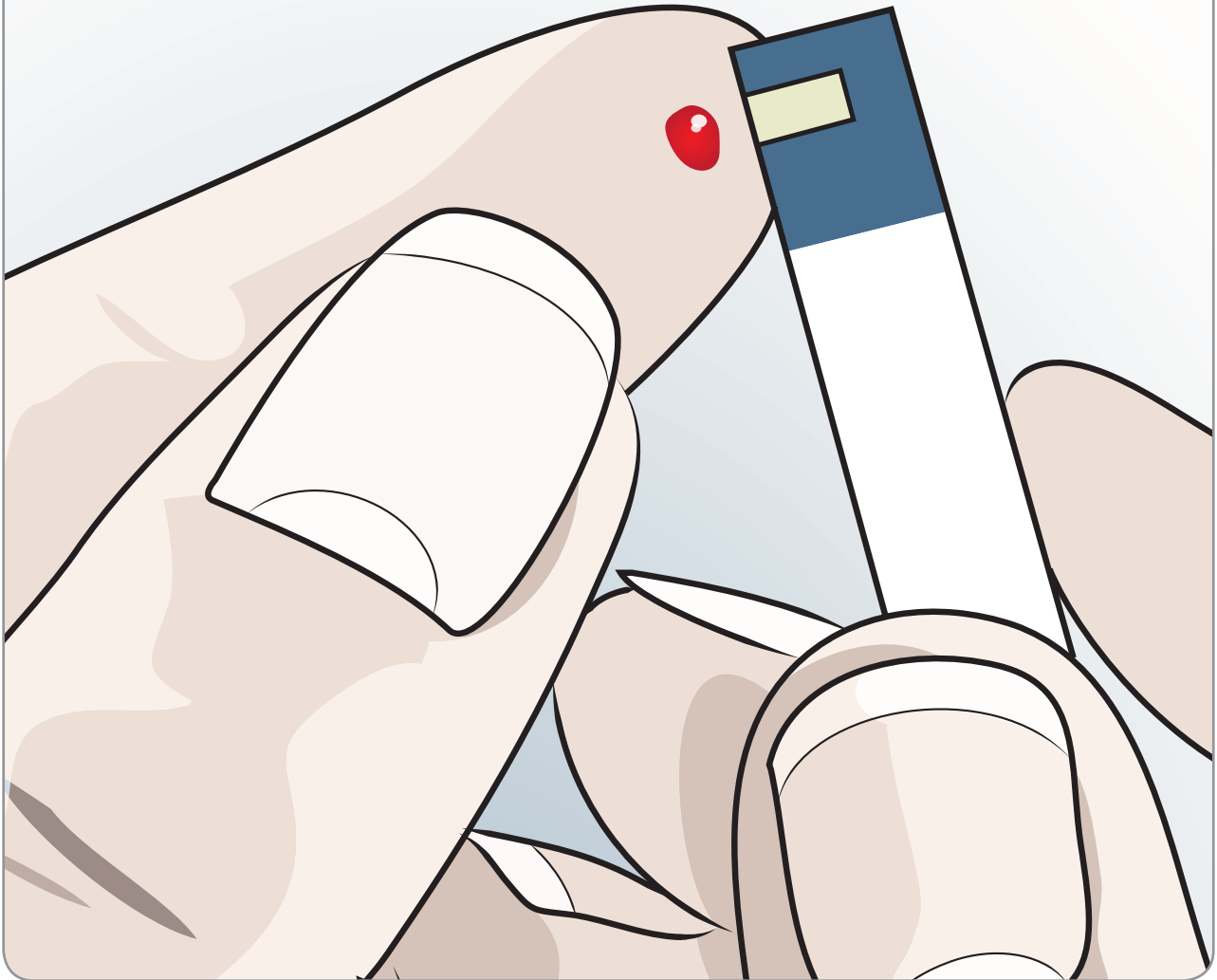




Your guide to

TYPE **2** DIABETES



In Memory of

Mr. Joshua Ronn
1915 - 2015

*Our deepest gratitude for his many years of dedication and support.
The legacy of his passion for better patient care is our inspiration.*



This material is also available at:
MUHC Patient Education Portal
muhcpatienteducation.ca

Acknowledgements

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IMPORTANT: PLEASE READ

Information provided by this booklet is for educational purposes. It is not intended to replace the advice or instruction of a professional healthcare practitioner, or to substitute medical care. Contact a qualified healthcare practitioner if you have any questions concerning your care.

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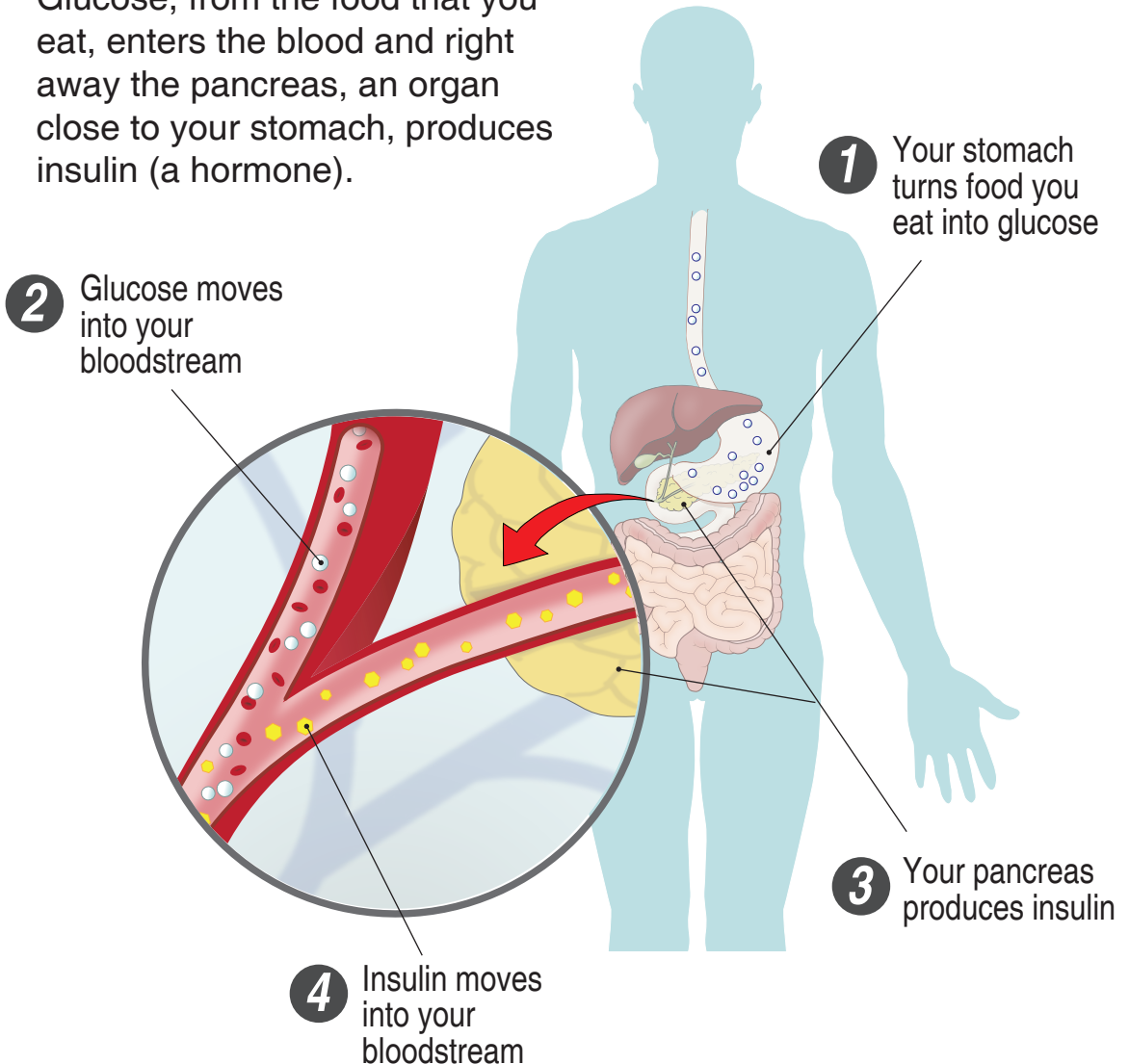
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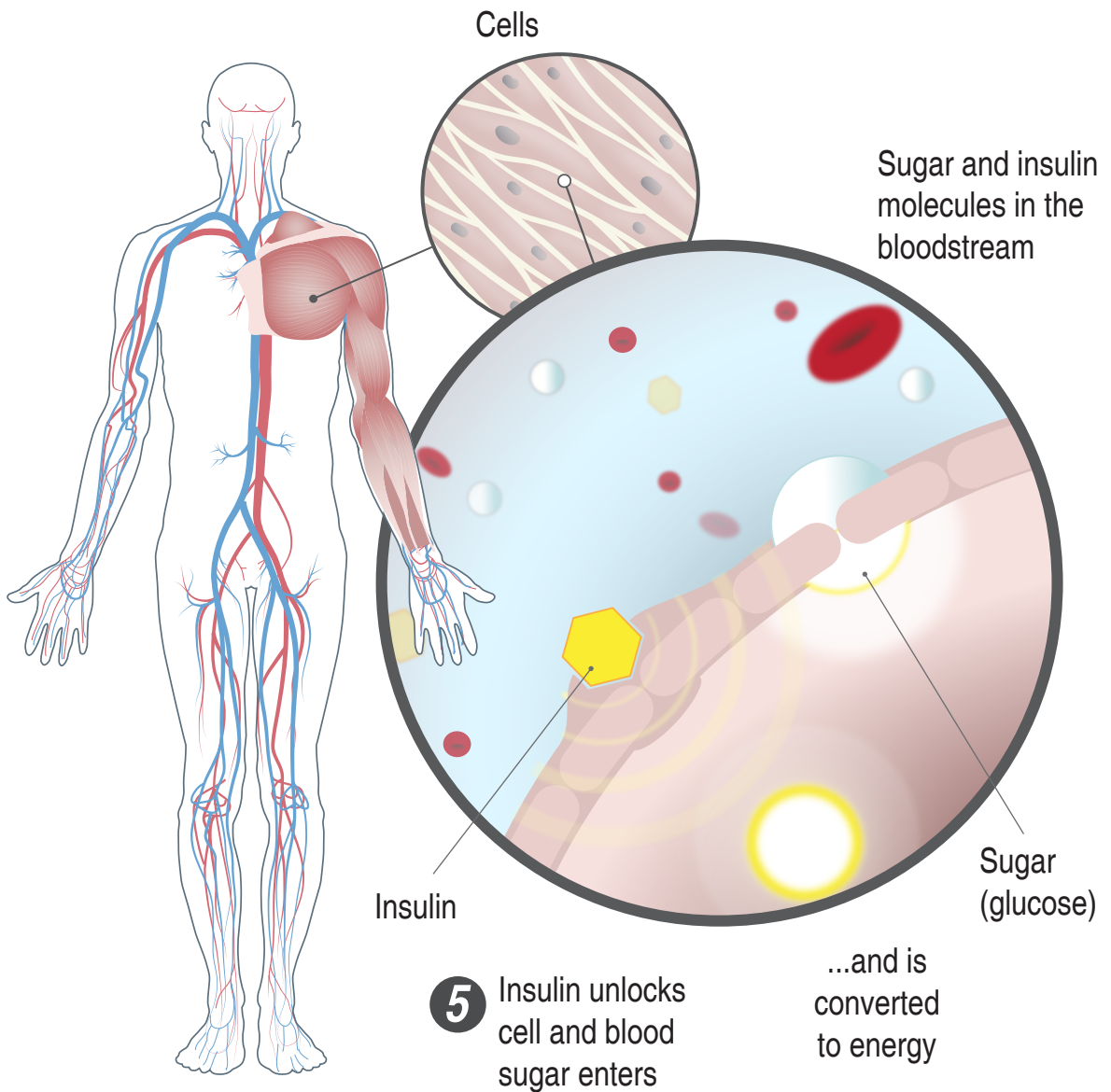
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WHAT IS DIABETES?

Diabetes or **hyperglycemia** means that there is too much sugar (glucose) in your blood.

Glucose, from the food that you eat, enters the blood and right away the pancreas, an organ close to your stomach, produces insulin (a hormone).



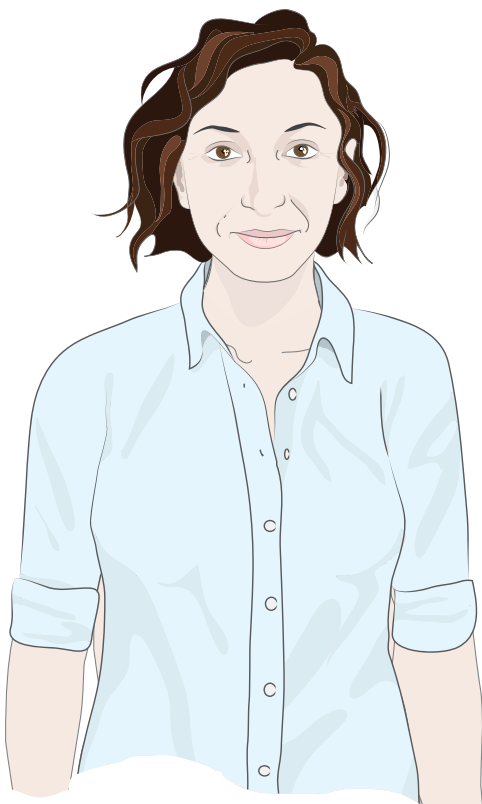
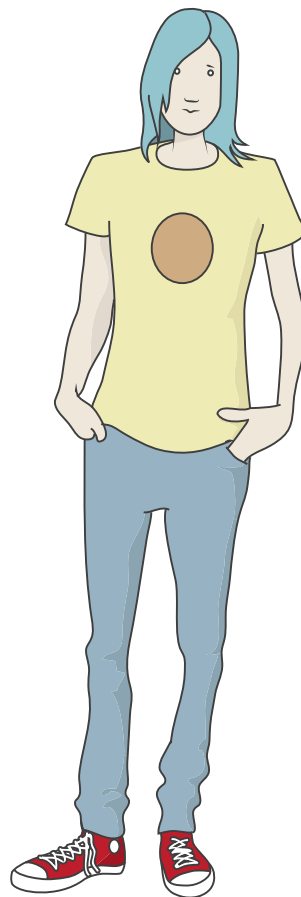


Insulin is the “key” that moves into your bloodstream and opens the “door” for glucose to get into your body’s cells, where it is stored and turned into energy.

TYPES OF DIABETES

Type 1

- Usually begins at an early age (less than 40 years old)
- The pancreas produces no insulin (beta cells are destroyed)
- Counts for only ~10% of the 2 - 3 million Canadians living with diabetes
- This type of diabetes always requires insulin



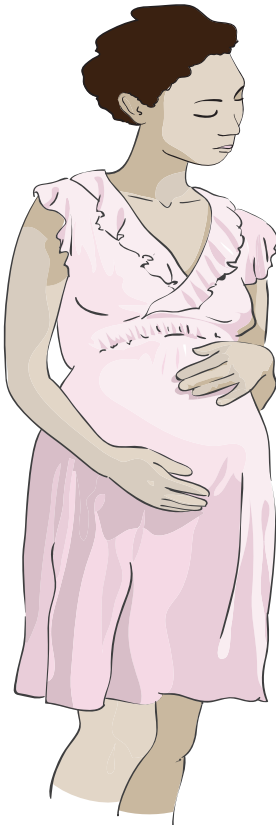
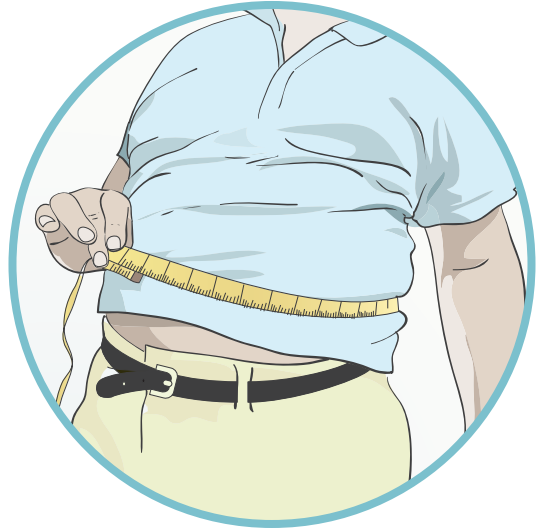
Type 2

- Usually starts at a later age (greater than 40 years old, but younger people are developing it as well due to obesity, children included)
- The pancreas does not produce enough insulin or the body does not use it properly

In this booklet we are addressing people with Type 2 Diabetes

Obesity

- With obesity, the cells are full and will refuse to store the glucose despite the presence of insulin. This is called insulin resistance.
- The pancreas is forced to make more insulin to overcome this resistance.
- With time, the pancreas will become exhausted and not keep up.
- Type 2 diabetes represents ~90% of the 2 - 3 million Canadians living with diabetes



Gestational Diabetes

- Diabetes occurs in as many as 1 in 10 pregnant women.
- 30% or more of women with gestational diabetes may develop Type 2 diabetes later in life.

WHAT CONTRIBUTES TO THE DIAGNOSIS OF TYPE 2 DIABETES?



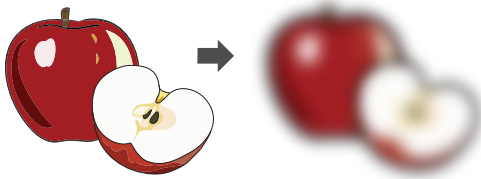
- Too much weight
- Lack of physical activity
- Insulin resistance
- Not enough insulin
- Family history
- Ethnic background

The Typical Symptoms of Type 2 Diabetes or Hyperglycemia are:

Frequent urination



Thirst



Blurry vision



Extreme tiredness



Sometimes no symptoms at all

WHAT SHOULD MY BLOOD SUGARS BE?

For non diabetic persons

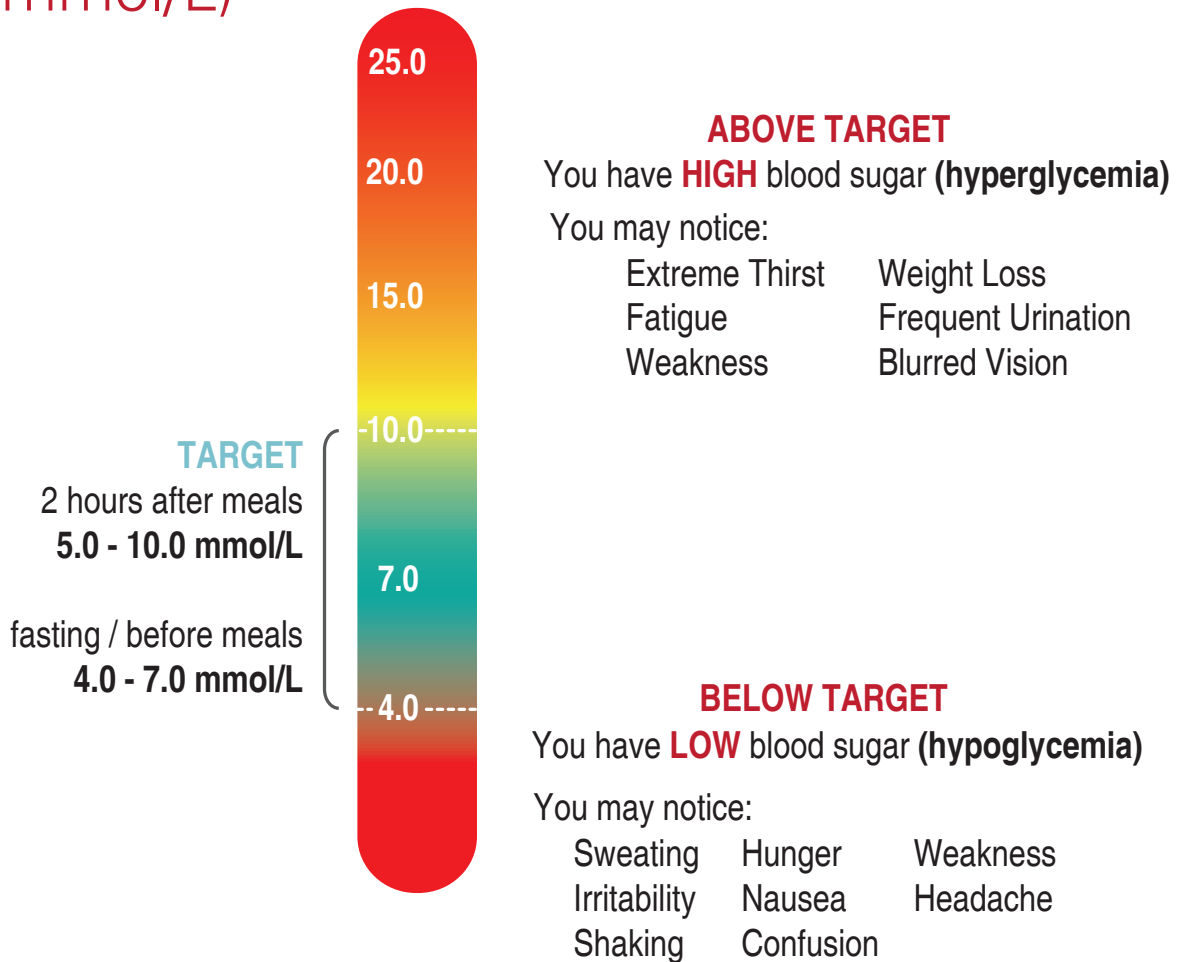
- normal fasting blood glucose range is **4.0 - 5.6 mmol/L** and
- 2 hours after a meal up to **7.8 mmol/L**

Acceptable levels for persons with diabetes is:

- before eating (AC) **4.0 - 7.0 mmol/L**
- 2 hours after eating (PC) **5.0 - 10.0 mmol/L**



What is Your Blood Sugar (Glucose) Level? (mmol/L)



Normal Range:

Fasting / before meals **4.0-5.6 mmol/L**.

2 hours after eating below **7.8 mmol/L**.

Normal range should be the goal if it can be achieved safely

Not everyone experiences symptoms when blood sugar levels are outside the target range. Blood glucose monitoring is the best way to determine your blood sugar level.

Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. Can J Diabetes 2013;37(suppl 1):S1-S212

YOU ARE THE CAPTAIN...

These are the team members who will be helping you:



- Doctor
- Nurse
- Dietitian
- Psychologist
- Pharmacist
- Family and Friends

Other Sources of Information to Help You

Canadian Diabetes Association (CDA)

1400-522 University Ave.
Toronto, ON M5G 2R5
1-800-BANTING (226-8464)
www.diabetes.ca

Diabete Quebec (DQ)

8550 boul. Pie-IX, bureau 300
Montréal (Québec) H1Z 4G2
(514) 259-3422
1-800- 361-3504
www.diabete.qc.ca

TREATMENT OF TYPE 2 DIABETES

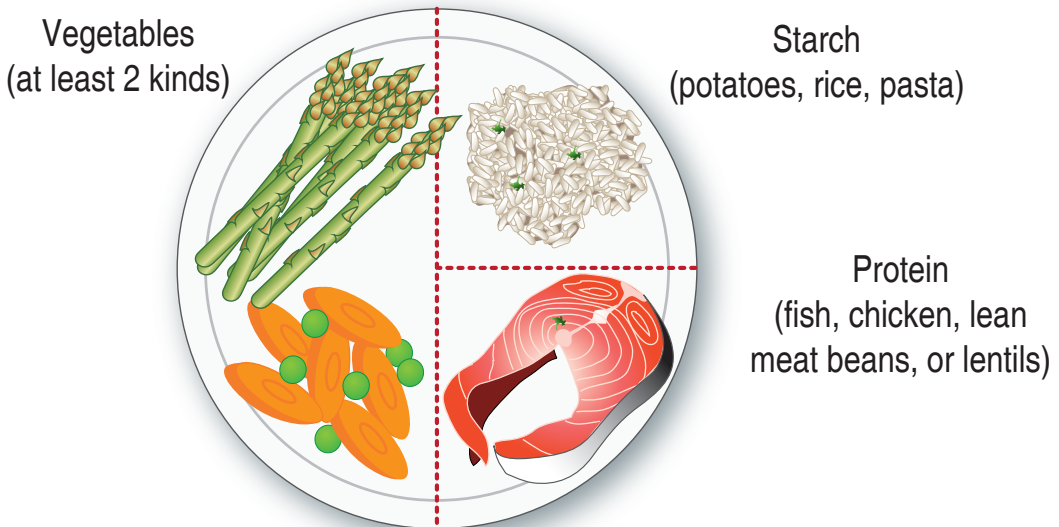
- Healthy diet
- Physical activity and lifestyle changes
- Medication: oral or by injection or both
- Self blood glucose monitoring
- Stress management

Self blood glucose monitoring and stress management

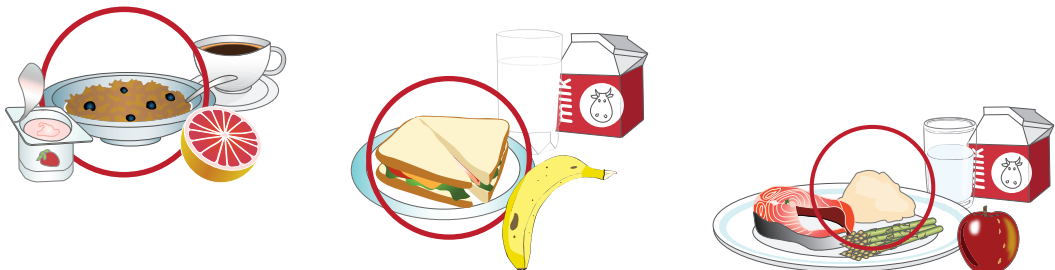


HEALTHY EATING IS A KEY FACTOR IN YOUR DIABETES MANAGEMENT

Your doctor will ask you to see a dietitian to come up with a plan just for you, and to follow up with you.



The glucose (sugar) in your blood comes mainly from carbohydrates in food we eat. You should not eliminate all carbohydrates



How much carbohydrate do I need?

It depends on many things: age, height, weight and the amount of physical activity you do. Your dietitian will help you decide how much you need.

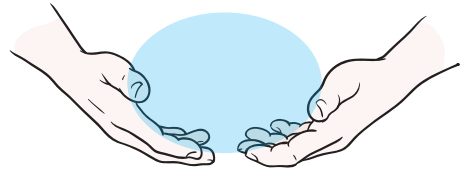
Should I buy “diabetic” foods?

- No! You will be able to enjoy YOUR foods.
- Your dietitian will guide you with your food choices to help you reach your blood sugar target.



Carbohydrates:

(grains, starches and fruits)
Choose an amount the size of your fist.



Vegetables:

Choose as much as you can hold in both hands.

Your hands can help you with portion sizes



Protein:

Choose an amount the size of the palm of your hand and the width of your little finger.

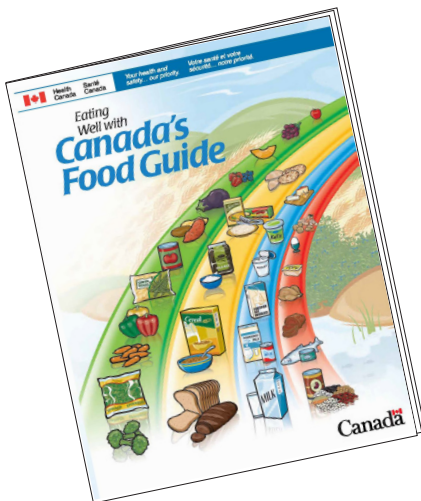


Fat:

Limit fat to an amount the size of the tip of your thumb.

Here are some ideas while waiting to see the dietitian:

Have 3 meals a day at regular times



Follow Healthy Eating with Canada's Food Guide available in print, online, or with a mobile app

<http://bit.ly/1IU6mng>

Limit fatty foods,
chips, salad dressings,
pastries, etc.



Limit sweets, sugars, soft
drinks, jams, honey, etc.



Choose low fat dairy
products like cheese
less than or equal to
15% milk fat (MF), milk
or yogurt 1-2% MF



Cut down on cooking
with oil, e.g. frying



Drink water
regularly to
quench thirst

PHYSICAL ACTIVITY

Physical activity and lifestyle changes are important parts of your diabetes care. You do not have to run a marathon.



- Take stairs
- Get off the bus 2-3 stops early
- Park the car farther away
- Work in the garden
- Play with your kids
- Walk, use a pedometer.
Goal: 10,000 steps daily

MEDICATION

With lifestyle and diet changes, your doctor might still choose to prescribe pills, injected medicines, insulin or a mix of these. There are many to choose from, and new ones coming.

Those that make the pancreas produce more insulin (Secretagogues)

Glyburide (Diabeta)

Gliclazide (Diamicon)

Glimepiride (Amaryl)

Repaglinide (Gluconorm)

- should be given before meals

Those that make the liver produce less sugar

Metformin (Glucophage, Glumetza)

- given after meals or during
- also comes mixed with other medicines

Those that help insulin work better (TZDs)

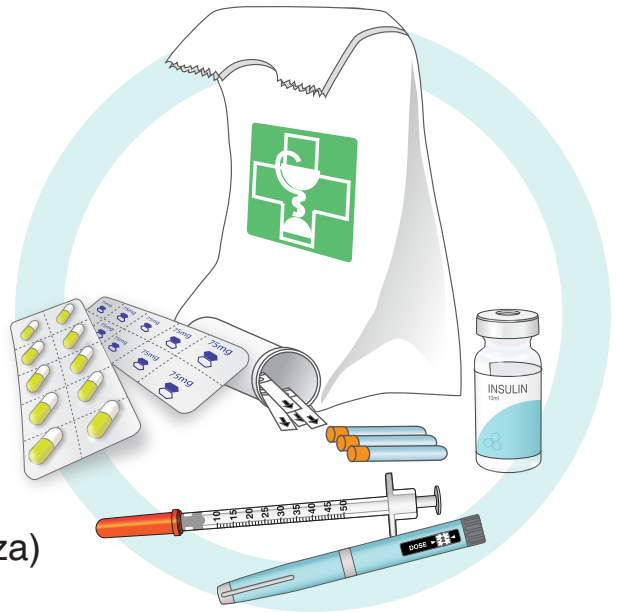
Pioglitazone (Actos)

Those that allow you to “pee out” more sugar

Canagliflozin (Invokana)

Dapagliflozin (Forxiga)

Empagliflozin (Jardiance)

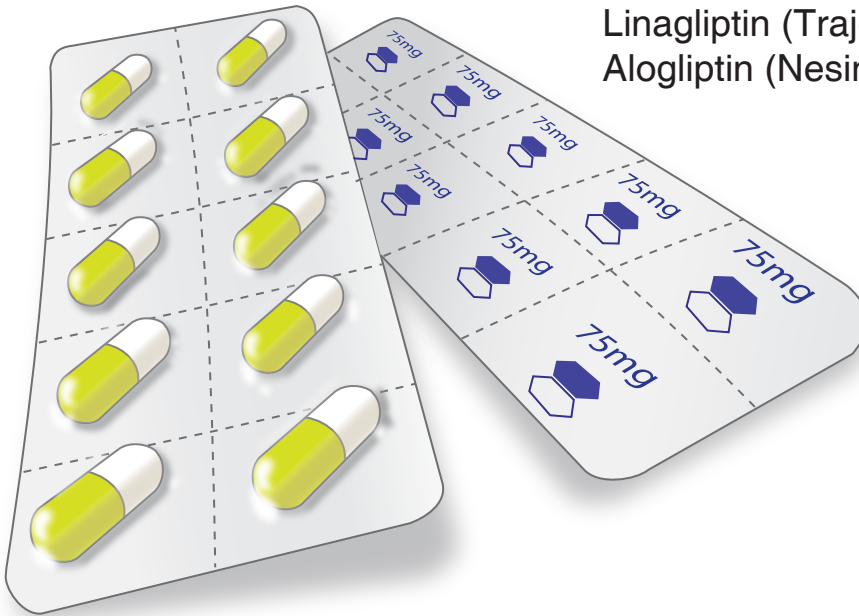


Those that slow down absorption of glucose from food (Alpha-Glucosidase Inhibitors)

- Acarbose (Prandase or Glucobay)
- given at the beginning of a meal

Those that get other hormones to help insulin (incretins) (DPP4 - Inhibitor)

Sitagliptin (Januvia)
Saxagliptin (Onglyza)
Linagliptin (Trajenta)
Alogliptin (Nesina)



Injected medicines to lower blood sugar and promote weight loss (GLP - 1 medications)

Exenatide (Byetta)
Exenatide QW (Bydureon)
Liraglutide (Victoza)

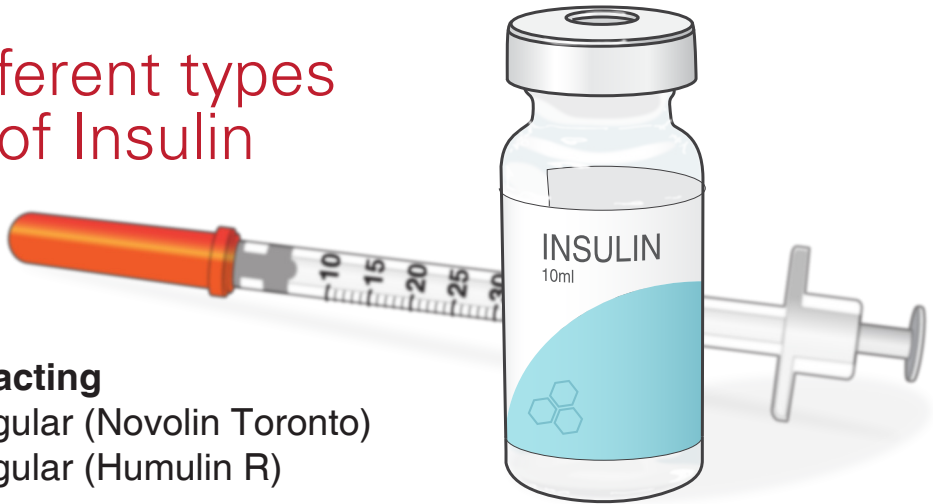
Dulaglutide (Trulicity)
Albiglutide (Eperzan)

INSULIN

Insulin, hormone produced by our body (pancreas) helps the body to use glucose for energy. For example, Gas is not enough to start a car we need the key. In our body, the food (changed into sugar) is the gas, and insulin is the key.

Prescription insulin is the same as the insulin we make
Available in bottles or cartridges and pre-mixed, or in disposable pens

Different types of Insulin



Short-acting

- Regular (Novolin Toronto)
- Regular (Humulin R)

Rapid acting

- Aspart (Novo Rapid)
- Lispro (Humalog)
- Glulisine (Apidra)

Intermediate-acting

- Novolin NPH
- Humulin N

Long-acting

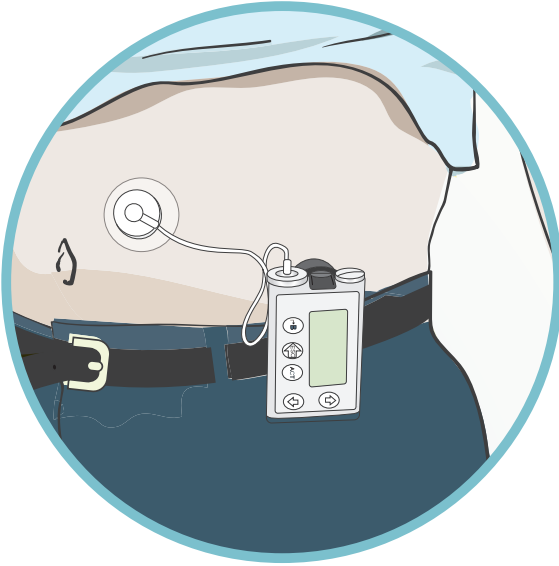
- Glargine (Lantus, Toujeo, Basaglar)
- Detemir (Levemir)

Premixed insulins

- Novo Mix 30
- Humalog Mix 25
- Humalog Mix 50
- 30/70, 40/60, 50/50

There are newer types of insulin coming as well.

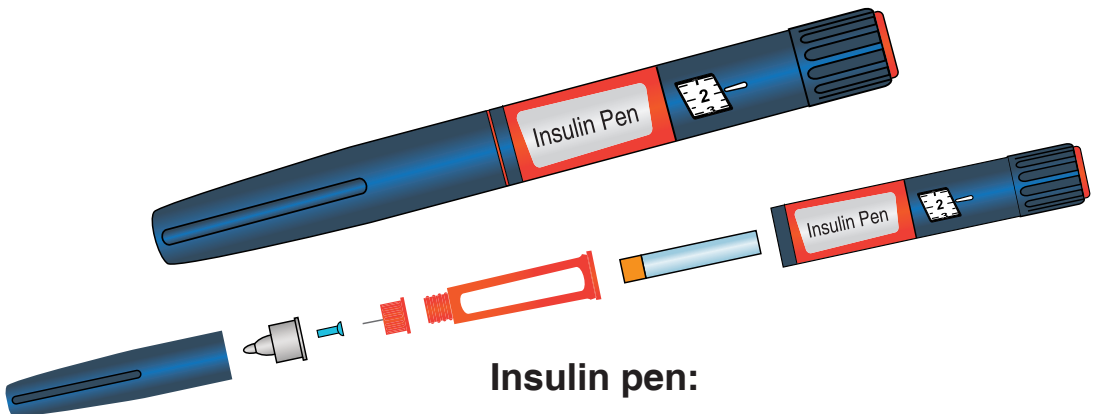
Insulin Delivery Devices



Insulin pump



Syringes



Insulin pen:

(Humapen Luxura, Savvio, NovoPen 4 and Echo SoloSTAR, ClikSTAR, KwikPen and FlexTouch Pen)

BLOOD GLUCOSE SELF MONITORING

Blood glucose levels change during the day depending on food, activity, stress and other things (sickness or flu). Your doctor will ask you to test your own blood glucose at home.

The results will tell you:

- If blood sugar is high (hyperglycemia) or low (hypoglycemia)
- How your medications are working
- How food and exercise change your blood sugar
- Check your blood glucose 1 to 4x a day at different times of day
- Write your results in your log book
- By checking your glucose levels you are taking the big step to taking good care of your diabetes.
- It is important to check the meter and strip accuracy (check the expiry date of the strips. A difference of between 10 - 15% between meters is allowed).



Glucose Meters

- Many meters are available for testing blood glucose
- They are given for free by your diabetes educator
- You can discuss with your diabetes educator which meter is best for you

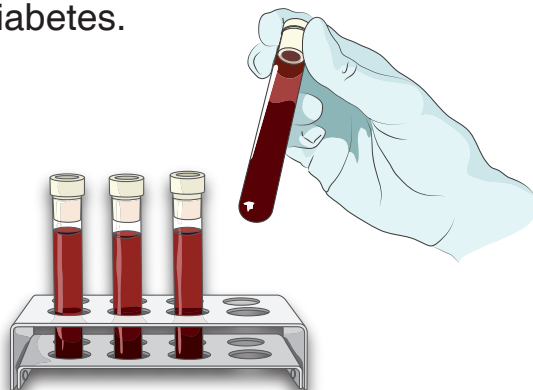
Glucose Tracking

Blood glucose trends	Breakfast		Lunch		Supper	
	Just Before	2 Hours After	Just Before	2 Hours After	Just Before	2 Hours After
Monday	✓	✓				
Tuesday	✓		✓	✓		
Wednesday	✓				✓	✓
Thursday	✓	✓				
Friday	✓		✓	✓		
Saturday	✓				✓	✓
Sunday	✓	✓				
Goal CDA (mmol/L)	4.0 ~ 7.0	5.0 ~ 10.0	4.0 ~ 7.0	5.0 ~ 10.0	4.0 ~ 7.0	5.0 ~ 10.0

HEMOGLOBIN A1C

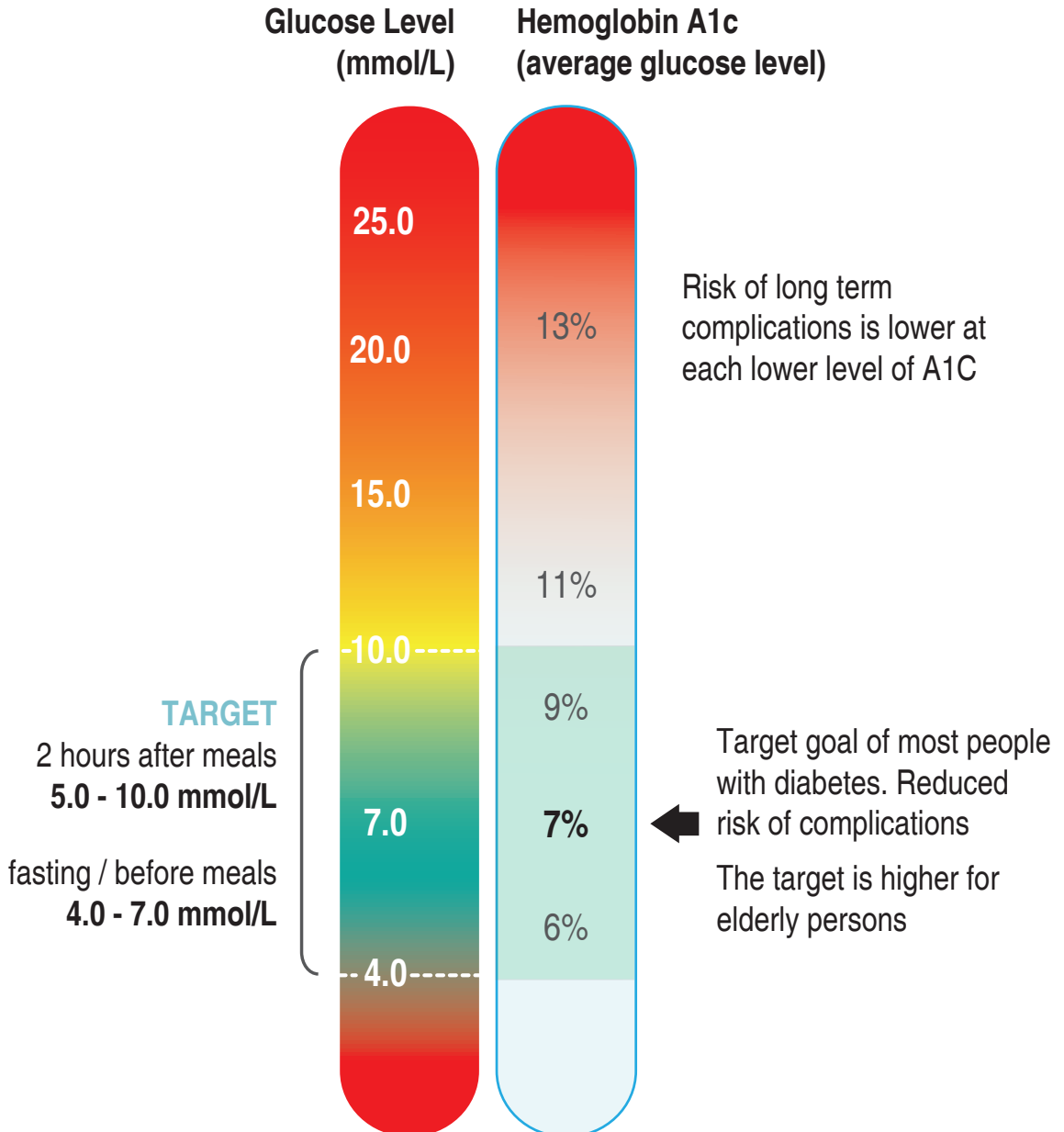
As part of your regular blood tests, your doctor will order a glycated hemoglobin (A1c) test, which will tell you what your average glucose level has been over the past 3 months. The normal range for A1C is 4-6% for people without diabetes.

Your target is to reach less than 7% (your doctor may choose different targets in certain special cases). Higher A1C results go along with a higher risk of diabetes complications.



How do I get my A1C level tested?

In general, your doctor will have your A1C tested every 3-6 months, as part of your regular bloodwork.

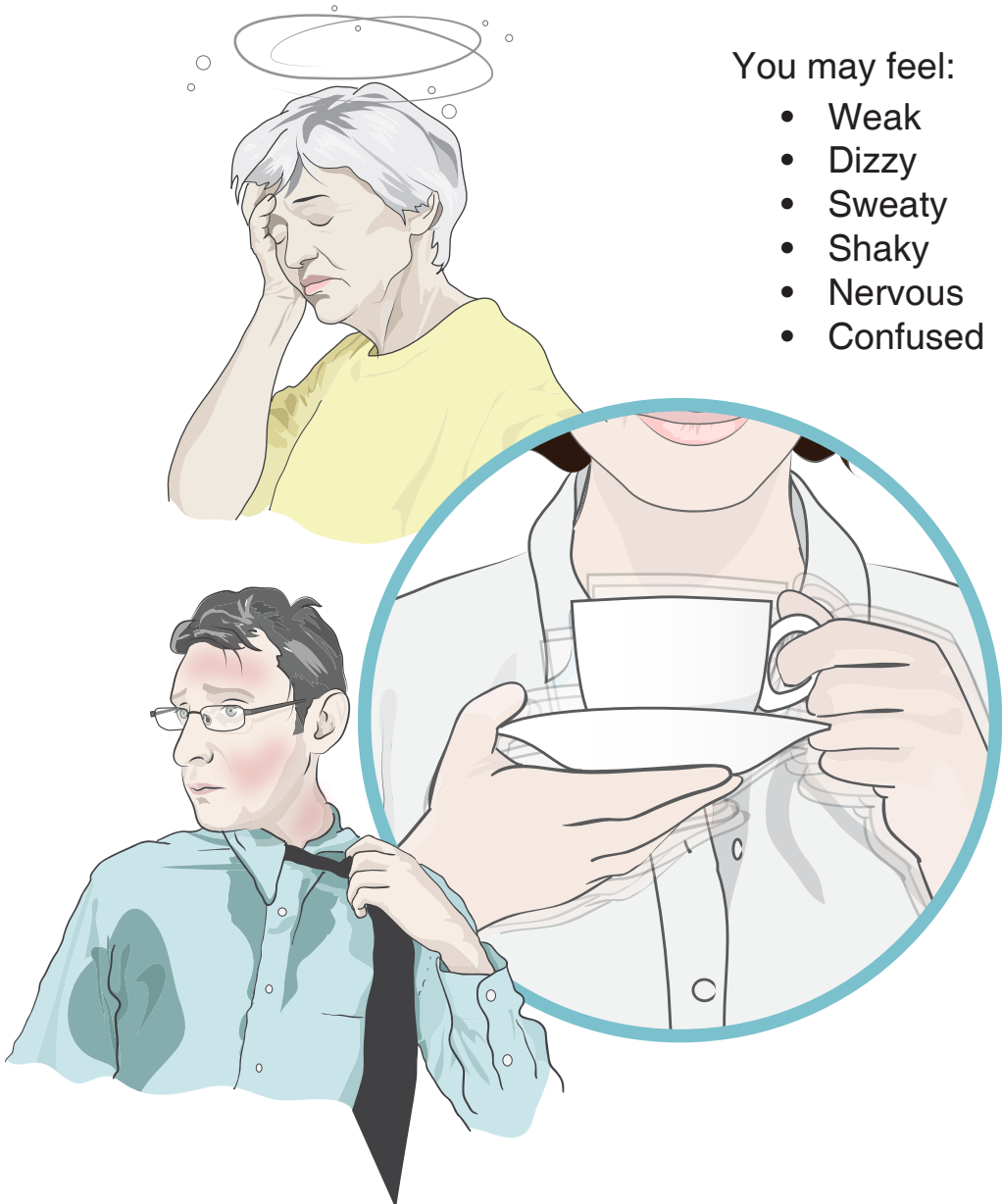


WHAT IS HYPOGLYCEMIA?

When you take certain oral medications or insulin you might get “hypoglycemia”... Low blood sugar (below 4.0 mmol/L).

You may feel:

- Weak
- Dizzy
- Sweaty
- Shaky
- Nervous
- Confused



Causes of Hypoglycemia

- Medications or insulin taken without eating
- Exercise without the right amount of food
- Being late for meals or snacks
- Taking the wrong dose of insulin
- Drinking alcohol without eating

Treatment for Hypoglycemia



1. Check blood sugar, if below 4 mmol/L
2. Take 15 gram of glucose
 - (3 tsp of sugar or honey)
 - (3/4 cup of orange juice or regular soft drink)
 - (3 hard candies or 4 Dex 4 tablets)
3. Wait 15 minutes. & re-check blood sugar. If blood sugar still below 4 mmol/L, treat again!

Have a glucose source with you at all times

Once your blood sugar is normal again, have your usual meal or a snack. If your usual meal is more than 60 minutes away have a snack including 15 g of carbohydrates and a protein source.

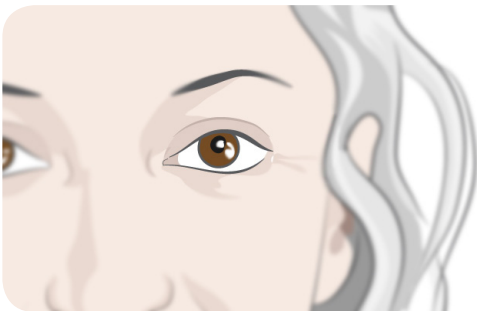
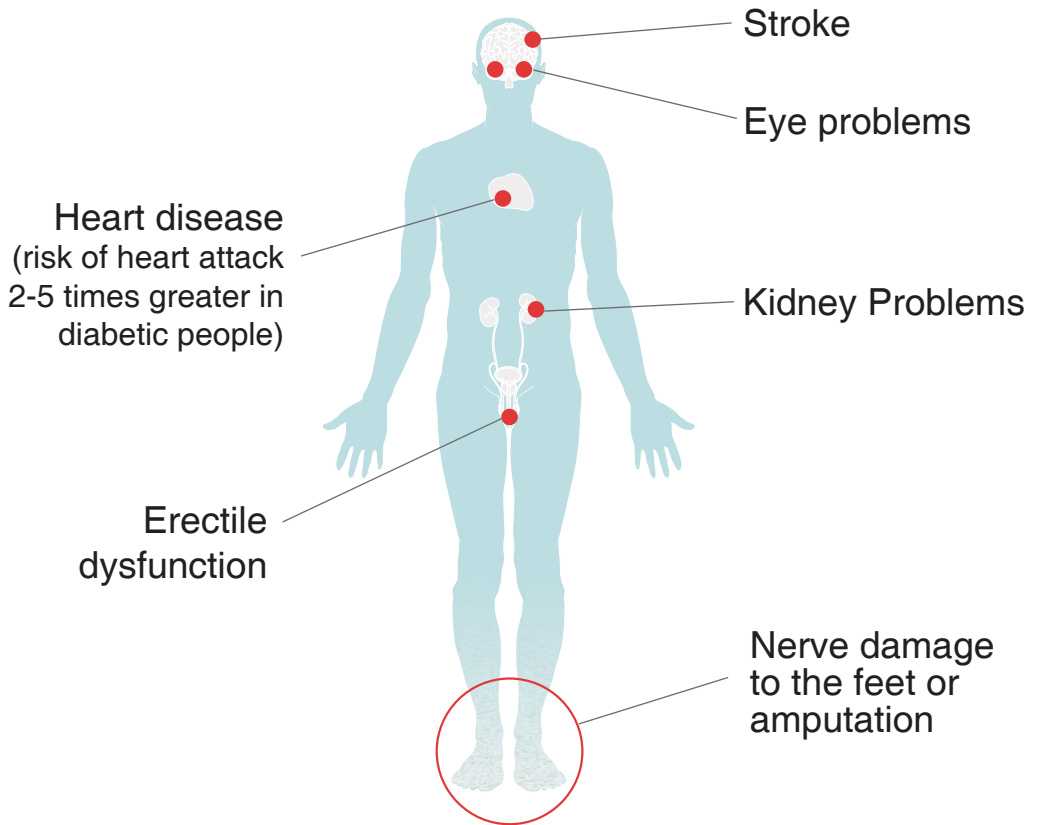
e.g. 4 - 6 crackers with peanut butter or cheese.

STRESS MANAGEMENT



DIABETES COMPLICATIONS:

It is important to control your diabetes to prevent...

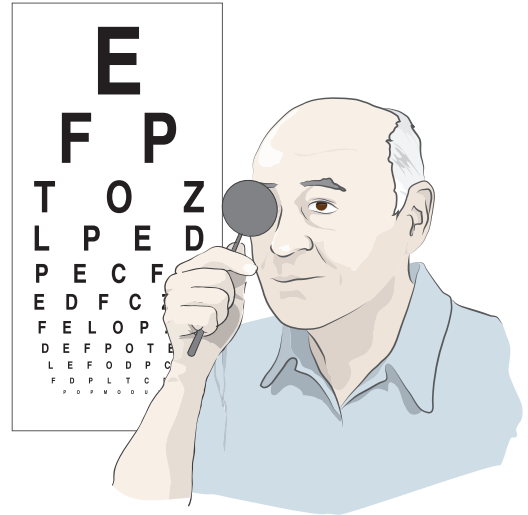


Over a period of time, diabetes

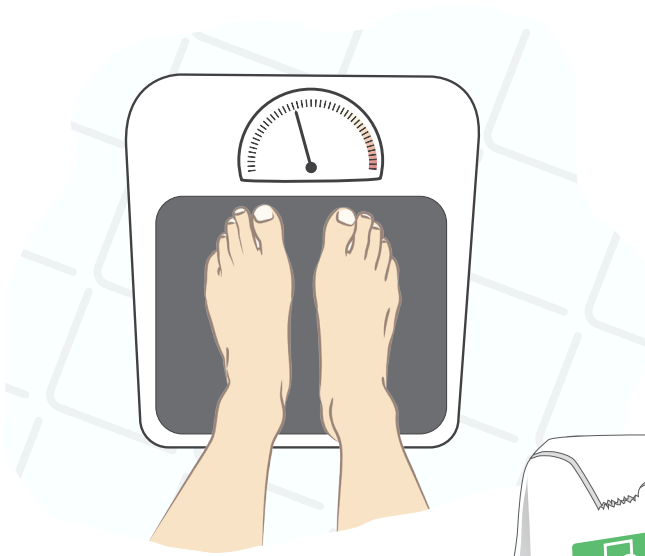
- Can cause serious long term complications.
- It can damage your eyes (retinopathy with loss of eyesight)
- It can damage your kidneys and in some cases lead to dialysis

THERE IS GOOD NEWS...

WE CAN PREVENT or delay complications with good diabetes management.



- Have regular checkups
- Keep blood pressure under 130/80 mm/Hg
- See an eye doctor at least once a year
- Keep blood sugars in target range



- Keep your weight in a healthy range
- Take medications as prescribed
- Keep active



Don't smoke

Report any problems regarding your feet to your diabetes educator

FOOT CARE

Because of diabetes, problems can occur with circulation and loss of feeling. Wash and look at your feet every day!

Using a mirror, look at soles for injuries, red spots, change of colour of skin, blisters.



Protect your feet by:



Wearing comfortable shoes



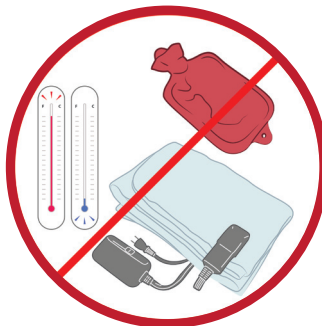
Cutting toenails straight across



Putting lotion on dry skin



Not going barefoot



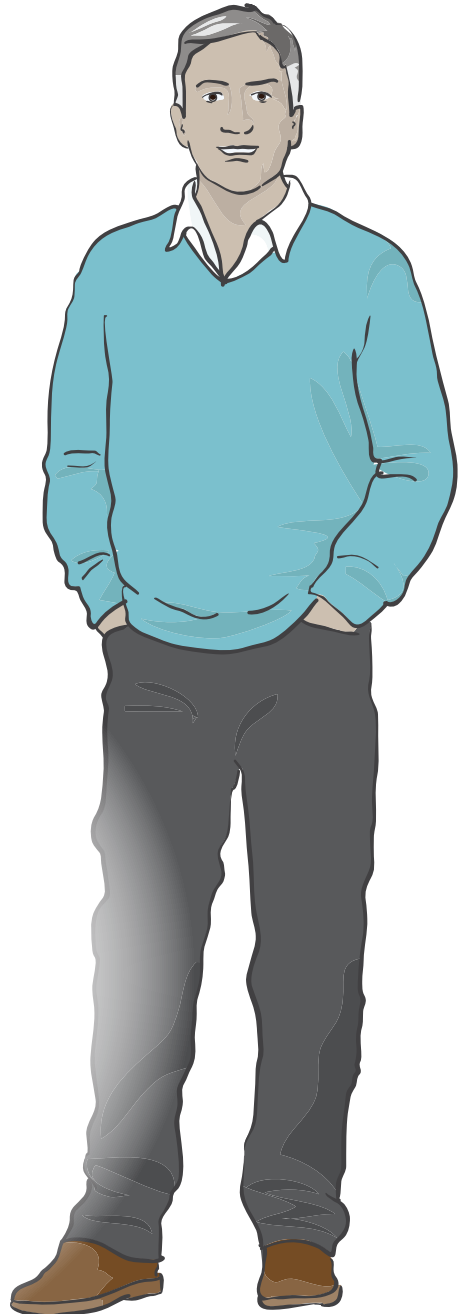
Not using hot water bottles or heating pads

SUMMARY



- A balanced diet
- + Physical activity
- + Stress management
- + Rest

= A Healthier You



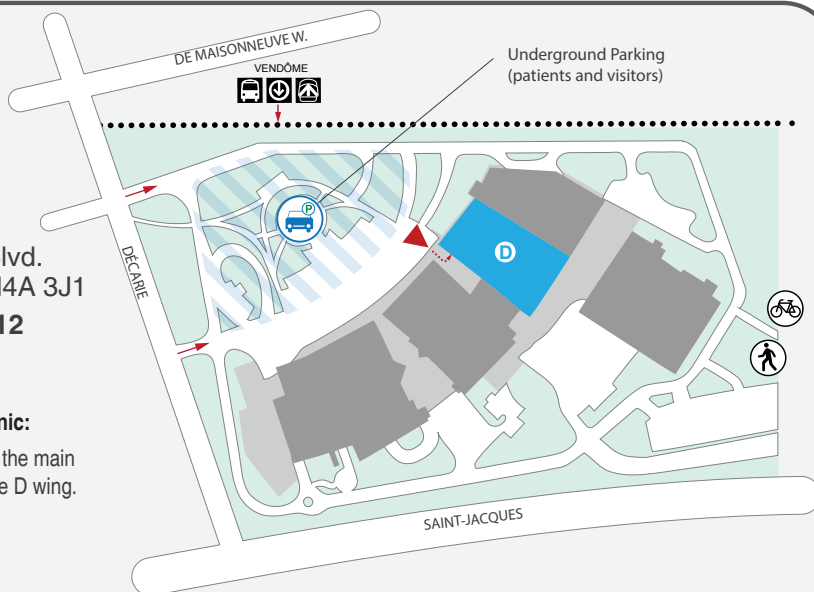
WHERE TO FIND US

1

Glen site:
1001 Décarie Blvd.
Montreal, QC H4A 3J1
Room D 02.3312

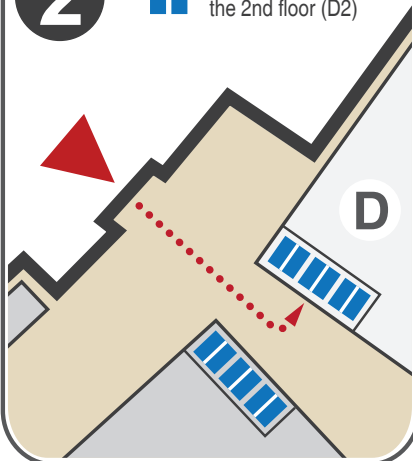
Directions to the clinic:

▶ Enter through the main entrance of the D wing.



2

Take the elevator to the 2nd floor (D2)



3

D2 NORTH
Room D 02.3312

