



diabetes HURON PERTH
Education | Support | Management



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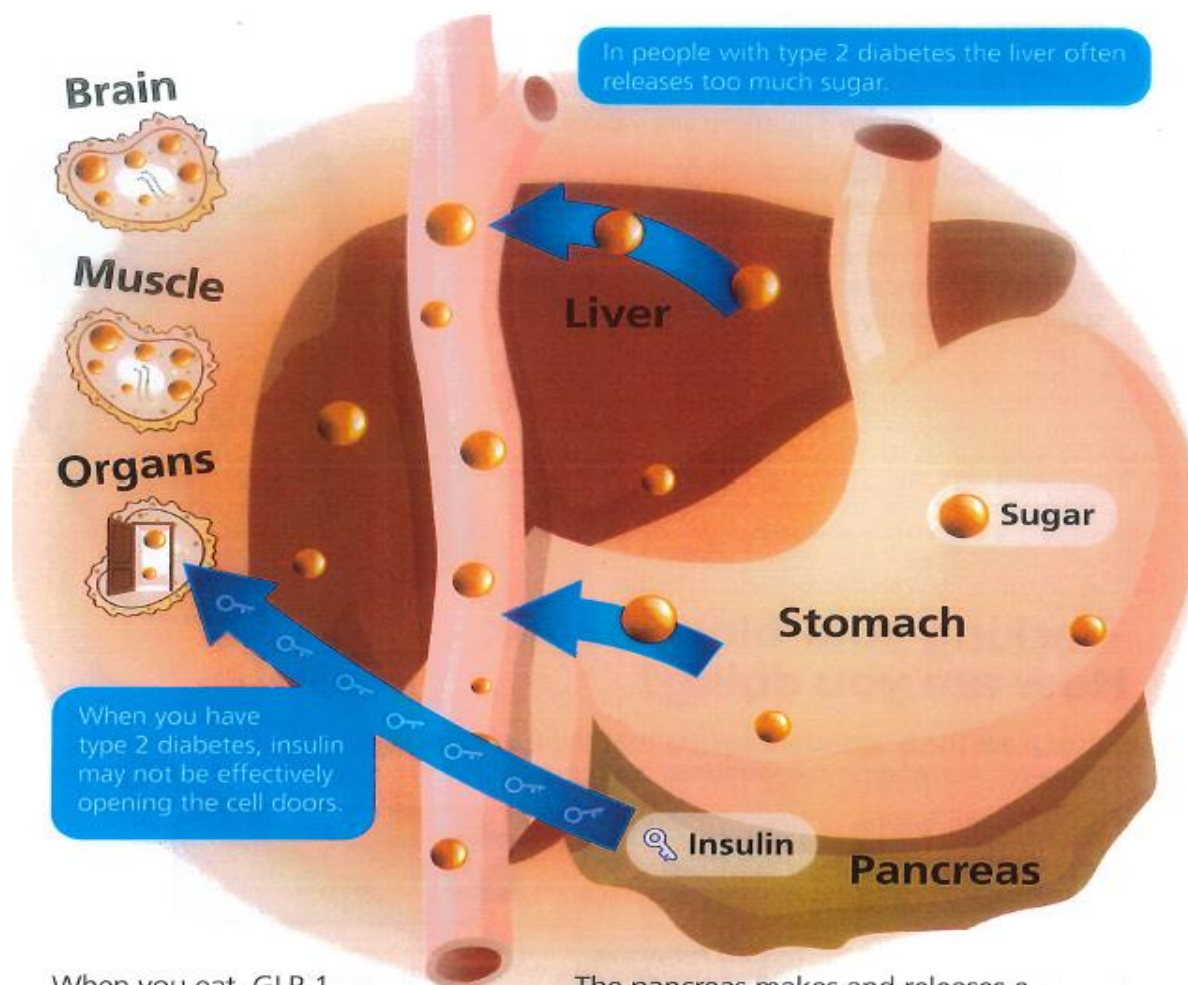
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What is Type 2 diabetes?

Diabetes is a disease in which the body has trouble using glucose for energy.

Glucose is a type of sugar that comes from food, particularly carbohydrates.

It is important to continue including carbohydrates in your meals. Strategies to help reduce how they affect the blood sugars will be discussed on pages 9-14.



When you eat, GLP-1 (a natural hormone) is released helping the pancreas make insulin.

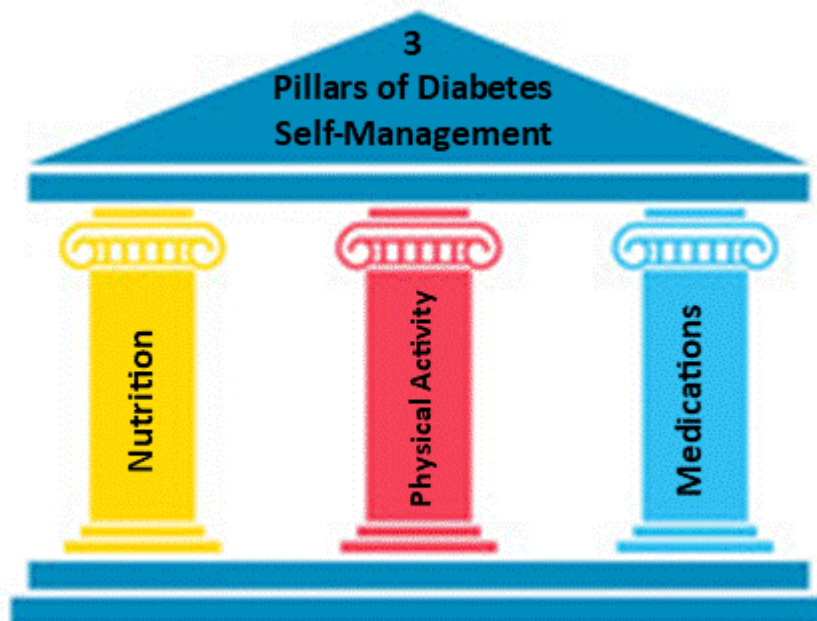
The pancreas makes and releases a hormone called insulin. Insulin acts like a key that opens small doors on body cells, allowing sugar to enter into the cell.

In people with type 2 diabetes there may be less GLP1 available.

When you have type 2 diabetes, the pancreas is not able to produce enough insulin.

The Good News!

Type 2 diabetes can be managed with **healthy eating**, **physical activity** and/or **medications**.



Get the Support You Need!

Being diagnosed with diabetes may result in feelings of anger, denial, fear, sadness & guilt & you may find you have a hard time accepting this new diagnosis. This is completely normal & there are many people available to help you navigate your new way of living. Talk to others who have diabetes or your health care team for support & guidance.

Your health care team might include:

- Family physician
- Registered nurse or nurse practitioner
- Registered dietitian
- Pharmacist
- Psychologist or social worker
- Foot care specialist
- Endocrinologist or internist
- Eye doctor or specialist
- Kidney specialist

Remember – YOU are the most important member of your health care team & you are encouraged to take an active role in your diabetes self-management.

What is Normal Blood Sugar Control?

*Not everyone needs to test their blood sugars, but it may be helpful for some people with diabetes to monitor their blood sugar levels at home.

Tools to monitor sugars: Glucometer or Continuous Glucose Sensor



Checking your blood glucose levels may help you:

- Determine blood glucose level at that particular moment in time
- Show how your lifestyle (diet, exercise, stress, sleep habits) & medication affect your blood glucose levels

Try to aim for the following targets or as recommended by your diabetes team:

Fasting Blood Glucose (before eating) = 4.0 to 7.0mmol/L

Blood Glucose 2 hours after the start of a meal = 5.0 to 10mmol/L

What causes high blood sugar?

If blood sugars are above target, consider the following possible causes:

- Missing your diabetes medication
- Your dosage of diabetes medication is not right for you
- Eating too many foods rich in carbohydrates
- Being sick or under stress
- Side effects from other medications

Can My Blood Sugar Become Too Low?

Low blood sugar is a blood sugar is less than **4mmol/L (hypoglycemia)**.

You may be at risk for having a low blood sugar if you take certain medications to help lower your sugar levels. Medications that put you at risk for having a low blood sugar are Gliclazide (Diamicon), Glyburide or Insulin. **You should not operate a vehicle if you are having a low blood sugar.** It is rare to have a low blood sugar if you are not on these medications.

Talk to your diabetes team if you want more information about hypoglycemia.

What is Hemoglobin A1C & What Does it Mean?

A1C is a blood test that shows the 3-month overview of your blood sugar before the test. Your A1c is not affected by what you have eaten that day.

Your A1C is **not the same** as your blood sugar results.

- For example: An A1C of 7.0% equals an average blood sugar of 9.5mmol/L.
- Diabetes Canada recommends an A1C target of **7.0% or less** for most adults.
- Your A1C should be checked every **3 months** (or can be 6 months if A1C is at target and stable).

Average Blood Sugar (mmol/L)	Conversion Chart	A1c (%)
19.5	Red	12 %
17.5		11 %
15.5		10 %
13.5		9 %
11.5	Dark Red	8 %
9.5	Yellow	7 %
7.5	Green	6 %
	Blue	

What is Insulin & Will I need to Take It?

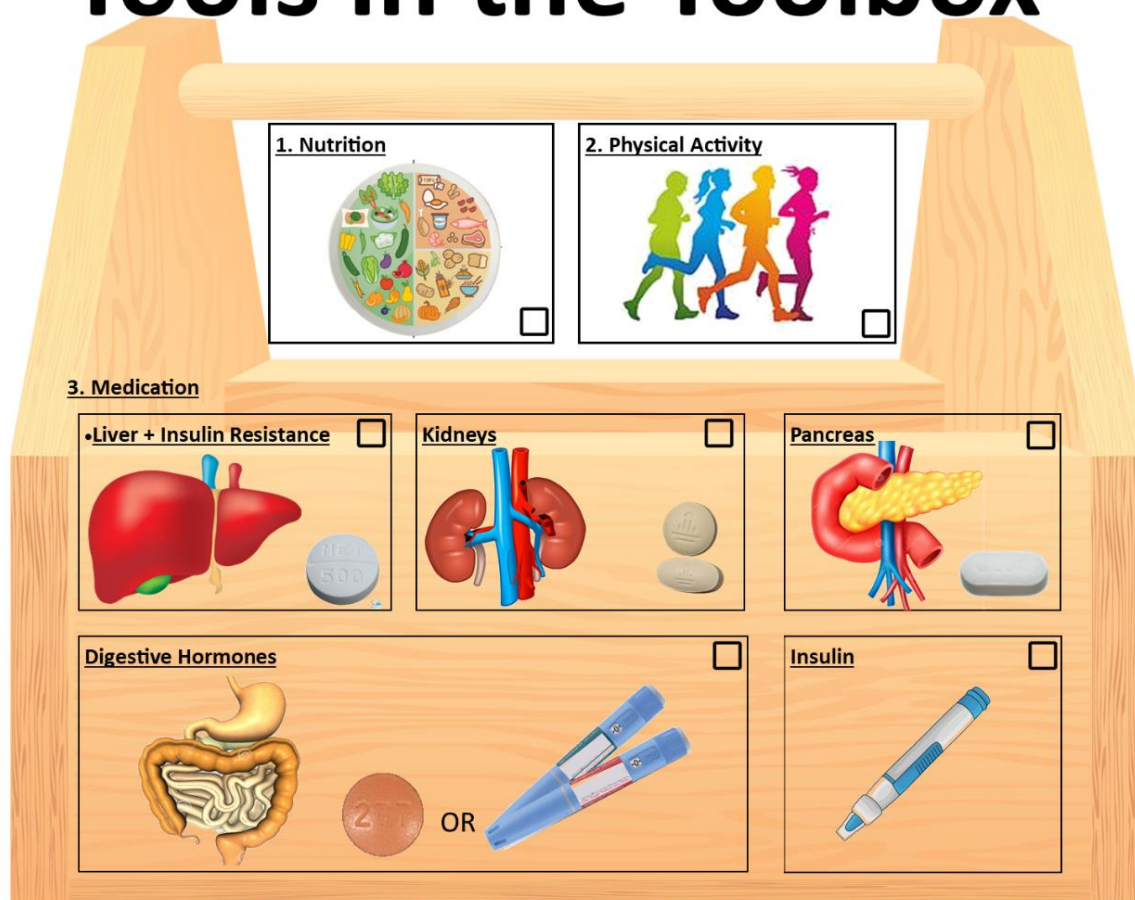
Insulin is a hormone naturally produced by the pancreas to control the amount of blood glucose in the blood.

People with type 2 diabetes may be able to control their blood sugars with healthy eating, daily physical activity & taking their diabetes medications as prescribed. However, diabetes is considered a **progressive condition** meaning blood sugars become harder to control as time goes on.

Many people with type 2 diabetes may eventually need to use insulin to help manage their blood sugars & prevent complications. In some circumstances, it is appropriate to start taking insulin right away to get blood sugars down quickly.

If you do require insulin injections, this does NOT mean you have type 1 diabetes. You have type 2 diabetes requiring insulin.

Tools in the Toolbox



Covering the Costs of Diabetes

There are a number of options available to those who qualify. Ask your team if you would like more information about the programs below:

- ☐ **Private Insurance Plan**
- ☐ **Ontario Drug Benefit Plan (ODB)**
- ☐ **Ontario Disability Support Program (ODSP) & Ontario Works (OW)**
- ☐ **Trillium Drug Program**
- ☐ **Ontario Monitoring for Health Program (from Diabetes Canada)**
- ☐ **Insulin Syringes for Seniors (Assistive Devices Program)**
- ☐ **Assistive Devices Program (ADP) for Insulin Pumps & Supplies**
- ☐ **Non-Insured Health Benefits Program (NIHB)**

How often should I test my blood sugar?

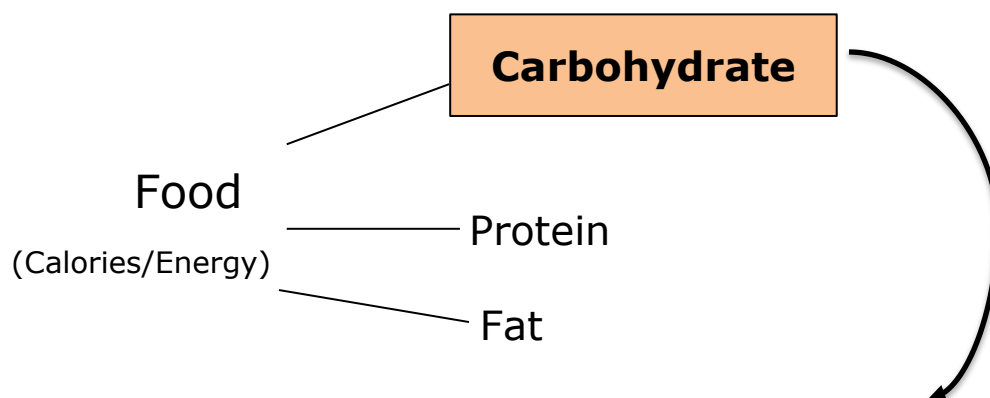
If you need or want to test your blood sugars, your test strips have a cost or a limit. If you have private insurance, please review your coverage booklet to know your plan's annual test strip limit.

The Ontario Drug Benefit Program & Ontario Disability Support Program

Diabetes Management	Maximum Number of Test Strips (Annual)
Individuals managing with diet & lifestyle therapy only	200
Individuals managing with diabetes medications with lower risk of hypoglycemia	200
Individuals managing with diabetes medications with higher risk of hypoglycemia (Gliclazide/Diamicron or Glyburide)	400
Individuals managing with insulin	3 000

What Happens When You Eat?

When you eat, food breaks down into carbohydrate, protein & fat.
Carbohydrates affect your blood sugar.



Fruits	Grains/Starches	Milk Products	Others
 			

Carbohydrates (also called 'carbs') include:

- sugar
 - starch
 - fibre
- } increase your blood sugar

→ Fibre will **not** raise your blood sugars & actually helps prevent blood sugars from going too high after you've eaten.

Healthy Eating Basics

Healthy eating is an important part of managing your diabetes. Diabetes is a condition that likes consistency, especially when it comes to meal times & the types of foods eaten. Start with the following tips:

- Try to eat three meals a day at regular times & spaced no more than 4-6 hours apart
- Become more mindful of your eating & try to avoid eating out of boredom, habit or emotional reasons
- Avoid eating when distracted by the TV or other electronics
- Limit sugars & sweets such as regular pop, juice, candies, jam, etc.
- Limit intake of high fat foods such as chips, pastries, fried foods, etc.
- Limit your intake of salt/sodium to 1500-2000mg per day
- Aim to increase your daily fibre intake through whole grains, fruits, vegetables, beans & legumes
- Try to drink at least 6-8 cups of water daily to keep hydrated. Low fat dairy such as skim, 1% or 2% milk is also a good option
- Plan ahead! Make a weekly grocery list & menu; keep pre-cut vegetables & fruit on hand for easy snacking; schedule time for exercise, etc.
- Watch your portion sizes. Check your portions by using measuring cups, & scales & by using the Handy Portion Guide or Balanced Plate

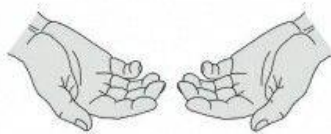
Handy portion guide

Your hands can be very useful in estimating appropriate portions. When planning a meal, use the following portion sizes as a guide:



FRUITS*/GRAINS & STARCHES*:

Choose an amount the size of your fist for each of Grains & Starches, and Fruit.



VEGETABLES*:

Choose as much as you can hold in both hands.



MEAT & ALTERNATIVES*:

Choose an amount up to the size of the palm of your hand and the thickness of your little finger.



FATS*:

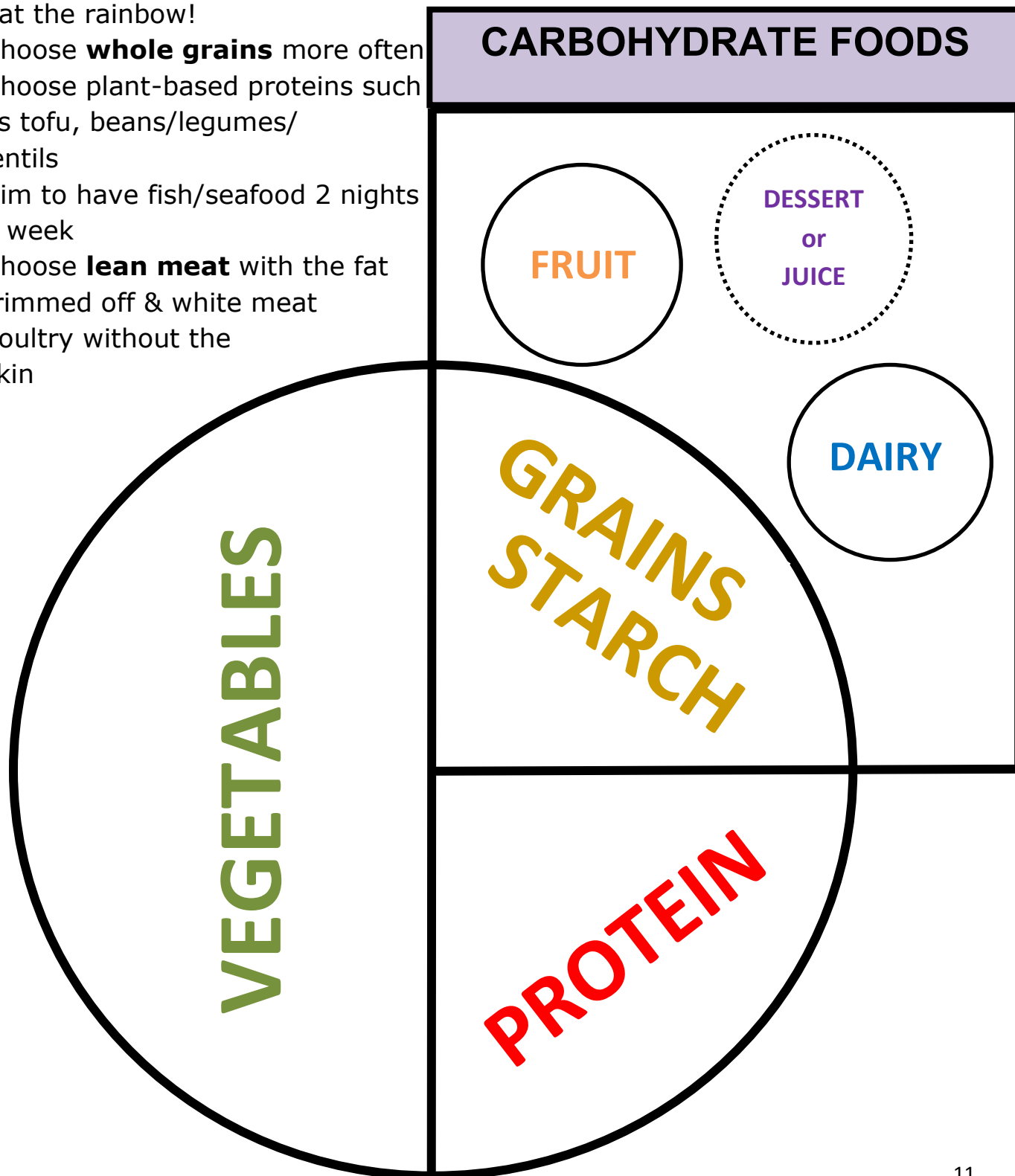
Limit fat to an amount the size of the tip of your thumb.

MILK & ALTERNATIVES*: Drink up to 250 mL (8 oz) of low-fat milk with a meal.

* Food group names taken from Beyond the Basics: Meal Planning for Healthy Eating, Diabetes Prevention and Management © Canadian Diabetes Association, 2005. Please refer to this resource for more details on meal planning.

The Balanced Plate

- Aim to fill **½ your plate with vegetables**
- Eat the rainbow!
- Choose **whole grains** more often
- Choose plant-based proteins such as tofu, beans/legumes/lentils
- Aim to have fish/seafood 2 nights a week
- Choose **lean meat** with the fat trimmed off & white meat poultry without the skin



Reading Food Labels

Food labels are a great resource for helpful information & can help you compare similar foods & make healthier choices.

a) Nutrition Facts Table:

The Nutrition Facts table on the food label gives you information about the serving size, calories & a variety of other different nutrients. The Nutrition Facts table can be used to compare similar foods. Look for the following items:

Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per serving	
Calories	230
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%
*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

←..... Start here

←..... Limit these

←..... Get enough of these



The % daily value can tell you if the serving size has a lot or a little of a nutrient:

- 5% daily value or less is a LITTLE
- 15% daily value or more is a LOT

Some nutrients you may want more of include:	Some nutrients you may want less of include:
• Fibre (aim for at least 2-4g) • Vitamins & minerals	• Sodium • Saturated & trans fat • Added sugar (aim for less than 8g)

b) Ingredient List:

The ingredient list tells you what is in the food & is listed by weight from **most to least**. This means that a food contains **more** of the ingredients found at the beginning of the list & **less** of the ingredients at the end of the list.

Example: Breakfast Cereal

Ingredients: Whole wheat, wheat bran, sugar/glucose-fructose, salt, malt (corn flour, malted barley), vitamins (thiamine hydrochloride, pyridoxine hydrochloride, folic acid, d-calcium pantothenate), minerals (iron, zinc oxide).

c) **Nutrient Content Claims/Health Claims**

Nutrient or health content claims are statements on food product packages about a particular nutrient in the food.



Sugar-Free Labeling & Non-Calorie Sweeteners

Sugar-Free & No Sugar Added does not always mean carbohydrate-free. These are common terms that you will see on many labels.

Sugar-Free foods may or may not cause your blood sugar to rise depending on the sweeteners used & other ingredients in the food.

No Sugar Added simply means that no extra sugar is added during processing or packaging. These foods could still contain carbohydrates & therefore, impact your blood sugars. These products often use sweeteners other than sugar for sweetness.

Non-Calorie (Alternative) Sweeteners

Non-Calorie or Alternative Sweeteners are added to foods to reduce sugar & calories. These sweeteners have a minimal effect on sugar levels. Health Canada has approved the following sweeteners:

- Aspartame
- Acesulfame K (Ace-K)
- Sucralose (e.g. Splenda)
- Steviol glycosides (Stevia)
- Saccharin
- Cyclamate
- Sugar alcohols (e.g. mannitol, sorbitol)

These are commonly found in products such as diet drinks, light yogurt and sugar-free gelatin desserts & pudding.

Non-calorie sweeteners can greatly decrease the amount of carbohydrates in foods but not necessarily the calories.

Alcohol & Diabetes

- ↓ Alcohol can have a confusing effect on blood sugars because it prevents the liver from releasing glucose, which can lead to low blood sugars overnight after a night of drinking depending on which medications you take.
- ↑ Depending on the alcohol, it can also cause a spike in blood sugars immediately after consuming, especially if on an empty stomach.

Drinking Alcohol may also:

- Provide empty calories which may lead to weight gain
- Increase blood pressure and triglycerides
- Contribute to inflammation of the pancreas
- Lead to dehydration, which is dangerous with high blood sugars
- Worsen eye disease
- Affect judgement

So what **can** I drink?

- If you don't drink alcohol, don't start
- If you drink regular beer, consider switching to light beer
- If you mix drinks with regular juice or pop, consider sugar-free mixes
- Low carb options such as seltzers & light coolers
- Dry wines and champagnes have lower carbohydrate levels than sweeter wines and champagnes

If you take **Insulin** or **Gliclazide** or **Glyburide**:

- You are at ↑ risk of low blood sugars overnight and up to 24 hours
- Ensure you have a snack containing carbohydrates when you drink
- Make sure you have a supply of fast-acting sugar and a way to monitor your sugar in case you have a low
- Make sure someone around you knows the signs of a low blood sugar

Disclaimer:

Research shows that drinking alcohol is a risk factor for the development of high blood pressure, heart failure, atrial fibrillation, cancer, liver disease & hemorrhagic stroke. No amount or kind of alcohol is considered safe.

Physical Activity

Regular physical activity is one of the most important things you can do to lower your blood sugar, improve your overall health & have fun! Exercise can improve blood sugars:

- 1. During exercise**
- 2. 1-2 hours after exercise**
- 3. Up to 24 hours after exercise**

*If cleared by your Primary Care Provider:

Strive to accumulate a minimum of **150 minutes** of moderate- to vigorous-intensity physical activity per week

Breakdown:

- 30 minutes on 5 days per week OR
- 20 minutes every day
- In bouts of **10 minutes** or more

Moderate-intensity activities include:

- Brisk walking
- Bike riding
- Skating
- Swimming
- Gardening
- Etc.

Vigorous-intensity activities include:

- Jogging
- Cross country skiing
- Hockey
- Zumba
- Etc.

Muscle/bone strengthening & balance activities should also be included on at least **2 days** per week.

- Lifting weights
- Exercise band exercises
- Yoga
- Etc.



Complications of Diabetes

• = Lifestyle changes

When you have diabetes, you are at an increased risk for developing problems such as a heart attack, stroke or nerve damage. You can help prevent or delay these problems by having good control of your diabetes & visiting your diabetes team regularly.

1) Heart Disease & Stroke

Diabetes may cause blood vessels to become narrow inside. This is called **atherosclerosis** & is caused by a buildup of fat & other materials inside the blood vessels. Atherosclerosis can lead to a heart attack or stroke.

You can **help reduce** your risk by:

- Choosing a diet that is low in saturated fats
- Choosing to be active for ≥ 30 minutes every day
- Quitting smoking
- Taking medication as prescribed



2) Blood Pressure

People with diabetes should aim for a blood pressure **less than 130/80mmHg**. Your blood pressure should be checked a minimum of **once per year**, but ideally at every doctors visit. You may consider purchasing a home blood pressure monitor for more frequent assessment.

You can **help reduce** your blood pressure by:

- Taking medication as prescribed
- Quitting smoking
- Limiting your intake of added salt to less than 2000mg per day
- Choosing to be active for ≥ 30 minutes every day



3) Kidney Disease

Diabetes & high blood pressure can damage the tiny blood vessels in the kidneys that act as filters to remove waste. Good blood pressure & blood sugar control can help prevent damage. Medications are often used to protect the kidneys. Be sure to get **yearly blood & urine tests** to check how your kidneys are functioning.

4) Eye Disease

A change in the blood vessels of your eyes is **retinopathy**, which can lead to blindness. Early discovery & treatment of retinopathy can prevent damage to your eyes. This is why you need to have your eyes checked every **1-2 years** by an eye doctor called an optometrist or eye specialist called an ophthalmologist.

*OHIP covers the cost of an optometrist visit every year.

You can **help reduce** your risk by:

- Controlling your blood sugar, blood pressure & cholesterol
- Quitting smoking
- Maintaining a healthy body weight

5) Cholesterol

High cholesterol & other fats (also called lipids) in your blood can lead to heart disease, stroke & kidney disease. Cholesterol is a wax-like fatty substance in your blood. Your blood fats should be checked **every 1-3 years**

- a. LDL (**L**ousy) Cholesterol – If you have diabetes your LDL cholesterol should be **less than 2.0mmol/L**.
- b. HDL (**H**ealthy) Cholesterol – Men should aim for **greater than 1.0mmol/L** while women should aim for **greater than 1.3mmol/L**.
- c. Triglycerides are another type of fat found in our blood. People with diabetes should aim for a triglyceride level of **less than 1.5mmol/L**.

You can **help reduce** your cholesterol by:

- Taking medications as prescribed
- Quitting smoking
- Being active for at least 30 minutes every day
- Eating foods high in soluble fibre (e.g. whole grains, vegetables, etc.)
- Limiting processed & red meat (e.g. deli meat, hot dogs, bacon)
- Eating foods high in omega-3 fatty acids (e.g. fatty fish, olive oil)
- Limiting alcohol consumption
- Try to find ways to **relax** and provide self-care and compassion

6) Dental Disease

When you have diabetes, you can have problems with your teeth & gums because of the extra sugar in your blood.

You should brush & floss your teeth each day & see a dentist **every 6 months to 1 year**. Tell your dentist that you have diabetes.

7) Erectile Dysfunction or Impotence

Trouble getting and/or maintaining an erection is a very common problem in males who have diabetes and should be **screened regularly** for signs & symptoms of erectile dysfunction.

8) Depression & Anxiety

Depression & anxiety are common in people with diabetes & can negatively affect your diabetes control. Your health care provider should screen for any signs/symptoms of anxiety or depression at least **once yearly**.

9) Nerve Damage

Over time, diabetes can cause damage to our nerves particularly in our hands & feet. This is known as **neuropathy**.

If you have neuropathy, you may notice tingling, numbness or burning in your hands or feet. You may have no feeling at all in these limbs meaning you may not notice/feel a foot injury such as a blister or cut. Having neuropathy increases your risk for infection, foot ulcers & amputation. You should have a foot exam completed at least **once a year**. There is no cure for neuropathy. However, it can be managed with proper foot care, medications & good blood sugar control.

Do You Know your ABCs?

Your individualized target levels are goals to help reduce your risk of complications.

Test	My Values	Target Level	When to Test
A) A₁C (blood test)		Less than 7%	Every 3-6 months
A lbumin to creatinine ratio (urine test)		Less than 2.0	Once a year
B) B lood pressure		Less than 130/80	Every visit/at least once yearly
B lood sugar (glucose)		4.0 to 7.0	Before meals
		5.0 to 10.0	2 hours after meals
B lood & urine tests for kidneys	These tests are ordered by your health care team based on your needs. It is often completed annually.		
C) C holesterol: Total		Less than 4.0	Every 1-3 years
C holesterol: LDL (Bad)		Less than 2.0	Every 1-3 years
C holesterol: HDL (Good)		Female: > 1.3 Male: >1.0	Every 1-3 years
C holesterol: Total to HDL ratio		Less than 4.0	Every 1-3 years
C holesterol: Triglycerides		Less than 1.5	Every 1-3 years

Other tests:

Test	When to Test
D) D ental	See your dentist once a year.
E) E yes	Have a dilated eye examination once every 1-2 years, or more often if needed. This annual exam is covered by OHIP.
F) F eet	Check your feet daily. Have your health care provider check your feet at least once a year or more if needed.

Acknowledgements:

Alberta Health Services

American Diabetes Association

Am I Hungry? Eat Mindfully, Live Vibrantly

Canada's Food Guide

Canada's Guidance on Alcohol and Health: Final Report January 2023

Canadian Physical Activity Guidelines

Diabetes Canada

Diabetes Canada Clinical Practice Guidelines

Diabetes.co.uk

Dietitians of Canada

Government of Canada

Government of Ontario

Hamilton Health Sciences

St. Joseph's Health Care

Unlock Food

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