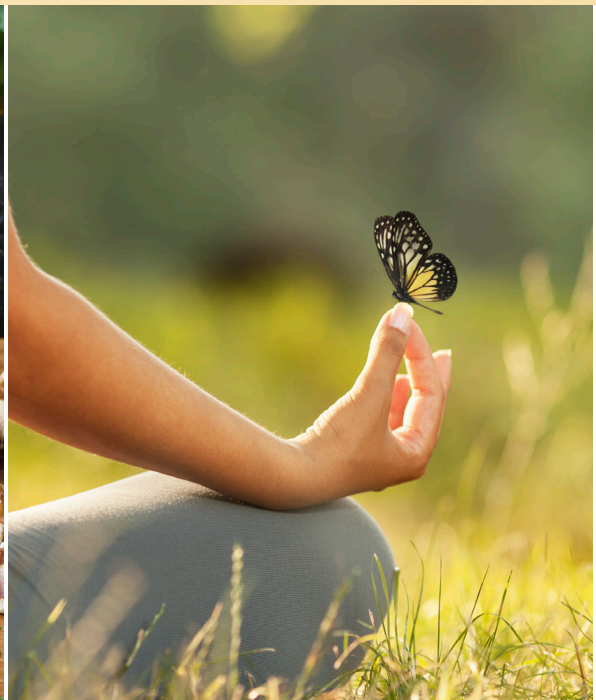
UHN Toronto Rehabilitation Institute

A Guide to Help You Live and Thrive with Diabetes

Diabetes, Exercise & Healthy Lifestyle Program

November 2016



UHN Cardiovascular Prevention and Rehabilitation

Authors & Contributors

Primary Authors

Nicole Sandison, R. Kin, MSc
Dr. Rajni Nijhawan, MD
Dr. Michael Sarin, MD, MEd, FRCPC, CDE
Renee Konidis, R. Kin, BA
Avi Biswas, PhD (c)
Maria Ricupero, RD, CDE, MHSc
Margaret Brum, RD, CDE, BASc
Fatim Ajwani, RD, BSc
Regan Leader, MSW, RSW
Jaan Reitav, PhD, C. Psych, CBSM
Samantha Kobylnik, MSW, RSW

External Reviewers & Contributions

Phillip Segal, MD, FRCPC
Sue Evans, BSc PT, CDE
Joanne Scott, RN, BPHE, CDE
Celia Fredericks, RN, CDE
Monica Parry, MEd, MSc, PhD
Pearl Yang, MD, PhD

Internal Reviewers & Contributions

Crystal Aultman, MSc, OCT, R.Kin
Teresa Farn (Patient Partner)
Diane Nixon, RN
Evelyn Foster, R. Kin, BPHE
Gabriella Melo Ghisi, PhD
Daryl Dooks, BSc, CDE
Sylvia Maksymiu, R. Kin, BPHE
Walter Swardfager, PhD
Joan Kitchen, R. Kin, BSc Kin
Ellen Silaj, BSc PT
Dr. Paul Oh, MD, MSc, FRCPC, FACP
Valerie Skeffington, R. Kin, BPHE
Farrah Schwartz, MA Health Advocacy

Graphics

Kristen Foster
Adam Latuns

Table of Contents

Treat Diabetes

Feel Well

Take Control

Toolbox

Treat Diabetes

Treat Diabetes

Chapter 1
Overview of Diabetes

You Will Learn About:

1. What your pancreas does and the role of insulin
2. Your type of diabetes
   a. What it is and what happens to your body
   b. What causes it
   c. What can you do about it
3. The signs and symptoms of diabetes
4. The tests used to diagnose diabetes

1. What Your Pancreas Does and the Role of Insulin

Many parts of your body are involved with digesting food and drink. When your body digests food and drink, sugar (also known as glucose) goes into your blood stream. When sugar goes into your blood, your pancreas releases a hormone called insulin. Insulin helps your body take sugar from your blood stream and store it. This stored sugar is used for energy. Knowing what foods and drinks raise your blood sugar and how your body reacts is vital to managing your diabetes. Over time, too much sugar in your blood leads to health problems like heart disease, stroke and kidney failure. Read Chapter 6 on Health Problems with Diabetes to learn more.

2. Your Type of Diabetes

Diabetes is a disease that impacts the way your pancreas produces insulin or how your body responds to insulin. There are 5 main types of diabetes:

1. Type 1 diabetes
2. Type 2 diabetes
3. Prediabetes
4. Gestational (pregnancy) diabetes
5. Medicine-induced diabetes

No matter what type of diabetes you have, you have too much sugar in your blood.

TYPE 1 DIABETES

What is type 1 diabetes and what happens to my body?

Type 1 diabetes is a disease that happens when your pancreas stops making insulin. Without insulin, the sugar in your blood can't be stored. This causes sugar to collect in your blood.

There are many symptoms when sugar collects in your blood. Some of the signs and symptoms include thirsty, tired, need to pee often, blurry vision or weight loss.

Type 1 diabetes is most common in children and teenagers. Although more common in younger people, type 1 diabetes can occur at any age.

What causes type 1 diabetes?

No one knows the main cause of type 1 diabetes. Damage to the pancreas could be from a virus or maybe from your body's own defense system (called your immune system).

What do I need to do?

You will have to take insulin prescribed by your doctor if you have type 1 diabetes.

Since your body cannot produce insulin, sugar will collect in your blood. Over time, large amounts of sugar in your blood (called 'high blood sugar') may cause serious health problems. You will have to take insulin to process sugar since your body can't produce it. You give yourself insulin through a needle. This is called an insulin injection. This insulin will help take sugar from your blood to store it.

In addition to taking insulin you can manage your blood sugar by adopting healthy lifestyle behaviours.

Take Action

If you have diabetes (any type) take action to manage your blood sugar.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

TYPE 2 DIABETES

What is type 2 diabetes and what happens to my body?

Type 2 diabetes is the most common type of diabetes. Type 2 diabetes is a disease that happens when your pancreas makes insulin but your body does not process sugar as it should. As time passes, your pancreas will stop making enough insulin.

Type 2 diabetes develops slowly over many years. Type 2 diabetes usually happens in people over the age of 40. Although more common in older people, type 2 diabetes can occur at any age.

What causes type 2 diabetes?

The exact cause of type 2 diabetes is not known, however, there are risk factors for type 2 diabetes. If you have these risk factors, it means you are more likely to get this disease. Risk factors for type 2 diabetes are:

- Inactive lifestyle (no exercise, sitting too long each day)
- Poor eating habits
- Family history of diabetes
- Large waist (extra body fat around your stomach and organs)

It is important to tell your family members (such as, your parents, siblings and children) about your diabetes. Your family members can book an appointment to be checked. The earlier someone is diagnosed the sooner they can take action and prevent the long-term health problems from high blood sugar.

What do I need to do?

In the early stages of diabetes when your pancreas is working (making insulin), you take medicine. The medicine comes in pill form and you take it by mouth with water or some other liquid to help swallow it. This medicine helps your body produce more insulin or react better to the insulin your pancreas makes.

Over time, your pancreas may stop making enough insulin. When your pancreas stops making enough insulin you may need to start taking insulin. Insulin is given by needle and is called an insulin injection. This insulin helps you manage your blood sugar.

Exercise can also help your body respond to insulin. Exercise makes your muscles use more sugar from your blood. Since your muscles use more sugar, your body reacts to insulin better. In addition to taking insulin and exercising you can manage your blood sugar by adopting other healthy lifestyle behaviours.

Take Action

If you have diabetes (any type) take action to manage your blood sugar.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

PREDIABETES

What is prediabetes and what happens to my body?

Prediabetes is when your blood sugar is a little higher than normal but not high enough to be diagnosed with type 2 diabetes.

What causes prediabetes?

The cause for prediabetes is not known, however, there are risk factors for prediabetes. Risk factors mean you are more likely to get prediabetes. The risk factors for prediabetes are the same as type 2 diabetes and include:

- Inactive lifestyle (no exercise, sitting too long each day)
- Poor eating habits
- Family history of diabetes
- Large waist (extra body fat around your stomach and organs)

What do I need to do?

Having prediabetes puts you at a high risk of developing type 2 diabetes in the future. You can manage your blood sugar by adopting healthy lifestyle behaviours.

Take Action

If you have diabetes (any type) take action to manage your blood sugar.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

Your doctor can prescribe a medicine to control your blood sugar. The medicine is only given if you cannot manage your blood sugar with exercise and eating healthy. This medicine is taken by mouth and helps your body respond to the insulin made by your pancreas.

GESTATIONAL (PREGNANCY) DIABETES

What is gestational (pregnancy) diabetes and what happens to my body?

Gestational (pregnancy) diabetes means you have high blood sugar when you are pregnant. This type of diabetes lasts your pregnancy and normally goes away. Your blood sugar should return to normal after you deliver. Sometimes, gestational (pregnancy) diabetes can last a long time. This is when your blood

sugar does not return to normal after you deliver.

What causes gestational diabetes?

There are a few factors that increase your risk for gestational diabetes. Your risk is higher if:

- You are 35 years of age or older when pregnant
- You have a family history of gestational diabetes
- You have a large waist before pregnancy (extra body fat around your stomach and organs)

What do I need to do?

Gestational diabetes can affect your baby. When you have gestational diabetes, your baby can have a higher than normal birth weight. It also puts you at risk for developing diabetes in the future. Both birth weight and diabetes have known health problems. It is vital to manage your blood sugar. You can manage your blood sugar by adopting healthy lifestyle behaviours.

Take Action

If you have diabetes (any type) take action to manage your blood sugar.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

After you deliver:

- Get your blood sugar checked 6 to 12 weeks after you deliver. This will ensure your blood sugar is back to normal
- Gestational diabetes puts you at risk for type 2 diabetes. See your doctor every 1 to 3 years after delivery to monitor your health. Eat healthy and exercise to lower your risk for type 2 diabetes in the future

MEDICINE-INDUCED DIABETES

What is medicine-induced diabetes and what happens to my body?

Medicine-induced diabetes means your medicine has given you diabetes. Your medicine has raised your blood sugar. Your medicine either caused your body to make more sugar or stopped your insulin from working in the right way.

Some examples of medicines that can raise your blood sugar are:

- Steroids
- Some antipsychotic medicines (treatment for schizophrenia)

What causes medicine-induced diabetes?

Taking medicines that raise your blood sugar may cause medicine-induced diabetes. Medicines that cause medicine-induced diabetes work differently in your body. Talk to your doctor about what is happening to you.

What do I need to do?

Speak with your doctor about other medicine options for you. You can manage your blood sugar by adopting healthy lifestyle behaviours.

Take Action

If you have diabetes (any type) take action to manage your blood sugar.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

3. Signs and Symptoms of Diabetes

Your signs and symptoms of diabetes will be different than other people's signs and symptoms. You may experience all or none of the signs and symptoms below:

- Very thirsty
- Peeing often
- Very tired
- Hungry more often
- Cuts slow to heal
- Sudden weight loss or gain
- Blurry vision
- Nausea (upset stomach), stomach pain
- Infections often (for example, yeast infections)
- Numbness or tingling in hands or feet

4. Tests to Diagnose Diabetes

There are different tests you could have to diagnose (find) diabetes. These tests are done with your routine blood work. There are 4 tests described below. All of these tests check your blood sugar level.

Tip: The word 'glucose' is used often when describing tests. Glucose is another term for sugar.

Random Blood Glucose test

- This test measures the sugar in your blood. It uses a sample of your blood. For this test, it doesn't matter when you last ate or drank. The results show what your blood sugar is at the time you have blood taken. These results can be affected by when you last ate and what you had to eat and drink that day.

Fasting Blood Glucose test

- This test measures the sugar in your blood. It uses a sample of blood. For this test, you can't eat or drink for at least 8 hours before the test. The results show your blood sugar level with no food or drink.

Oral Glucose Tolerance Test

- This test measures the sugar in your blood. It uses a sample of your blood. For this test, you must drink a sugary liquid. The results show your blood sugar level after drinking a specific amount of sugar. This test is not done with your routine blood work and is specially ordered by your doctor.

A1c test (also known as HbA1c)

- This test measures how well you managed your blood sugar over the past 3 months. This test uses a sample of your blood. For this test, it doesn't matter when you last ate or drank. The test counts the number of blood

cells with sugar. The results are shown in percent (%). This number can be changed into an average blood sugar.

Summary

- If you have diabetes (any type) you can manage your blood sugar by taking your diabetes medicines and adopting healthy lifestyle behaviours such as eating healthy, exercising, managing your stress (and depression), checking your blood sugar and avoiding smoking or exposure to second-hand smoke
- If you have diabetes, let you family know so they are aware of the signs and symptoms of diabetes and can be screened for diabetes by their doctor
- There are several tests to help you and your doctor determine if you have diabetes

Treat Diabetes

Chapter 2
Manage Your Blood Sugar

You Will Learn About:

1. What a glucometer is, how to read it and when to use it
    a. What is a glucometer?
    b. How is it used?
    c. When do you use it?
2. The A1c test
    a. Relate your A1c test to your blood sugar levels

1. What a Glucometer Is and How to Read It

It is important to manage your blood sugar. A glucometer is one tool to help you do this.

What is a glucometer?

A glucometer is a tool that measures your blood sugar. Your glucometer shows your blood sugar results in millimoles of sugar per litre of blood (mmol/L). Buy a glucometer and testing strips at your closest pharmacy. There are many different models of glucometers so talk to your pharmacist about which model is best for you.

How is it used?

Your glucometer uses a small sample of your blood. This blood comes from your finger. The glucometer measures how much sugar is in this small drop of blood. Once the sample of blood is taken, a reading appears on the glucometer screen. The reading will be in mmol/L, such as 5.2 mmol/L. This reading tells your blood sugar level at that exact moment. Talk to your doctor to learn how often you should check your blood sugar.

When do I use it?

1. Use the numbers from your glucometer to see how your body responds to:

- What you eat and drink
- Your diabetes medicine(s)
- Your exercise and activity levels
- Your stress (or depression) level
- Illness (a cold, infection or surgery)

2. Use your glucometer if you have signs or symptoms of low blood sugar (hypoglycemia) such as:

- Trembling or shakiness
- Hard to think
- Easy to upset (Irritable)
- Hunger
- Anxiety
- Tingling
- Nausea
- Sweating

If you experience any of the above signs or symptoms, check your blood sugar as soon as you can. Some people do not experience the signs and symptoms of low blood sugar. If you take insulin or a Secretagogue medicine, you are at risk for low blood sugar (especially after exercise).

Safety Alert!

You are at risk for low blood sugar (especially after exercise) if you take any of the following diabetes medicines:

- Insulin
- Secretagogue medicines such as:
  - Diamicron (Gliclazide)
  - Amaryl (Glimepiride)
  - Glyburide (Diabeta)
  - Repaglinide (Gluconorm)

Check your blood sugar more often. Talk to your doctor about when and how often to check your blood sugar.

3. Use your glucometer if you have signs or symptoms of high blood sugar (hyperglycemia) such as:

- Thirsty
- Tired
- Need to pee more often
- Nausea (upset stomach), stomach pain
- Blurry vision

If you experience any of the above signs or symptoms, check your blood sugar as soon as you can. Many people do not experience the signs and symptoms of high blood sugar. Talk to your doctor about when and how often to check your blood sugar.

4. You will have to check your blood sugar more often if:

- You take insulin
- You take a medicine from the Secretagogue class of medicines
- You have changes to your diabetes medicines
- You have episodes of very low blood sugar (called hypoglycemia)
- You are driving and take insulin or a Secretagogue medicine
- You are ill (with a cold, infection or having surgery)
- You started a new exercise program
- You made changes to your existing exercise program
- Your A1c is not within the normal range

2. The A1c Test

It is important to manage your blood sugar. An A1c test is one tool to help you do this.

What is an A1c test?

An A1c test uses a sample of your blood to measure how well you managed your blood sugar over the past 3 months. The A1c test counts the number of blood cells with sugar attached to them. Your A1c results are shown as a percent (%).

Why is A1c important?

Managing your blood sugar is crucial for managing your diabetes. Your A1c shows how your medicines and healthy habits help manage your blood sugar. Ask your doctor what your A1c level is. Ask them what your target A1c level is too. There are many ways to lower your A1c level. If your A1c level is higher than your target, ask your doctor and healthcare team what you can do to lower it. To lower your A1c, you must make changes to your lifestyle. These changes may include:

- Changing your diabetes medicine(s)
- Eating healthier
- Exercising more often
- Managing your stress (or depression) better
- Avoiding smoking or exposure to second-hand smoke
- Checking your blood sugar more often

How does your A1c test relate to your blood sugar?

The results of your A1c test are shown in percent (%). This is different than your glucometer. Your glucometer readings are measured in millimoles of

sugar per litre of blood (mmol/L). Your A1c tells you and your doctor how well you managed your blood sugar over the past 3 months. Both you and your doctor can use your A1c to guide how you manage your diabetes.

Use a conversion chart to relate your A1c to your average blood sugar. The conversion chart is easy to use. First, find your A1c level from your blood work. Then follow the same row to find your average blood sugar. For example, 8% A1c means your average blood sugar over the past 3 months was 11.4 mmol/L.

Use the conversion chart below.

A1c (%)	Average Blood Sugar (mmol/L)
5	5.6
6	7.5
7	9.4
8	11.4
9	13.3
10	15.3
11	17.2
12	19.2

Summary:

- A glucometer is used to measure your blood sugar in the moment
- Use your glucometer readings to learn how your body reacts to your medicines, stress (or depression), food, drink, exercise and smoking
- Listen to your body. Check your blood sugar when you notice a change
- A1c tells you how well you managed your blood sugar over the past 3 months
- Lower your A1c by lowering your daily blood sugar readings

Treat Diabetes

Chapter 3
Manage Your Diabetes

You Will Learn About:

1. How to manage your diabetes
2. Your targets for managing your diabetes
    a. A1c
    b. Blood pressure
    c. Cholesterol
    d. Depression
    e. Fitness and activity level
    f. Stress
    g. Smoking

1. How to Manage Your Diabetes

Your diabetes can be managed. If you manage your diabetes you will live a healthier life. You can prevent or delay the onset of the health problems related to having diabetes. If you do not manage your diabetes your health will suffer. You will be at high risk for developing the health problems related to having diabetes. You can manage diabetes by:

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

It is the health problems of diabetes that cause harm and can lead to disability or death, not the disease itself. Long term health problems include heart attack and stroke. Other problems include kidney disease (kidney failure), eye disease (loss of vision), pain, ulcers and possible amputation. Your health care team will teach you about keeping your blood sugar, cholesterol and blood pressure in a normal range. They will also teach you how to eat healthy, exercise, manage your stress (or depression) and stop smoking.

The next section will describe how to keep your blood sugar, cholesterol and blood pressure in a normal range and how to increase your fitness, manage your stress (or depression) and quit smoking.

2. Your Targets for Managing Your Diabetes

A1c (also known as HbA1c)

A1c is a type of blood test. Recall, your A1c measures how well you managed your blood sugar over the past 3 months. The A1c test results are expressed in percent (%). The A1c test counts the number of blood cells with sugar attached to them. A normal A1c number is less than 7%.

Use a conversion chart to relate your A1c to your average blood sugar. Follow the three steps below:

1. Find your A1c level from your blood work.
2. Look for your A1c level in the conversion chart below.

A1c (%)	Average Blood Sugar (mmol/L)
5	5.6
6	7.5
7	9.4
8	11.4
9	13.3
10	15.3
11	17.2
12	19.2

3. Follow the same row to the right to find your average blood sugar.

For example, 8% A1c means your average blood sugar over the past 3 months was 11.4 mmol/L.

Your A1c tells you and your doctor how well you managed your blood sugar over the past 3 months. Both you and your doctor can use your A1c to guide what changes you need to make to your diabetes medicines or to your lifestyle habits.

If your A1c is less than 7% you are in the right range. Continue doing all of your healthy habits. Talk to your doctor to make sure this number is good for you. If you do not feel well (you are getting too many episodes of low blood sugar) with an A1c number of less than 7%, talk to your doctor.

If your A1c is more than 7%, talk to your doctor. Discuss what you can do to lower your A1c. You may need to change your eating habits, exercise habits, stress (or depression) control or your diabetes medicines. Check your blood sugar more often. Your blood sugar shows if the changes you make lower your blood sugar.

Blood Pressure

When your heart beats, blood is pushed out of your heart and around your body. As your blood travels, it pushes against your artery walls. Blood pressure is the strength of this pushing.

Blood pressure is measured in millimeters of mercury (mmHg). Millimeters of mercury (mmHg) measures the pressure of blood in your arteries. A blood pressure reading is expressed in two numbers such as 120/80 mmHg. Both blood pressure numbers are important. The top number is the pressure when the heart pumps. This is called **systolic blood pressure**. The bottom number is the pressure when the heart relaxes. This is called **diastolic blood pressure**.

A normal blood pressure with your diabetes is less than 130/80 mmHg. This goal blood pressure can be different from person to person depending on your age. Talk to your doctor about the right blood pressure for you.

High blood pressure can have no warning signs or symptoms. No signs or symptoms is a problem because high blood pressure is harmful. Over time, high blood pressure damages your heart (heart attack), brain (stroke) and kidneys (nephropathy). People living with diabetes often have high blood pressure. Have your blood pressure checked at each doctor's visit. Your doctor may ask you to monitor your blood pressure at home.

Know your blood pressure numbers to know if you are controlling your blood pressure. Your blood pressure goal is less than 130/80 mmHg. If your blood pressure is below 130/80 mmHg, continue with your healthy habits such as healthy eating, exercising, managing your stress (or depression) and taking your blood pressure medicine.

If your blood pressure is more than 130/80 mmHg, talk to your doctor. Ask your doctor what you can do to lower your blood pressure. Lower your blood pressure with healthy eating, exercising, managing your stress (or depression) and taking blood pressure lowering medicine(s). Read Section, 'Eat Healthy' to learn more about how to lower your blood pressure by reducing the sodium in your diet.

Cholesterol

Cholesterol is a waxy fat-like substance found in your body.

Your body needs cholesterol to:

- Keep your cells healthy
- Make hormones like testosterone and estrogen. Testosterone and estrogen are needed for normal growth and reproduction

- Make vitamin D. Vitamin D helps your body absorb calcium and promote bone growth

There are 2 main types of cholesterol in your body. The 2 types of cholesterol are:

- Low-density lipoprotein (LDL) cholesterol: the “bad” cholesterol
- High-density lipoprotein (HDL) cholesterol: the “good” cholesterol

One way to manage your diabetes is to manage your cholesterol level. You want less LDL (bad) cholesterol and more HDL (good) cholesterol in your body.

Too much LDL (bad) cholesterol causes plaque to collect in your arteries. Plaque makes it harder for blood to pass through your arteries. Over time, as plaque collects, your arteries can become narrow or blocked. Blockages can cause a heart attack and stroke.

It is important to have your LDL (bad) cholesterol within a normal range. Having high LDL (bad) cholesterol and diabetes puts you at a high risk for heart attack and stroke.

Blood cholesterol is measured in millimoles per litre of blood (mmol/L). Millimoles per litre of blood measures the number of cholesterol particles in your blood. A normal range for LDL (bad) cholesterol is less than or equal to 2.0 mmol/L. Know your LDL (bad) cholesterol level to understand if you are managing your cholesterol.

If your LDL (bad) cholesterol is less than or equal to 2.0 mmol/L:

- You are in the correct range. Continue to do all of the healthy habits that you have been doing

If your LDL (bad) cholesterol is more than 2.0 mmol/L:

- Talk to your doctor about what you can do to lower your LDL (bad) cholesterol. You may need to make changes to lower your LDL (bad) cholesterol. These changes may include eating healthy and taking cholesterol lowering medicine

Some fats in your diet raise your LDL (bad) cholesterol. The fats that raise your LDL (bad) cholesterol are:

- Saturated fats: Saturated fats are found in all animal products and in tropical oils such as cocoa butter, palm oil, coconut oil, palm kernel oils
- Trans fats: Trans fats are found in processed foods like store bought cakes, pastries, donuts and deep-fried foods

HDL (good) cholesterol protects you from heart disease. A normal range for HDL (good) cholesterol is greater than 1.0 mmol/L. A higher level of HDL (good) cholesterol is better for your heart health.

You may see a total cholesterol to HDL (good) cholesterol ratio, in your blood work. This is a way to know the balance of good and bad cholesterol in your blood. A normal range for total cholesterol to HDL (good) cholesterol ratio is less than 4. A lower ratio is better for your heart health.

Triglycerides are a type of fat in your blood. Having high triglycerides in your blood puts you at risk for heart disease. A normal range for triglycerides is less than 1.7 mmol/L. A lower number is better for your heart health.

Read Section, 'Eat Healthy' to learn more about how to lower your LDL (bad) cholesterol, raise your HDL (good) cholesterol and lower your triglycerides.

The healthy targets for your A1c, blood pressure, and cholesterol levels are shown below.

Targets for A1c, Blood Pressure and Cholesterol

	Target
A1c (also known as HbA1c)	Less than 7% (Normal 4.1-5.5%)
Blood Pressure	
Systolic pressure	Less than 130 mmHg
Diastolic pressure	Less than 80 mmHg
Cholesterol	
LDL (bad) cholesterol	Less than or equal to 2.0 mmol/L
HDL (good) cholesterol	More than 1.0 mmol/L
Total cholesterol to HDL cholesterol ratio	Less than 4.0
Triglycerides	Less than 1.7 mmol/L

Take action to get your A1c, blood pressure and cholesterol on target.

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

Depression

Depression is a mental health problem that involves how you feel. Depression is more common in people with diabetes. When you are depressed, your self-management decreases which means you may not take good care of your diabetes. Know the signs of depression so you can get help. These signs include:

- Loss of enjoyment in doing the things that used to be enjoyable
- Feeling down, hopeless or sad
- Difficulty falling asleep or staying asleep
- Having very little energy
- Changes in appetite, either loss of appetite or excessive appetite
- Having negative thoughts and feelings about yourself
- Trouble concentrating
- Loss of interest in sex

If you have many of these signs for 2 weeks or longer you may be depressed. Talk to your doctor about how you are feeling. Read Section, 'Feel Well' to learn more.

Fitness and activity level

Exercise is a vital part of health. You can improve how well your body works with exercise. Exercise can increase your body's response to insulin and can help your body manage the sugar in your blood. Read Section, 'Exercise & Get Active' to learn more.

Stress

Stress is your body's response to change. Any part of your life can cause stress. Stress can be the result of good or bad things.

Because your body reacts to stress, how you deal with stress is a vital part of managing your diabetes. Try to notice when you are feeling stressed. Stress causes your blood sugar to rise and it lowers the insulin in your blood. High blood sugar levels without enough insulin can damage your body.

If you notice when you are feeling stress, you can start to track what is causing stress. Knowing the cause of stress can help you get control of it. A 'stressor' is something that causes stress. There are many different types of stressors. Some stressors include changes in:

- Health
- Relationships
- Work
- Family
- Friendships
- Lifestyle
- Finances

Change itself can be a stressor. Stress that lasts for weeks or months without a break is called **chronic stress**. Chronic stress leads to palpitations (feeling your heart skip a beat), high blood pressure and more plaque collection in your arteries.

If you feel stressed, talk to your healthcare provider about what can help. Read Section, 'Feel Well' to learn more.

Smoking

Smoking is more of a danger for people with diabetes than others. Smoking raises your blood sugar and damages your arteries. If you have diabetes already, your arteries are at major risk.

There are many resources that can help you reduce how much you smoke and quit. Resources include:

- Nicotine replacement such as patches, gum and candies
- Medicines to lower your withdrawal symptoms and cravings
- Quitting smoking programs online or in person

Talk to your doctor or pharmacist if you smoke. Your healthcare team needs to know you smoke, even if you don't plan to quit.

Summary

It is important that you know your:

- A1c level
- Blood pressure
- LDL (bad) cholesterol level

Once you know these numbers, talk to your healthcare team about what you need to do to get your A1c, blood pressure and cholesterol within a normal range. Taking action will prevent or delay long-term health problems.

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

You are not alone. Your healthcare team is here to support you with the changes you need to make to manage your diabetes.

Treat Diabetes

Chapter 4

Low Blood Sugar (Hypoglycemia)

You Will Learn About:

1. Low blood sugar and review signs and symptoms
2. Risk factors and treatment for low blood sugar
3. How to prevent low blood sugar
4. The impact of low blood sugar and driving
5. Diabetes medical identification jewelry

1. Low Blood Sugar and the Signs and Symptoms

What is low blood sugar?

Low blood sugar can be dangerous. It means there is not enough sugar in your blood. Your brain and body need sugar to function. Low blood sugar is also known as hypoglycemia.

Low blood sugar happens when your blood sugar drops below 4 mmol/L. You may have low blood sugar symptoms at different levels. For example, you may have low blood sugar symptoms at 6 mmol/L.

If your blood sugar gets too low you can become disoriented, confused, and you may even lose consciousness (go into a coma). This is called severe hypoglycemia. Severe hypoglycemia happens when your blood sugar is so low you can't treat it yourself with fast acting carbohydrates or glucagon (a medicine sometimes prescribed by doctors for people who are prone to very low blood sugar).

Teach your family members and friends how to help you when you can no longer treat your low blood sugar by yourself. They need to know this is a medical emergency and you need help right away.

What are the signs and symptoms of low blood sugar?

People have different signs and symptoms of low blood sugar. You may have any number of the symptoms below. Common signs and symptoms are:

- Trembling or shaking
- Hard time thinking
- Headache
- Dizzy
- Feeling tired (drowsy)

- Changes to your vision
- Anxiety (nervous and fearful)
- Tingling in your face or hands
- Nausea (upset stomach)
- Sweating
- Hunger
- Faster heart beat than usual (palpitations)
- Difficulty speaking
- Disoriented (confused)
- Seizures or loss of consciousness (with severe hypoglycemia)

Some people have low blood sugar levels and do not have any of the signs or symptoms listed. In this case, it is crucial that you check your blood sugar often to see if your blood sugar is low (especially before driving a car, motorcycle or boat). Check your blood sugar often to be sure. This will help you know when your blood sugar is low.

What is the impact of low blood sugar?

Having low blood sugar is a risk to your safety and health.

- Do not use machinery or drive a vehicle if your blood sugar is low. You are at a greater risk of an accident if your blood sugar is low
- If you have an episode of low blood sugar this puts you at risk of not being able to notice the next time your blood sugar goes low

2. Risk Factors and Treatment for Low Blood Sugar

What are the risk factors for low blood sugar?

You are at risk for low blood sugar if you:

- Are taking insulin
- Are taking a medicine from the Secretagogue class of medicines like:
  - Diamicron (Gliclazide)
  - Amaryl (Glimepiride)
  - Glyburide (Diabeta)
  - Repaglinide (Gluconorm)

  Read Chapter 7 of this section on Diabetes Medicines to learn more.
- Start a new exercise program and are prescribed insulin or a medicine from the Secretagogue class of medicines
- Have had episodes of low blood sugar in the past
- Have an A1c of less than 6 percent (%)
- Do not get any of the signs or symptoms of low blood sugar

How is low blood sugar treated?

There are two ways to know you have low blood sugar:

1. You have any signs or symptoms of low blood sugar
2. Your glucometer reading is less than 4.0 mmol/L

If you have low blood sugar:

1. Act quickly. Do not wait

2. Stop what you are doing and sit down. Test your blood sugar with your glucometer if you have not already done so

3. Eat or drink 15 grams of fast acting carbohydrate. Fast acting carbohydrates raise your blood sugar quickly

   Examples of fast acting carbohydrates are:

   – 15 grams of sugar tablets

   – ¾ cup (175 ml) of juice or

   – ¾ cup (175 ml) regular pop (soft drink)

   – 3 teaspoons or 3 packets of sugar dissolved in water

   – 6 LifeSavers

   – 1 tablespoon (15 ml) of honey

4. Wait 15 minutes

5. Test your blood sugar again

- If your blood sugar is still below 4 mmol/L take another 15 grams of fast acting carbohydrate
- Wait another 15 minutes and check your blood sugar again
- Repeat this step until your blood sugar is higher than 4 mmol/L

6. When your blood sugar is above 4 mmol/L, eat your usual meal

- Follow your regular meal schedule
- Have a snack if your meal is more than 1 hour away. This snack should have a slower acting carbohydrate and protein like a slice of wholegrain bread with reduced fat cheese. Slower acting carbohydrates raise your blood sugar slowly over a period of time. This will prevent another episode of low blood sugar

How is severe low blood sugar (severe hypoglycemia) treated?

If you had a severe episode of hypoglycemia in the past, your doctor may tell you to treat any future episodes with greater amounts of fast acting carbohydrate or glucagon (a medicine prescribed by your doctor).

If your blood sugar goes too low you will likely need help. It is crucial that you let your family and friends know how to help you when you can no longer help yourself (for example, you become disoriented, have a seizure or lose consciousness). This is a medical emergency. Wear jewelry that lets people know you have diabetes. A medical alert bracelet is one type of this jewelry.

	Morning	Afternoon	Evening
When did I take my diabetes medicine today?			
Am I taking a new medicine? Or is this a different amount of the same medicine?			
How long did I exercise today? What time did I exercise?			
What did I eat and drink today? What time did I eat?			

How do you learn from a low blood sugar episode?

Reflect on your low blood sugar episode to help prevent another episode. Use the reflection chart below to answer questions about your low blood sugar episode.

Take this chart to your doctor, pharmacist or diabetes educator. They can help you make changes to prevent low blood sugar. This can include changes to your medicines, food or exercise.

3. How to Prevent Low Blood Sugar

There are many ways to prevent low blood sugar. Talk to your doctor, pharmacist or diabetes educator to learn:

- The best amount of diabetes medicine for you
- How to time your diabetes medicine with your food
- When your diabetes medicine is working the hardest to lower your blood sugar
- How often to check your blood sugar
- How much exercise lowers your blood sugar
  - If you take insulin or a medicine from the Secretagogue class of medicines, check your blood sugar before you exercise. If your blood sugar is less than 5.5 mmol/L, have a snack that contains protein and a slow acting carbohydrate (such as a slice of whole grain bread with peanut butter). Slow acting carbohydrate slowly raises your blood sugar to prevent an episode of low blood sugar
- How to know the signs and symptoms of low blood sugar. Carry a fast acting carbohydrate with you at all times just in case you need it. Fast acting carbohydrates raise your blood sugar quickly

4. The Impact of Low Blood Sugar and Driving

Your blood sugar should be higher than 5 mmol/L if you are driving. This prevents you from having low blood sugar while driving. This is crucial information if you are taking insulin or a medicine from the Secretagogue class of medicines.

Safety Alert!

You are at risk for low blood sugar (especially after exercise) if you take any of the following diabetes medicines:

- Insulin
- Secretagogue medicines such as:
  - Diamicron (Gliclazide)
  - Amaryl (Glimepiride)
  - Glyburide (Diabeta)
  - Repaglinide (Gluconorm)

Follow the tips below to stay safe while you drive:

- Check your blood sugar before driving. Your blood sugar should be higher than 5 mmol/L
- Check your blood sugar every 4 hours on long drives
- Carry a fast acting carbohydrate with you at all times so that you can treat low blood sugar quickly
- Your blood sugar must stay above 5 mmol/L for 45 minutes or longer before you drive if you just treated a low blood sugar episode

5. Medical Identification Jewelry

What is medical identification jewelry?

Medical identification jewelry is jewelry with a small medical emblem. On the back of the emblem it says 'diabetes'. This emblem tells people you have diabetes. The jewelry comes in many styles, including bracelets and necklaces.

Why wear medical identification jewelry?

Medical identification jewelry can save your life. This jewelry tells your health information. If you become confused, disoriented or lose consciousness, the bracelet will tell others you have diabetes. This will allow people to know how to help you quickly. Talk to your doctor, pharmacist or diabetes educator for more information.

Summary

- Low blood sugar means there is not enough sugar in your blood
- You may not have signs or symptoms of low blood sugar. Check your blood sugar often if you take insulin or a medicine from the Secretagogue class of medicines. Read the Safety Alert, in this section, about the risk of low blood sugar with certain diabetes medicines
- Check your blood sugar if you notice any signs or symptoms of low blood sugar
- Treat an episode of low blood sugar with fast acting carbohydrate. Fast acting carbohydrates raise your blood sugar quickly
- Ensure your blood sugar is higher than 5 mmol/L before driving
- Medical identification jewelry can save your life

Treat Diabetes

Chapter 5
High Blood Sugar (Hyperglycemia)

You Will Learn About:

1. High blood sugar and the signs and symptoms
   a. What is high blood sugar?
   b. What are the signs and symptoms of high blood sugar?
   c. What is the impact of high blood sugar?
2. The risk factors and treatment of high blood sugar
   a. What are the risk factors for high blood sugar?
   b. What are the treatments for high blood sugar?
   c. How do I to treat high blood sugar when I am ill?
3. How to prevent high blood sugar
4. The impact of high blood sugar and exercise

1. High Blood Sugar and the Signs and Symptoms

What is high blood sugar?

High blood sugar means your blood sugar level is higher than normal. Over time, too much sugar in your blood leads to serious health problems (diabetes complications). High blood sugar is also known as hyperglycemia.

What are the symptoms of high blood sugar?

Everyone has different signs and symptoms of high blood sugar. You may have any number of the signs and symptoms listed below. High blood sugar signs and symptoms may include:

- Thirsty
- Tired
- Needing to pee more
- Nausea (upset stomach), stomach pain
- Vomiting
- Blurry vision

Many people do not have signs or symptoms of high blood sugar. Check your blood sugar more often if you are ill, have an infection or are undergoing surgery. Talk to your doctor and make a plan for how to manage your diabetes when you are ill.

What is the impact of high blood sugar?

Over time, too much sugar in your body can lead to serious health problems (diabetes complications) like heart attack, stroke, kidney failure, loss of vision, ulcers and even amputation.

Very high blood sugar can be a sign of a serious health problem called diabetic ketoacidosis (DKA) or hyperosmolar hyperglycemic state (HHS). This health problem is not common. Get medical help if you are ill, take insulin and have high blood sugar.

It is crucial that you know how well your diabetes medicines and healthy habits are helping you to manage your blood sugar and reach your A1c target (a measure of how well you managed your blood sugar over the past 3 months). Many people do not have signs or symptoms of high blood sugar. It is important to check your blood sugar regularly so that you know how well you are managing your diabetes between A1c tests. Talk to your doctor about how often you should check your blood sugar.

2. Risk Factors and Treatment for High Blood Sugar

What are the risk factors for high blood sugar?

You are at high risk for high blood sugar if you:

- Did not take enough diabetes medicine(s)
- Are ill (with a cold, infection or having surgery)
- Have stress, depression
- Have too much sugary food or drinks

How do I treat high blood sugar?

Treat high blood sugar by taking your diabetes medicines as prescribed. Talk to your doctor if you cannot get your blood sugar into a normal range for you. You may need to:

- Have your diabetes medicine(s) changed
- Change something in your diet

- Exercise more regularly
- Manage your stress, depression better
- Avoid smoking or exposure to second-hand smoke
- Check your blood sugar more often

If you have high blood sugar and you are ill (cold, infection or surgery) do not stop taking your diabetes medicines. It is crucial that you keep taking your insulin if it is prescribed to you. If you do not take your insulin you are at risk for a serious health problem called diabetic ketoacidosis (DKA) or hyperosmolar hyperglycemic state (HHS). Get medical help if you are ill, take insulin and have high blood sugar.

How do I treat high blood sugar when I am ill?

Continue to take your diabetes medicines (especially if you are prescribed insulin) if you are ill. When you are ill, your blood sugar will likely be high even if you are eating less than normal or vomiting (throwing up). Talk to your doctor, pharmacist or diabetes educator about how to manage your diabetes when you are ill. They may adjust the amount of diabetes medicine you take. They will provide you with specific guidelines to follow when you are ill.

Talk to your doctor so you know:

- How to adjust the amount of diabetes medicine you take
- What medicines you should stop if you are dehydrated (your body does not have enough water)
- How often to check your blood sugar
- When to get medical help

Follow these tips when you are ill:

- Take time to rest
- Check your blood sugar more often and before meals
- Do not exercise until you feel better
- Drink lots of water. Drink about ½ to 1 cup of fluids each hour. Other medical conditions may tell you to limit your fluids. Do not drink more fluids if this is true. Talk to your doctor for more information
- Take your diabetes medicine when you are sick. This will help control your blood sugar and prevent health problems
- Get medical help right away if your blood sugar remains high

3. How to Prevent High Blood Sugar

You can avoid high blood sugar by:

- Taking your diabetes medicines as prescribed. Read Chapter 7 of this section on Diabetes Medicines to learn more
- Avoiding sugary foods and drinks. Read section, 'Eat Healthy' to learn more
- Exercising. Read section, 'Exercise & Get Active' to learn more
- Managing your stress, depression. Read section, 'Feel Well' to learn more
- Following the guidelines your doctor gave you for when you are ill

4. The Impact of High Blood Sugar and Exercise

You may be concerned about exercising if your blood sugar is high. Most of the time, exercise will help lower your blood sugar. Follow the steps below to make sure you are safe while you exercise when your blood sugar is high.

1. Do not exercise if you are ill (cold, infection, surgery)
2. Take your diabetes medicines as prescribed
3. Check your blood sugar before you start. If your blood sugar is above 16.7 mmol/L only do light intensity exercise for 15 to 20 minutes then check your blood sugar again
   - If your blood sugar is less than what you started with keep exercising
   - If your blood sugar is higher than what you started with stop exercise for the day. Talk to your doctor or healthcare provider to learn how to lower your high blood sugar
4. Drink water before, during and after exercise unless your doctor has told you to limit your fluids
5. Watch for signs and symptoms of high blood sugar. Stop your exercise if you notice any of the signs or symptoms of high blood sugar
6. Check your blood sugar after exercise

Summary

- High blood sugar means your blood sugar is higher than normal
- Check your blood sugar if you think it is high
- Your blood sugar will likely be higher when you are ill (with a cold, infection or having surgery)
- Do not exercise when you are ill
- Follow the guidelines your doctor gave you to follow when you are ill

Treat Diabetes

Chapter 6

Health Problems with Diabetes

You Will Learn About:

1. The impact of diabetes on your body
2. The health problems that can happen if diabetes is not controlled
   a. What can happen
   b. What you can do to prevent these problems
3. The tests you can have done to check for problems

1. The Impact of Diabetes On Your Body

Diabetes means your body is not processing sugar as it should. This can be due to your pancreas not producing enough insulin or your cells not responding to the insulin available. When your body does not process sugar as it should, you can have high blood sugar. High blood sugar levels can lead to serious health problems (known as 'diabetes complications'). Overtime, high blood sugar may cause problems like:

- Heart disease (heart attack)
- Cerebrovascular disease (stroke)
- Kidney disease (kidney failure)
- Eye problems (loss of vision)
- Nerve damage (pain or loss of sensation)
- Skin and gum problems (ulcers, gum disease)
- Amputations (removal of toes, feet or lower leg by surgery)

Diabetes impacts your whole body including your blood vessels. Blood vessels are your veins and arteries that carry blood around your body. Diabetes damages your blood vessels making them more likely to collect plaque and become narrow. Narrow blood vessels mean your blood does not travel through your body as it should. When blood does not travel through your body as it should problems can happen. Health problems may include heart attack, stroke, kidney disease, eye problems, skin and gum problems and nerve damage.

To prevent problems from starting or getting worse, it is crucial to manage your diabetes.

Take Action

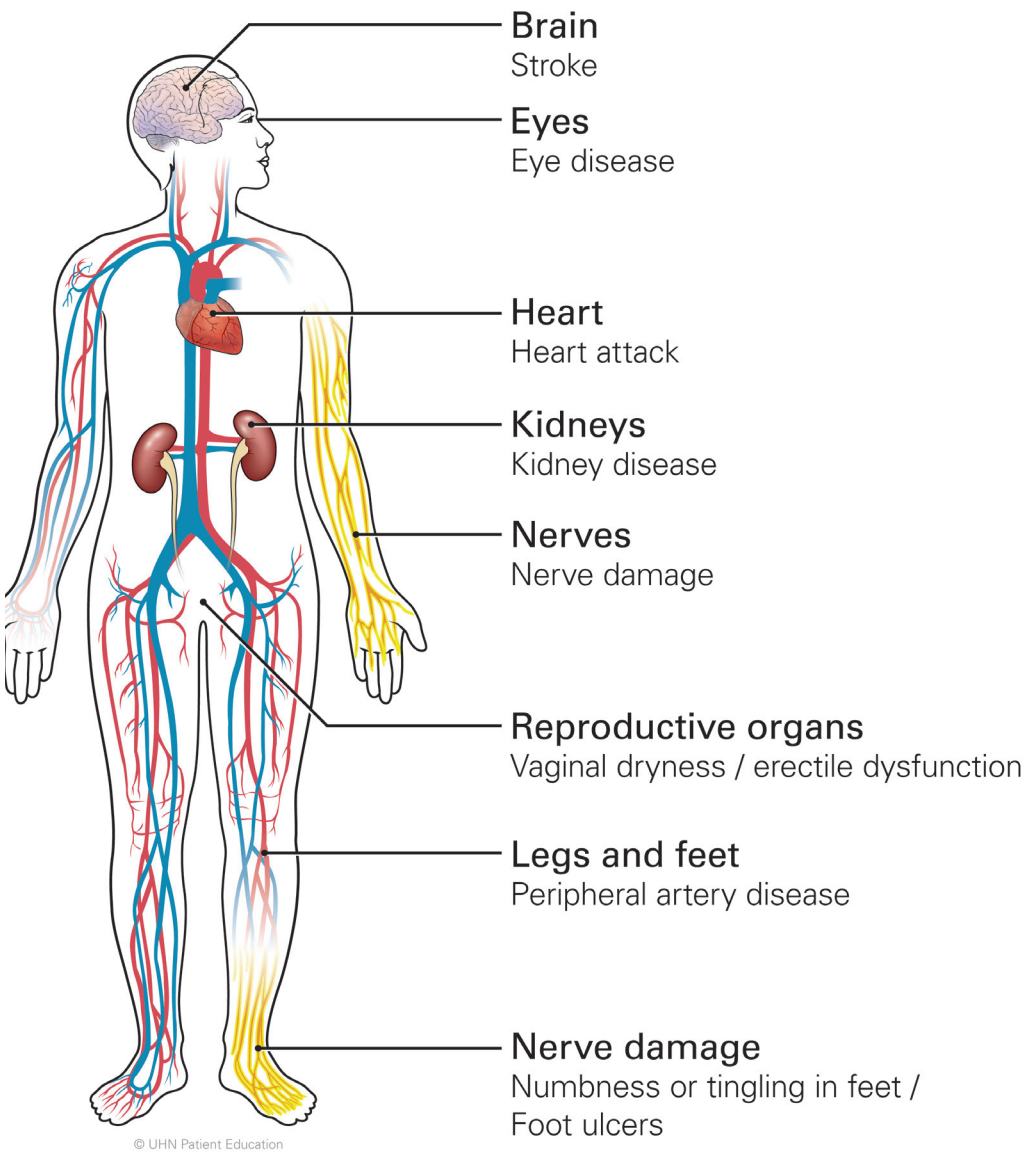
If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

If you follow these tips, you will be able to better manage your diabetes and avoid or delay health problems. You will learn more about how to take action in the, 'Exercise and Get Active', 'Eat Healthy', 'Feel Well' and 'Take Control' sections of this guide. This content explains the health problems that can happen with diabetes.

2. The Problems That Can Happen if Diabetes is Not Controlled

High blood sugar damages your body. If you have high blood sugar over many years it causes even more damage.



This image outlines the impact of high blood sugar over many years to the brain, eyes, heart, kidneys, reproductive organs, legs, feet and nerves.

HEART & BRAIN (CARDIOVASCULAR)

What can happen?

- Diabetes causes the blood vessels in your heart and brain to collect plaque and become narrow. When arteries become narrow due to plaque it is called **atherosclerosis**. Over many years, atherosclerosis can cause a heart attack and/or stroke.

What can I do?

- You can avoid heart attack and stroke if you manage your diabetes.

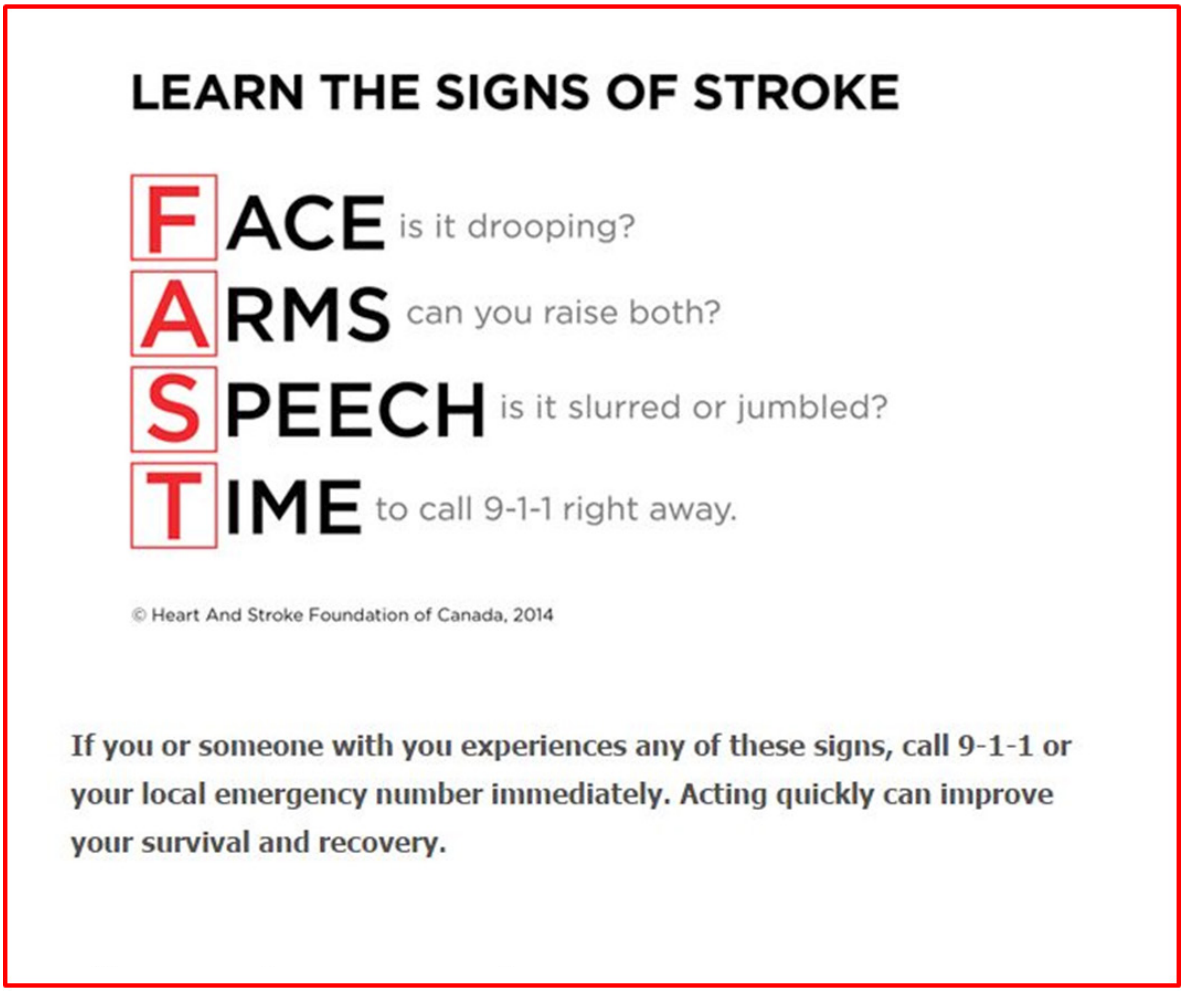
Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

- Learn the signs of a stroke so that you can save your own life or the life of a loved one. If you think you are having a stroke, call 9-1-1 or your local emergency number immediately.

Safety Alert!



- Learn the signs of a heart attack so that you can save your own life or the life of a loved one. If you think you are having a heart attack, call 9-1-1 or your local emergency number immediately.

Safety Alert!

Learn the Signs of a Heart Attack

P	for PRESSURE
A	for ANXIETY
I	for INDIGESTION
N	for NAUSEA or vomiting
S	for SHORTNESS OF BREATH

If you think you are having a heart attack, call 911 immediately.

LEGS
What can happen?

- Arteries carry blood from your heart to your legs. Arteries that carry oxygen-rich blood and nutrients to your limbs are called 'peripheral' arteries. When peripheral arteries are narrow from plaque, it is called **peripheral artery disease**. This disease lowers the blood flow to your legs
- Low blood flow to your legs can be painful. Pain in your legs from low blood flow is called **intermittent claudication**. If you have intermittent

claudication, it feels like cramping or pain in your legs when you are walking. This feeling goes away when you stop walking

What can I do?

- If this is new, talk to your doctor about what you are experiencing. Only a doctor can diagnose this problem
- Manage your blood sugar, blood pressure and cholesterol levels to prevent damage to your arteries. This will lower your risk of plaque buildup and narrowing

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

- Talk to the exercise specialist on your diabetes team. They can create an exercise plan for you. It's ok to take breaks and rest your legs during your walk

EYES

What can happen?

- Diabetes can damage your eyes. It affects the way your eyes function. This can lead to many eye diseases. These diseases can cause vision changes and blindness. Diseases include: **retinopathy, cataract and glaucoma**
- **Retinopathy** means there is damage to the blood vessels in your retina. Your retina is at the back of your eye. Your retina is used to sense light. You need your retina to see. Long term damage to your retina can cause changes in your vision
- A **cataract** is when there is cloudiness on the lens of your eye. Your lens is at the front of your eye. Your lens is what you see through. Cloudiness on your lens causes changes in your vision
- **Glaucoma** means there is a buildup of fluid in your eye. This fluid causes pressure. The pressure can damage the nerve going to and from your eye. The nerve sends information from your eyes to your brain. Damage to your nerve can cause changes in your vision

What can I do?

- Talk to your doctor if you have a change in your vision
- Discuss the different treatment options for retinopathy, cataracts and glaucoma with your eye doctor
- Have eye exams done on a regular basis (usually once every year by an optometrist or ophthalmologist)
- It is important to manage your diabetes. This can prevent or delay eye damage

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

NERVES

What can happen?

- Nerves send messages to and from your brain and body. Arteries feed your nerves oxygen-rich blood and nutrients so they can function as they should. Diabetes can damage the arteries that supply blood to your nerves. This damage to your arteries can lead to damage to your nerves.
- For example, nerves in your fingers send messages about touch and temperature. The messages are sent to your brain. If your nerves are damaged, you will lose this feeling. Losing feeling to your hands and feet is called **peripheral neuropathy**
- When nerves are damaged, many problems can happen in your body. Some problems are:
  - Injury to your hands and feet due to loss of feeling
  - Your stomach takes longer to digest food
  - Problems controlling your blood pressure when changing body positions (such as, from lying down to standing up)

- You do not notice signs of low blood sugar or heart attack. Your doctor will tell you if you don't show signs. In this case you will need to monitor your blood sugar so that you can treat a low blood sugar when it happens
- Problems with getting an erection (called erectile dysfunction)
- Problems with vaginal dryness or reaching orgasm

What can I do?

- Pay close attention for signs of nerve damage (see chart below). Be aware of what feels 'normal for you'. If you notice any change, talk to your doctor
- It is important to manage your diabetes. This can prevent or delay nerve damage.

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

Signs and Symptoms of Nerve Damage

Fingers and Toes (most common)

If you feel numbness, tingling, pain or burning in your fingers and toes

Heart

If your heart beats too fast when you're sitting. May only feel mild symptoms or none at all of a heart attack

Symptoms of low blood sugar

If you can't feel common signs of low blood sugar. Such as shakiness or nervousness

Blood Pressure

If you are dizzy or feel faint when you stand up. This can be from low blood pressure

Digesting food

If you:

- Feel bloated
- Feel your always full
- Feel nauseous
- Have vomited
- Have diarrhea
- Can't poop (constipation)

Signs and Symptoms of Nerve Damage

Sex organs

In men:

- if you have trouble getting an erection

In women:

- if you have vaginal dryness
- if you have trouble having an orgasm

Bladder

If you can't fully empty your bladder. If you have urinary tract infections often

Sweat glands

If you can't sweat or control your body temperature in warm weath

Take Action

- Check your feet every day
- See your doctor if you notice signs of infection or nerve damage
- Learn how your body responds to food. Talk to your doctor for help
- You should notice when you have low blood sugar. If you cannot, check your blood sugar more often. This will make you familiar with your body
- Take extra care when exercising in hot, humid weather

KIDNEYS

What can happen?

- Your kidneys have many blood vessels that act as filters. These filters are used to remove waste from your blood. This waste leaves your body when you urinate (pee)
- Diabetes can damage the blood vessels in your kidneys. Over time, this damage causes kidney disease. Kidney disease is also known as **nephropathy**
- Even more damage can happen if you have high blood pressure and high LDL (bad) cholesterol too. This raises your risk of kidney disease

What can I do?

- You may not have symptoms in the early stages of kidney disease. Get your kidney function tested regularly (usually once every year) by your doctor
- As kidney disease progresses, you may experience:
  - Blood pressure that is hard to control
  - Fatigue (feeling very tired)
  - Feeling weak or dizzy
  - Nausea (upset stomach)
  - Changes in your urine (pee)
  - See your doctor if you have symptoms of kidney damage
- It is important to manage your diabetes. This can prevent or delay kidney damage.

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

FEET

What can happen?

- Diabetes can damage the blood vessels and nerves in your feet. If your blood vessels and nerves are damaged your feet will feel different. You may not be able to feel pain, pressure or temperature in your feet. Your feet may feel numb, tingly or burning
- Diabetes can also cause your feet to change shape and size. Your feet may no longer sweat or produce oil. As a result, your skin can become dry and cracked. Dry, cracked skin is more likely to become infected
- An infection can occur in a sore on your foot. Sores on your feet are called foot ulcers. Foot ulcers are often found at the base of your big toe or on the ball of your foot. These ulcers need medical help right away. If foot ulcers are left untreated, a foot ulcer may lead to your toe(s) or part of your foot being removed (amputation)
- It is important to notice any changes to your feet. You are less likely to have infections if you get medical help quickly

What can I do?

- It is important to manage your diabetes. This can prevent or delay damage to your feet, nerves, blood vessels and skin.

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

- Check for these symptoms:
  - Your feet feel: numb, tingling, burning, or pain
  - You have a cut on your foot that will not heal
  - The skin on your feet is dry or cracked
  - Your feet change shape and size

If you have any of the symptoms above then take action:

- Talk to your doctor about any of the symptoms listed above
- Talk to your doctor if you have a cut that will not heal
- Get your doctor to check your feet at each visit

- Talk to a foot care specialist (chiropodist). They will tell you how to take care of your feet. Some tips to looking after your feet are:
  - Wash your feet every day with lukewarm water and mild soap
  - Cut toenails straight across to avoid ingrown toenails
  - Put lotion on your feet
  - Check your feet every day. Look for tender spots, sores or cuts
  - Wear microfiber socks instead of cotton. This will keep your feet dry. It will also lower your chance of blisters and infections
  - Wear comfortable fitting shoes
  - Avoid walking around in bare feet

SKIN & GUMS
What can happen?

- Your skin covers your whole body. Your skin has 3 main functions:
  - Protect the inside of your body from the outside environment
  - Control your body temperature
  - Feeling
- Diabetes changes your skin. Your skin will not work as well if your diabetes is not managed. This makes your skin more likely to be dry, cracked and itchy. Your skin is also more likely to have infections
- Diabetes can put you at a higher risk for gum disease, cavities and sores in your mouth

What can I do?

- It is important to manage your diabetes. This can prevent or delay damage your skin and gums.

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

- Maintain good skin care to help prevent infections. Some good skin care tips are:
  - Shower with lukewarm water, a mild soap and mild shampoo
  - Put lotion on your dry skin (try not to put it between your toes)
  - Check your skin for cracks or sores every day
  - Go to your doctor right away if you notice cuts, sores or rashes
  - Keep skin dry
  - Wear comfortable shoes
  - Wear clothes that take sweat away from your skin such as, clothes made from man-made microfibers (dry wicking material). Look at your clothing tags for these materials
- If you think you have an infection, talk to your doctor right away
- Maintain good oral care. Brush and floss your teeth daily. Have regular checkups at your dentist (usually 2 times per year)
- If your gums are red or swollen talk to your dentist right away

3. Tests You Can Have Done to Check For Problems

Your body changes with diabetes. It is vital to listen to your body. There are tests to screen for problems. These tests will assess your nerves, kidneys and eyes.

The table below explains each test. Each test is used to screen for a different problem. Ask your doctor for more information about each test.

Name of Screening Test	What happens	How often should I have this test
A1c (also known as HbA1c)	This test shows your blood sugar over the past 3 months. This test uses a sample of your blood. It doesn't matter when you last ate or drank. The test counts the number of red blood cells with sugar. The results are shown in percent (%). This number can be changed into an average blood sugar.	At diagnosis Repeat every 3 months

Name of Screening Test	What happens	How often should I have this test
Neuropathy (nerve damage)	Your foot doctor (chiropodist) will use a monofilament (an instrument made of a soft nylon fiber) to assess your feet for: – Numbness – Vibration – Light touch – Reflexes	At diagnosis Repeat every year If you have skin changes, see your doctor
Nephropathy (kidney damage) Albumin/Creatinine Ratio (ACR)	Your doctor will ask you to go to a lab to have your blood and urine (pee) tested.	At diagnosis and repeat every year
Retinopathy (eye damage)	Your eye doctor will examine your eyes for signs of eye damage.	At diagnosis Repeat every year If you have vision changes, see your doctor

Summary

- Health problems from diabetes can be very severe (heart attack, stroke, loss of vision, pain, ulcers, amputation)
- You have an active role in managing your diabetes. Manage your diabetes to prevent or delay these serious health problems

Take Action

If you have diabetes (any type) take action to manage your diabetes.

- Take your medicines as prescribed by your doctor
- Eat healthy
- Exercise and be active
- Manage your stress and depression
- Check your blood sugar
- Avoid smoking and breathing second-hand smoke

- Screening tests help you catch problems early

Treat Diabetes

Chapter 7
Diabetes Medicines

You Will Learn About:

1. What your diabetes medicines do
2. Your diabetes medicines
3. Who can help with your diabetes medicines if needed

1. What Diabetes Medicines Do

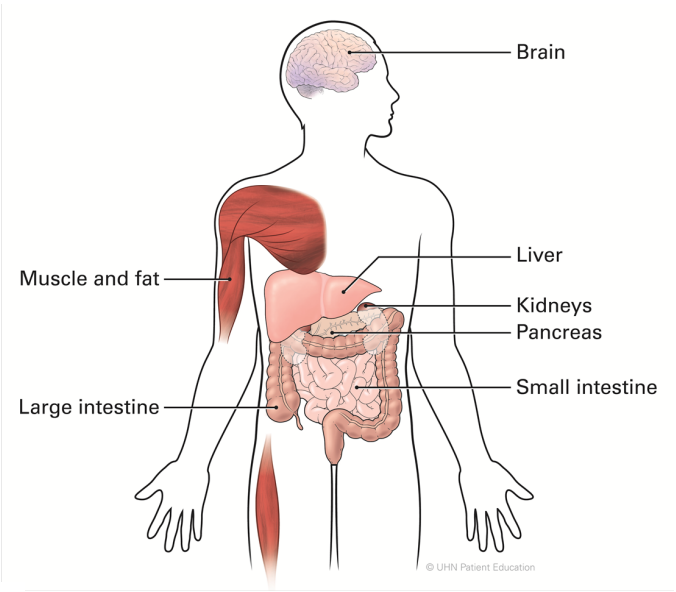
Your diabetes medicines are important for your health. Take your medicines as prescribed by your doctor.

Your diabetes medicines help:

- Manage and improve your blood sugar

Each class of medicine works on a different part of your body (organs, muscle and fat) to lower your blood sugar. Diabetes medicines can:

- Tell your pancreas to produce more insulin
- Provide extra insulin when your pancreas cannot make anymore
- Make the cells in your body more sensitive to insulin
- Slow the speed your body digests sugar
- Help your liver make less sugar
- Tell your kidneys to release more sugar in your urine (pee)



The human body. Diabetes medicines work on different parts of the body including the liver, kidneys, pancreas, intestines, muscle and fat.

When you take your medicines as prescribed by your doctor, they help avoid or delay the onset of serious health problems. These health problems are known complications from diabetes, and include heart attack, stroke, kidney failure, loss of vision, ulcers or amputation.

Your doctor and pharmacist will work with you to ensure your medicines are working for you. They will check your medicines over time to ensure they still work for you.

2. Your Diabetes Medicine

Find your medicine

This section will provide information about your medicines. You will need the name of your diabetes medicine(s) for this section. There are many types of diabetes medicines. Each type is unique and works in its own way within your body. The University Health Network Diabetes, Exercise & Healthy Lifestyle Program does not promote one type of medicine over another. Brand names of diabetes medicines are listed to provide you with examples. The information listed is for education purposes only. Talk to your doctor and pharmacist to find the right medicine(s) for you.

Metformin (Glucophage™ or Glumetza™)

What is it and how does it work?

This medicine is from the Biguanides class of medicines. This class of medicine helps your liver make less sugar. This medicine will lower your blood sugar level. This medicine also helps make your body respond better to insulin (improve insulin sensitivity).

Metformin lowers your A1c level. It is expected to lower your A1c by 1 to 1.5 percent (%).

Side effects and your role

Every medicine has side effects. People tend to react in diverse ways to the same medicine. Side effects of Metformin often start within the first few weeks. The most common side effects of Metformin are:

- Nausea (upset stomach)
- Diarrhea
- Gas
- Bloating
- Metal taste in your mouth
- Vitamin B12 Deficiency

Your role:

- Take metformin with food. Taking metformin with food will lower your chance of side effects
- Tell your doctor if you have kidney or liver problems
- Metformin may be a safety risk for tests such as imaging tests using dyes or for surgeries. Confirm if you should stop taking your metformin for tests or surgeries
- Talk to your doctor if you have questions about your medicine

Acarbose (Prandase™ or Glucobay™)

What is it and how does it work?

This medicine is from the Alpha-glucosidase inhibitors class. This class of medicine slows the speed your body digests sugar. This medicine slows how fast sugar enters your blood.

Acarbose lowers your A1c level. It is expected to lower your A1c by 0.6 percent (%).

Side effects and your role

Every medicine has side effects. People tend to react in diverse ways to the same medicine. The common side effects of Acarbose are:

- Nausea (upset stomach)
- Diarrhea
- Gas
- Bloating

Your role:

- Take Acarbose with the first bite of your meal. Taking Acarbose with the first bite of your meal allows the medicine work while you eat the rest of your meal. Do not take Acarbose if you do not eat
- Do not take Acarbose if you have an intestinal disease (e.g., inflammatory bowel disease). Taking this medicine could make your disease worse. Tell your doctor if you have an intestinal disease
- Talk to your doctor if you have questions about your medicine

Pioglitazone (Actos™)

What is it and how does it work?

This medicine is part of the Thiazolidinediones class (TZDs). This class of medicine makes your body more sensitive to insulin. This medicine also helps your liver make less sugar.

This medicine lowers your A1c level. It is expected to lower your A1c by 0.8 percent (%).

Side effects and your role

Every medicine has side effects. People tend to react in diverse ways to the same medicine. The common side effects of Pioglitazone are:

- Fluid collects in your body, this is called fluid retention
- Swelling
- Weight gain
- Shortness of breath

Your role:

- Talk to your doctor if you have liver problems. This medicine may impact your liver
- Do not take this medicine if you:
  - Have heart failure
  - Have or had bladder cancer
  - Have a high risk of breaking bones (fractures)
  - Are a women who can have children (about ages 14-55)
- Talk to your doctor if you have questions about your medicine

Rosiglitazone (Avandia™)

What is it and how does it work?

This medicine is part of the Thiazolidinediones class (TZDs). This class of medicine makes your body more sensitive to insulin. This medicine also helps your liver make less sugar.

This medicine lowers your A1c level. It is expected to lower your A1c by 0.8 percent (%).

Side effects and your role

Every medicine has side effects. People have diverse side effects from the same medicine. The common side effects of Rosiglitazone are:

- Buildup of fluid in your body, this is called fluid retention
- Swelling
- Weight gain
- Shortness of breath

Your role:

- Talk to your doctor if you have liver problems
- Rosiglitazone (Avandia) increases your risk of serious heart problems. These include:
  - Heart failure (fluid may collect in your lungs, ankles, lower legs and belly as a result of heart failure)
  - Angina (for example, chest pain)
  - Heart attack

- Do not take this medicine if you:
  – Have heart failure
  – Have bladder cancer
  – Have a high risk of breaking bones (fractures)
  – Are a woman who can have children (about ages 14-55)
- Talk to your doctor if you have questions about your medicine

Liraglutide (Victoza™)

What is it and how does it work?

This medicine is part of the GLP-1 class (Incretin Agent). This class of medicine makes your pancreas produce more insulin when you eat. This medicine also slows down your stomach from emptying food into your intestine when you digest. This helps you feel full longer. You may notice weight loss with this medicine. Liraglutide helps your liver make less sugar too.

You will inject yourself with a needle to take Liraglutide.

Liraglutide lowers your A1c level. This medicine is expected to lower your A1c by 0.7 percent (%).

Side effects and your role:

All medicines have side effects. People have diverse side effects from the same medicine. The most common side effects of Liraglutide are:

- Nausea (upset stomach)
- Feeling full when you eat
- Irritation of your pancreas (pancreatitis) causing severe stomach pain

Your role:

- Talk to your doctor if you have kidney problems
- Do not take Liraglutide if you or your family have a history of:
  – Thyroid cancer
  – Glandular tumours
- Talk to your doctor if you have questions about your medicine

Exenatide (Byetta™)

What is it and how does it work?

This medicine is part of the GLP-1 class (Incretin Agent). This class of medicine makes your pancreas produce more insulin when you eat. This medicine also slows down your stomach from emptying food into your intestine when you digest. This helps you feel full longer. You may notice weight loss with this medicine. Exenatide helps your liver make less sugar too.

You will inject yourself with a needle to take Exenatide.

Exenatide lowers your A1c level. It is expected to lower your A1c by 0.7 percent (%).

Side effects and your role:

All medicines have side effects. People have diverse side effects from the same medicine. The common side effects of Exenatide are:

- Nausea (upset stomach)
- Feeling full when you eat
- Irritation of your pancreas (pancreatitis) causing severe stomach pain

Your role:

- Talk to your doctor if you have kidney problems
- Do not take Exenatide if you or your family have a history of:
  – Thyroid cancer
  – Glandular tumours
- Talk to your doctor if you have questions about your medicine

Sitagliptin (Januvia™)

What is it and how does it work?

This medicine is part of the DPP-4 Inhibitors class (Incretin Agent). This class of medicine helps raise your insulin level after you eat. This medicine also helps lower the sugar made by your body. As a result, Sitagliptin helps manage your blood sugar.

Sitagliptin can be used with other medicines to help their effects. Medicines like Exenatide (Byetta) or Liraglutide (Victoza) can be used with Sitagliptin. Sitagliptin will make the effects of the other medicines last longer.

Sitagliptin lowers your A1c level. This medicine is expected to lower your A1c by 0.5 to 0.8 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Sitagliptin are:

- Chest infection
- Stuffy or runny nose
- Sore throat

- Headache
- Severe joint pain
- Irritation of your pancreas (pancreatitis) causing severe stomach pain

Your role:

- Take your medicine at the same time every day
- Tell your doctor if you have kidney or liver problems
- Talk to your doctor if you have questions about your medicine

Saxagliptin (Onglyza™)

What is it and how does it work?

This medicine is part of the DPP-4 Inhibitors class (Incretin Agent). This class of medicine helps raise your insulin after you eat. This medicine also helps lower the sugar made by your body. As a result, Saxagliptin helps manage your blood sugar.

Saxagliptin can be used with other medicines to help their effects. Medicines like Exenatide (Byetta) or Liraglutide (Victoza) can be used with Saxagliptin. Saxagliptin will make the effects of the other medicines last longer.

Saxagliptin lowers your A1c level. This medicine is expected to lower your A1c by 0.5 to 0.8 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The common side effects of Saxagliptin are:

- Chest infection

- Stuffy or runny nose
- Sore throat
- Headache

Your role:

- Take your medicine at the same time every day
- Tell your doctor if you have kidney or liver problems
- Talk to your doctor if you have questions about your medicine

Linagliptin (Trajenta™)

What is it and how does it work?

This medicine is part of the DPP-4 Inhibitors class (Incretin Agent). This class of medicine helps raise your insulin after you eat. This medicine also helps lower the sugar made by your body. As a result, Linagliptin helps manage your blood sugar.

Linagliptin can be used with other medicines to help their effects. Medicines like Exenatide (Byetta) or Liraglutide (Victoza) can be used with Linagliptin. Linagliptin will make the effects of the other medicines last longer.

Linagliptin lowers your A1c level. This medicine is expected to lower your A1c by 0.5 to 0.8 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The common side effects of Linagliptin are:

- Chest infection

- Stuffy or runny nose
- Sore throat
- Headache

Your role:

- Take your medicine at the same time every day
- Tell your doctor if you have liver problems
- Talk to your doctor if you have questions about your medicine

Sulfonylureas: Glyburide (Diabeta™ or Glynase™), Glipizide (Glucotrol™), Gliclazide (Diamicron™) or Glimepiride (Amaryl™)

What is it and how does it work?

This medicine is part of the **Secretagogue class**. This class of medicine tells your pancreas to produce insulin for hours after your meals.

Sulfonylureas lower your A1c level. This medicine is expected to lower your A1c by 0.7 to 0.9 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The common side effects of Sulfonylureas are:

- **Low blood sugar (hypoglycemia)**
- Weight gain

Your role:

- Take this medicine when you eat

- Do not take this medicine without food
- Only take this medicine if you are eating normally
  - **If you take this medicine without eating your risk of a low blood sugar (hypoglycemia) is higher**
- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you are taking antibiotics. Sulfonylureas can cause low blood sugar if you are taking sulfa-antibiotics. Use this medicine with caution
- Talk to your doctor if you have kidney problems
- Talk to your doctor if you have questions about this medicine

Meglitinides: Repaglinide (Gluconorm™)

What is it and how does it work?

This medicine is part of the Secretagogue class. This class of medicine tells your pancreas to produce insulin for hours after your meals.

Meglitinides lower your A1c level. This medicine is expected to lower your A1c by 0.7 to 0.9 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the

same medicine. The most common side effects of Meglitinides are:

- Low blood sugar (hypoglycemia)
- Weight gain

Your role:

- Take this medicine when you eat. Do not take this medicine without food. If you take this medicine without eating your risk of a low blood sugar (hypoglycemia) is higher

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive.
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you are taking sulfa-antibiotics or Plavix (Clopidogrel). Meglitinide medicine can cause low blood sugar if you are also taking sulfa-antibiotics or Plavix (Clopidogrel)
- Talk to your doctor if you have kidney problems
- Talk to your doctor if you have questions about your medicine

Canagliflozin (Invokana™)

What is it and how does it work?

This medicine is part of the SGLT-2 Inhibitor (Gliflozins) class. This class of medicine tells your kidneys to release more sugar in your urine (pee). As a result, Canagliflozin lowers your blood sugar levels.

Canagliflozin lowers your A1c level. This medicine is expected to lower your A1c by 0.5 to 1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Canagliflozin are:

- Urinating (peeing) more often
- Dehydration (your body does not have enough water)
- Low blood pressure
- Infection on your groin
- Risk of breaking bones (fractures)
- Higher LDL (bad) cholesterol levels

Your role:

- Do not take this medicine if you have kidney problems
- Stop this medicine if you are ill (with a cold or infection) to prevent a very serious health problem (ketoacidosis)
- Talk to your doctor if you have questions about your medicine

Dapagliflozin (Forxiga™)

What is it and how does it work?

This medicine is part of the SGLT-2 Inhibitor (Gliflozins) class. This class of medicine tells your kidneys to release more sugar in your urine (pee). As a result, Dapagliflozin lowers your blood sugar levels.

Dapagliflozin lowers your A1c level. This medicine is expected to lower your A1c by 0.5 to 1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The side effects of Dapagliflozin are:

- Urinating (peeing) more often
- Dehydration (your body does not have enough water)
- Low blood pressure
- Infection on your groin
- Risk of breaking bones (fractures)
- Higher LDL (bad) cholesterol levels

Your role:

- Do not take this medicine if you have kidney problems
- Dapagliflozin affects your bladder. Tell your doctor if you or your family had bladder cancer
- Stop this medicine if you are ill (with a cold or infection) to prevent a very serious health problem (ketoacidosis)
- Talk to your doctor if you have questions about your medicine

Empagliflozin (Jardiance™)

What is it and how does it work?

This medicine is part of the SGLT-2 Inhibitor (Gliflozins) class. This class of medicine tells your kidneys to release more sugar in your urine (pee). As a result, Empagliflozin lowers your blood sugar level.

Empagliflozin lowers your A1c level. This medicine is expected to lower your A1c by 0.5 to 1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Empaglifozin are:

- Urinating (peeing) more often
- Dehydration (your body does not have enough water)
- Low blood pressure
- Infection on your groin
- Risk of breaking bones (fractures)
- Higher LDL (bad) cholesterol levels

Your role:

- Do not take this medicine if you have kidney problems.
- Stop this medicine if you are ill (with a cold or infection) to prevent a very serious health problem (ketoacidosis)
- Talk to your doctor if you have questions about your medicine

Insulin Injections

Glulisine (Apidra™)

What is it and how does it work?

This medicine is part of the Insulin class. Glulisine is a “rapid-acting” form of insulin. “Rapid-acting” means it works quickly to give you insulin. Glulisine will take effect in 15 to 30 minutes. This medicine is most effective between 30 minutes and 2.5 hours.

When taken, Glulisine provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Glulisine helps lower

sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, this medicine works to lower your blood sugar.

Glulisine lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Glulisine are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about this medicine

Lispro (Humalog™)

What is it and how does it work?

This medicine is part of the Insulin class. Lispro is a “rapid-acting” form of insulin. “Rapid-acting” means it works quickly to give you insulin. Lispro will

take effect in 15 to 30 minutes. This medicine is most effective between 30 minutes and 2.5 hours.

When taken, Lispro provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Lispro helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Lispro helps lower your blood sugar.

Lispro lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Lispro are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine.

Aspart (NovoRapid™ or Novolog™)

What is it and how does it work?

This medicine is part of the Insulin class. Aspart is a "rapid-acting" form of insulin. "Rapid-acting" means it works quickly to give you insulin. Aspart will take effect in 15 to 30 minutes. This medicine is most effective between 30 minutes and 2.5 hours.

When taken, Aspart provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Aspart helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Aspart helps lower your blood sugar.

Aspart lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role

Every medicine has side effects. People have diverse side effects from the same medicine.

The most common side effects of Aspart are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive

  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Toronto Insulin (Humulin R™ or Novolin R™)

What is it and how does it work?

This medicine is part of the Insulin class. Toronto Insulin is a "regular short-acting" form of insulin. "Regular short-acting" means this medicine will take effect in 30 minutes. This medicine is most effective between 2.5 and 5 hours.

When taken, Toronto Insulin provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Toronto Insulin helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Toronto Insulin helps lower your blood sugar.

Toronto Insulin lowers your A1c level. It is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. Everyone will experience different side effects from the same medicine.

The most common side effects of Toronto Insulin are:

- **Low blood sugar (hypoglycemia)**

- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Insulin NPH and Humulin (Humulin N™ or Novolin NPH™)

What is it and how does it work?

This medicine is part of the Insulin class. Insulin NPH and Humulin are an "intermediate-acting" form of insulin. "Intermediate-acting" means your medicine will take effect in 1 to 2 hours. These medicines are most effective between 4 and 12 hours.

When taken, Insulin NPH and Humulin provide extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Insulin NPH and Humulin help lower sugar released from your liver. These medicines also help your body store sugar from your blood. As a result, Insulin NPH and Humulin help lower your blood sugar.

Insulin NPH and Humulin lower your A1c level. These medicines are expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Insulin NPH and Humulin are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

You role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Glargine (Lantus™)

What is it and how does it work?

This medicine is part of the Insulin class. Glargine is a “long-acting” form of insulin. “Long-acting” means your medicine works slowly. Glargine will take effect in 3 to 4 hours. This medicine will continue to work for 24 hours or longer.

When taken, Glargine provides extra insulin to your body. This is needed when your pancreas cannot make enough. Glargine helps lower sugar

released from your liver. This medicine also helps your body store sugar from your blood. As a result, Glargine helps lower your blood sugar.

Glargine lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Glargine are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Detemir (Levemir™)

What is it and how does it work?

This medicine is part of the Insulin class. Detemir is a “long-acting” form of insulin. “Long-acting” means your medicine works slowly. Detemir will take

effect in 3 to 4 hours. This medicine will continue to work for 24 hours or longer.

When taken, Detemir provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Detemir helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Detemir helps lower your blood sugar.

Detemir lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Detemir are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Premix Regular-NPH (Humulin™ 30/70, Novolin ge™ 30/70, 40/60, 50/50)

What is it and how does it work?

This medicine is part of the Insulin class. Premix Regular - NPH is a "premixed" form of insulin. "Premixed" means this medicine works fast and slow at the same time.

When you take Premix Regular - NPH it provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Premix Insulin - NPH helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Premix Regular-NPH helps lower your blood sugar.

Premix Insulin - NPH lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Premix Insulin-NPH are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - – Checking your blood sugar often
  - – Checking your blood sugar before you drive

  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to you doctor if you have any questions about your medicine

Biphasic Insulin Aspart (NovoMix 30™)

What is it and how does it work?

This medicine is part of the Insulin class. Biphasic Insulin Aspart is a "premixed" form of insulin. "Premixed" means this medicine works fast and slow at the same time.

When taken, Biphasic Insulin Aspart provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Biphasic Insulin Aspart helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Biphasic Insulin Aspart helps lower your blood sugar.

Biphasic Insulin Aspart lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine. The most common side effects of Biphasic Insulin Aspart are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Insulin Lispro/Insulin Lispro Protamine Suspension (Humalog Mix 25™, Mix 50™)

What is it and how does it work?

This medicine is part of the Insulin class. Insulin Lispro is a "premixed" form of insulin. "Premixed" means this medicine works fast and slow at the same time.

When taken, Insulin Lispro provides extra insulin to your body. Extra insulin is needed when your pancreas cannot make enough. Insulin Lispro helps lower sugar released from your liver. This medicine also helps your body store sugar from your blood. As a result, Insulin Lispro helps lower your blood sugar.

Insulin Lispro lowers your A1c level. This medicine is expected to lower your A1c by 0.9 to 1.1 percent (%).

Side effects and your role:

Every medicine has side effects. People have diverse side effects from the same medicine.

The most common side effects of Insulin Lispro are:

- **Low blood sugar (hypoglycemia)**
- Weight gain
- Low potassium (a mineral in your body)

Your role:

- Avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low
- Talk to your doctor if you have questions about your medicine

Important information to know about your diabetes medicine

There is important information to know about your diabetes medicine(s). Below are facts about diabetes medicines:

- People have diverse side effects from the same medicine. A medicine that helps one person may not help you
- Some people may have side effects and other people may not. The most common side effects were listed for each medicine. There may be other less common side effects too. Ask your pharmacist for a complete list
- Work with your doctor and pharmacist to find the best medicine for you. The best medicine for you will be different than for someone else
- Diabetes medicines are important to manage your blood sugar. They can lower your A1c level

Did You Know?

Exercising and eating healthy can also lower your A1c? In fact, they can be just as effective at lowering A1c as a diabetes medicine.

3. Who Can Help You with Your Diabetes Medicines

It is hard to manage taking many medicines. There are many people who can help you organize your medicines. The people include:

Your doctor or pharmacist

There are many medicines with many side effects. Your doctor or pharmacist can help you organize your medicines. Tell them if you have side effects. Ask the questions below:

- How will this medicine help me?
- What are the side effects of this medicine?
- What do I do if this medicine causes side effects for me?
- How will I know if I am allergic to this medicine?
- When should I take this medicine?
- Is there a way to know if I took my medicines each day?
- Is it safe to take this medicine with my other medicines?
- Do I need to change my diet while I take this medicine?
- How will I know if this medicine is helping me?
- Is there a service to bring my medicine to my house?

The MedsCheck Program

MedsCheck is a free program that can help you learn about your medicines. This service is for Ontario residents only. Call your pharmacy and make an appointment with your pharmacist. Your pharmacist will teach you about:

- How your medicines can help you
- How to take your medicines safely
- What side effects you may have
- If it is safe to take many medicines at once
- How and when to refill your medicines

Summary

- Taking your medicines as prescribed by your doctor is crucial to managing your blood sugar
- If you are concerned about side effects work with your doctor or pharmacist to find the right diabetes medicine for you
- Insulin and medicines from the Secretagogue class of medications put you at risk of low blood sugar (hypoglycemia)
- If you take insulin or a medicine from the Secretagogue class of medications you can avoid low blood sugar by:
  - Checking your blood sugar often
  - Checking your blood sugar before you drive
  - Checking your blood sugar before and after you exercise.
  - Always carry a fast acting carbohydrate with you (such as sugar tablets, juice or pop). Fast acting carbohydrates raise your blood sugar quickly. Eat a fast-acting carbohydrate if your blood sugar is low

Get Active

Get Active

Chapter 1
Getting Active & Starting an Exercise Program

You Will Learn About:

1. How sitting less and moving more helps prevent disease
   a. How often do I sit and why does it matter?
   b. How can I sit less?
2. What physical activity is and how it helps manage diabetes
3. What exercise is and how it helps manage diabetes
4. How to start exercising
   a. What do I need to do before getting started?
   b. How can I schedule my exercise?
   c. What happens to my blood sugar when I exercise?
   d. What exercise should I start with?

1. How Sitting Less and Moving More Helps Prevent Disease

How often do I sit and how can I change it?

Most adults spend about 10 hours a day sitting down. 10 hours takes up most of the hours you are awake.

Sitting for long periods of time is not good for your health. Your body slowly changes the longer you sit. When you don't use your muscles, they get weak. Sitting increases your risk of getting diseases, like heart disease, certain cancers and diabetes. If you sit a lot, there are simple things you can do to change how long you sit for.

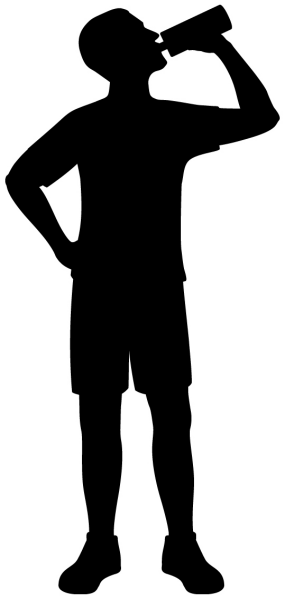
How can I sit less?

The first step to change your sitting habits is exercise. Exercise improves your health and lowers your risk of heart disease, cancer and diabetes. But exercise is not enough. If you exercise but still sit often, you are still at risk for disease. You need to break up your sitting time.

Replace sitting with standing or movement. Some examples are:

- Switch to standing when you:
  - Work at your desk (or in meetings)
  - Take public transit
  - Talk (or text) on the telephone
  - Watch television
  - Use a computer
  - Read the newspaper
  - Fold clothes
  - Meet with friends and family

- Park further from work so you walk a bit farther to work
- Use the stairs more rather than elevators and escalators
- Drink more water (unless your doctor has told you to limit your fluid intake) while you work so you take regular bathroom breaks
- Set an alarm on your computer or phone to remind you to get up and stand or move around every 20 minutes



Break up your sitting time slowly. Set small goals such as sitting less during your morning routine. Lower your total sitting time to less than 4 to 6 hours a day. Over time, it will be easy to sit less and move more.

2. What Physical Activity is and How it Helps Manage Diabetes

Physical activity is any body movement that uses energy. Physical activities can be done with friends or family, and should be fun for you. Physical activity helps you connect with others and commit to manage your diabetes and good health. There are many types of physical activity that you can do such as:

- Walking to the store
- Household chores or work on your home
- Working in the garden
- Shopping
- Playing with your children outdoors
- Playing a sport (e.g., golfing)
- Learning a new skill or activity

All of these activities are helpful to manage your diabetes. Include more physical activity in your weekly routine. Once you are more active, the next step is planned exercise.

3. What Exercise is and How it Helps Manage Diabetes

Exercise is a type of physical activity that is planned and structured to improve your fitness level and muscle strength. Exercise:

- Is done at a moderate to vigorous intensity level
- Should last for about 30 minutes or longer (which can be broken up with rest breaks or into 10 minute intervals throughout your day)
- Is done on most days of the week (5 days each week)

Exercise is a central part of good health. Exercise helps control risk factors for diabetes, heart disease and stroke. There are many reasons to start doing exercise. Exercise:

- Lowers blood sugar. Sugar is used by your muscles when you exercise
- Improves your body's response to insulin (improves insulin sensitivity)
- Improves your fitness level
- Lowers blood pressure
- Lowers the effects of stress on your body

- Lowers cravings to smoke when you try to quit
- Improves HDL (good) cholesterol
- Improves muscle strength
- Lowers body fat
- Leads to stronger bones and better joint health
- Improves how you feel about yourself
- Raises your energy level
- Improves the quality of your life

4. How to Start Doing Exercise

What do I need to do before I get started?

Tell your doctor before you start to exercise. Low to moderate exercise is safe and can help you manage your diabetes.

Below is a list of health issues that may mean you need to plan your exercise with your doctor. If anything on the list applies to you, talk to your family doctor. You will need further testing before you can start your exercise program.

- I have pain or discomfort in my chest, neck, upper back, jaw or arms
- I am short of breath at rest or with mild exercise
- I feel dizzy or have fainted
- I am awake in the night feeling short of breath
- I feel short of breath when I lie down and sitting up helps
- My ankles are swollen
- My heart skips beats or races
- I have a heart problem

- I take medicine(s) for my heart
- I have a heart murmur
- I have pain in my lower leg(s) when I walk
- I feel tired or short of breath just doing normal things like taking out the garbage
- I want to do intense exercise. But, I get breathless when I do intense exercises such as jogging, weight training, hockey or soccer

How can I schedule my exercise?

Look at your week ahead to find time to exercise. Schedule times you could set aside for exercise. Start with a 10 minute block. Every few weeks add 5 to 10 minutes to your exercise time. Increase the amount you exercise to 30 to 60 minutes total. Large chunks of time are sometimes hard to find in your schedule. That is why breaking your exercise into 10 minutes at a time can help. These 10 minutes of exercise can happen throughout the day. Once you schedule your exercise in your calendar you will find it helps you take action.

What happens to my blood sugar when I exercise?

Your blood sugar will change when you exercise. Record your blood sugar before and after exercise for the first five sessions. Your blood sugar tells you how your body reacts to exercise. Notice your blood sugar patterns and be able to plan ahead in case of low blood sugar (hypoglycemia).

Exercise is a great way to lower your blood sugar. Many people are pleased to notice how much it can lower their blood sugar. But, you must also be aware that exercise when combined with specific diabetes medicines can cause your blood sugar to become too low. If you are prescribed insulin or a medicine from the Secretagogue class of medicines you are at risk for **low blood sugar.**

Safety Alert!

You are at risk for low blood sugar (especially after exercise) if you take any of the following diabetes medicines:

- Insulin
- Secretagogue medicines such as:
  - Diamicron (Gliclazide)
  - Amaryl (Glimepiride)
  - Glyburide (Diabeta)
  - Repaglinide (Gluconorm)

Recall, low blood sugar (hypoglycemia) happens when your blood sugar is less than 4 mmol/L or you have the signs or symptoms of low blood sugar (e.g., feeling shaky, easy to bother, difficulty concentrating). Have a fast-acting carbohydrate with you, such as juice or sugar (glucose) tablets. Drink or eat this carbohydrate if your blood sugar is low. Read Section, 'Treat Diabetes: Chapter 4' on Low Blood Sugar to learn more.

What exercise should I start with?

There are many kinds of exercise you can do. Some types of exercises include aerobic training, resistance training and sports. Each exercise has its own benefits. Do different types of exercise together to create a well-rounded exercise program. Start with an exercise you enjoy and that fits into your lifestyle. Talk to your exercise team for an exercise program that is safe and effective for you.

Summary:

- Stand up or walk around for 2 to 3 minutes for every 20 minutes of sitting
- Physical activity and exercise can both help manage your blood sugar
- Daily physical activity can help you start doing exercise
- Low to moderate exercise is safe for you
- Look at your week ahead to schedule your exercise
- Know if you take a diabetes medicine that can make your blood sugar go too low (hypoglycemia) after exercise

Get Active

Chapter 2
Types of Exercise

You Will Learn About:

1. How to prepare to start an exercise program
   a. Talk to your healthcare team
2. Aerobic exercise
   a. What is aerobic exercise?
   b. What are the benefits of aerobic exercise?
   c. What is my warm-up and cool-down?
   d. How often and how long do I exercise?
   e. What intensity level do I exercise at?
   f. How do I progress my aerobic exercise?
3. Resistance training
   a. What is resistance training?
   b. What are the benefits of resistance training?
   c. What do I need to know before starting resistance training?
   d. How do I start resistance training?
   e. How often and how intense is resistance training?
   f. Safety tips for resistance training
   g. How do I progress my resistance training?

1. How to Prepare to Start an Exercise Program

Talk to your health care team

Before you start an exercise program, talk to your doctor or exercise team about how to make exercise both safe and effective for you. Recall, if any of the health issues on the list below applies to you, talk to your family doctor. You will need further testing before you can start your exercise program.

- I have pain or discomfort in my chest, neck, upper back, jaw or arms
- I am short of breath at rest or with mild exercise
- I feel dizzy or have fainted
- I am awake in the night feeling short of breath
- I feel short of breath when I lie down and sitting up helps
- My ankles are swollen
- My heart skips beats or races
- I have a heart problem
- I take medicine(s) for my heart
- I have a heart murmur
- I have pain in my lower leg(s) when I walk
- I feel tired or short of breath just doing normal things like taking out the garbage
- I want to do intense exercise. But, I get breathless when I do intense exercises such as jogging, weight training, hockey or soccer

2. Aerobic Exercise

What is aerobic exercise?

Aerobic Exercise is any type of prolonged activity that:

- Involves the large muscle groups
- Lasts for at least 10 minutes

Some examples of aerobic exercise include:

- Walking
- Jogging
- Cycling
- Swimming
- Rowing
- Using an elliptical machine

You can find information about where you can do your exercise in the Toolbox section of this guide.

What are the benefits of aerobic exercise?

Recall the many benefits of engaging in an exercise program (e.g., walking a prescribed amount of time at a specific intensity, 5 days per week):

- Lowers blood sugar. Sugar is used by your muscles when you exercise
- Improves your body's response to insulin (improves insulin sensitivity)
- Improves your fitness level
- Lowers blood pressure
- Lowers the effects of stress on your body
- Lowers cravings to smoke when you try to quit

- Improves HDL (good) cholesterol
- Improves muscle strength
- Lowers body fat
- Leads to stronger bones and better joint health
- Improves how you feel about yourself
- Raises your energy level
- Improves the quality of your life

What is my warm up and cool down?

You must warm up your body before exercise and cool down your body after. Warm-up means starting slowly. The purpose of your warm-up is to get your blood flowing to your muscles and prepare your body for exercise. Warm-up also allows your heart rate and blood pressure to rise slowly. This is important so that your exercise intensity feels more comfortable.

Match your warm-up to your exercise. If you are going to walk for exercise, your warm-up is walking. Take the first 5 to 10 minutes of your walk at a slow and casual pace. If you are cycling, your warm-up is cycling. Take the first 5 to 10 minutes of cycling at a slow pace.

It is also important to cool down. The cool-down is at the end of your exercise. Finish your exercise with 5 to 10 minutes of similar, slow activity. Your cool-down helps lower your heart rate and blood pressure to resting levels. The cool-down prevents you from feeling dizzy or light headed.

How often and how long do I exercise for?

The goal is to do aerobic exercise:

- 5 days a week. To get started, try to exercise 3 days a week. Slowly increase the number of days you exercise each week to 5 days a week.

It may take you 3 weeks to build up to this routine of exercising 5 days a week

- 30 to 60 minutes on each of the 5 days. Start with 10 to 30 minutes of exercise. You can break up this time with rest breaks or into 10 minute bouts of exercise throughout your day. Slowly increase the time you spend exercising to 30 to 60 minutes

Safety Alert!

Do **not** exercise more than 5 times per week. Exercising more increases your risk of:

- Muscle or joint injuries
- Feeling tired or unwell

Although exercise is central to good health, daily physical activity is too. Be active every day. Do lower-level activities (e.g., walks with your dog), sports (e.g., golfing using a cart) or find other ways of being active on the days you don't do 'prescribed exercise'. These types of activities are not types of 'prescribed exercise'. These activities also help manage your blood sugar and lead to a healthier life too. Talk to your exercise team if you are interested in playing sports that may be more vigorous than your 'prescribed exercise' program.

What intensity level do I exercise at?

Intensity level measures how hard you are working when you exercise. Measure your intensity level to ensure you exercise at the right level. There are 3 ways to measure your intensity level. The 3 measures are:

1. **Rating of Perceived Exertion (RPE):** The Borg Rating of Perceived Exertion (RPE) Scale is a tool to measure the intensity of your exercise. RPE is a scale from 6 to 20. You choose a number to describe the amount of effort, strain and/ or discomfort that is felt during exercise. A score of 6 is resting with no effort at all. A score of 20 is the most amount of effort you could imagine doing (maximal effort). Exercise at a RPE between 11 (fairly light effort, strain and/ or discomfort) to 14 (between somewhat hard and hard effort, strain and/ or discomfort) for moderate intensity exercise. Use this scale to help judge if you are overdoing your exercise. If you rated your RPE 15 (hard effort) or higher, then you should slow down your exercise.

   You can also use this scale to judge if you could exercise harder. If you rated your RPE at 10 or lower, try to walk a little faster.

   Below is a picture of the RPE scale from 11 to 14. For moderate intensity exercise, the goal is to exercise between 11 and 14. You can find a full RPE Scale from 6 to 20 in the Toolbox section of this guide.

11	Fairly light
12	
13	Somewhat hard
14	
15	Hard

2. **Talk Test:** The talk test is a tool to measure your effort level while you exercise. Do the Talk Test while you exercise. Talk with your exercise partner and pay attention to your breathing. For moderate intensity

exercise, your breathing rate increases but still allows you to speak without gasping for breaths between words. You should be able to talk comfortably but not sing.

3. **Heart Rate:** Your heart rate is another good measure to assess your intensity level. Measure your heart rate by feeling and counting your pulse. You could also use a heart rate monitor.

Facts about your pulse

Your pulse rate is the same as your heart rate

- Your pulse count should go up during exercise because your heart beats faster and harder
- Your pulse rate may not be the same as someone else's
- Some medicines can impact your heart rate

Taking your pulse

To feel your pulse, put 2 or 3 fingers on your skin at your wrist below the base of your thumb.

Or put 2 or 3 fingers on the side of your neck in the hallow area beside your Adam's apple. Be careful you do not press too hard; there is a risk you can get lightheaded.

Move your fingers until you feel your pulse. Use a timer (stop watch) and count the number of beats you feel for 10 seconds. For example at rest,

you may feel 12 beats in a 10 second count. 12 beats in 10 seconds is 72 beats per minute.

Ask your doctor or exercise team for the right heart rate for your exercise. To see how your body responds to exercise, measure your pulse rate before and immediately after exercise (before you cool down). Count the number of beats you feel in 10 seconds. It is important to count the number of beats you feel for 10 seconds as your heart rate drops quickly after exercise. For example, you may feel 20 beats in a 10 second count. 20 beats in 10 seconds is 120 beats per minute. Adjust your effort level to make sure you exercise with the right heart rate while keeping your RPE between 11 and 14.

How do I progress my aerobic exercise?

Over time, exercise starts to feel easier. Increase your exercise (time and intensity) to challenge yourself.

Step 1. Increase time first. Increase the amount of time you spend exercising by 5 to 10 minutes every 3 or 4 weeks. Work your way up to a total of 30 to 60 minutes each exercise session. You can break this time up with rest breaks or into 10 minute bouts of exercise throughout your day. When increasing the amount of time you spend exercising keep your exercise intensity the same.

Step 2. Then increase intensity. After 3 or 4 weeks of 30 to 60 minute exercise sessions, begin to increase your exercise intensity level. Remember to use the RPE scale, Talk Test and heart rate when you increase your exercise.

Safety Alert!

If you take insulin or a medicine from the Secretagogue class of medicines you are at risk for low blood sugar (hypoglycemia).

- You are more likely to experience a low blood sugar when first starting a new exercise program or when progressing your exercise program.
- Check your blood sugar before and after exercise.
- Always carry a fast-acting carbohydrate with you.

3. Resistance Training

What is resistance training?

Resistance training is a type of exercise that increases the strength and endurance of your muscles. Resistance training is done by lifting weights (also called dumbbells), using your body weight for resistance, or using exercise bands. There are many types of resistance training. Choose the type of resistance training you like the most. Below is a list of 3 types of resistance training. Talk to your exercise team about the type that works best for you.

1. Dumbbells or 'free weights'

Dumbbells are common pieces of resistance training equipment. Dumbbells are also called 'free weights'. They come in many different materials. Dumbbell materials include rubber, cast iron, and plastic. Dumbbells can come as a fixed weight in one solid piece. They can also come as adjustable weights, with a solid bar that you add weighted plates to.

2. Resistance Training Machines

Resistance training machines are large pieces of equipment. Resistance training machines are usually found in a gym. Training machines use a weight and pulley system to give you resistance. You can buy these machines for home use.

3. Exercise Bands

An exercise band

Exercise bands are large elastic bands used for resistance training. Exercise bands are a good choice if you don't have room for equipment. These bands are also portable, so they are good for travel. The colour of your exercise band tells you how much resistance it has.

It doesn't matter which type of equipment you use. Choose a weight or resistance that is comfortable and challenging. You can progress from there. There are 3 different resistance training programs you can try:

- Mini-Resistance Training Program (5 core exercises to get you started)
- Standard Resistance Training Program (10 exercises that will use the major muscle groups of the body from head to toe using a combination of your own body weight, dumbbells and exercise bands for resistance)
- Exercise Band Program (10 exercises that will use the major muscle groups of the body from head to toe using your own body weight and exercise bands for resistance)

Your exercise team will prescribe a program that is safe and effective for you.

What are the benefits of resistance training?

Resistance training and aerobic exercise are both part of your exercise program. Both types of exercise help you make the most gains in your fitness. As you get older, your muscles change and you lose almost one third of your muscle. This loss in muscle lowers your strength. But you can reduce how much muscle mass you lose with resistance training. Resistance training slows down your muscle loss. Resistance training also helps you manage your diabetes. Every time a muscle moves (such as during resistance training), it uses the sugar that is in your blood. The more muscle you have on your body, the more sugar you use from your blood. The value of resistance training is that it:

- Helps to manage your blood sugar
- Increases your muscle
- Increases your strength
- Lowers your body fat
- Helps to prolong independent living
- Makes everyday activities feel easier
- Helps make your bones stronger
- Helps make your joints stronger
- Improves your balance and reduces falls
- Improves your mood
- Improves your sleep
- Raises your self-confidence, self-image and quality of life

What do I need to know before starting resistance training?

Speak to your exercise team or doctor if you have any of the health problems

listed below. Your exercise team can make changes to your resistance training program to ensure you are safe.

- Untreated high blood pressure
- Abdominal or inguinal hernias that have not been repaired
- Glaucoma (eye problem) that is not treated
- Problems with your eyes because of diabetes, such as retinopathy
- Muscle or joint problems
- Difficulty getting up from the floor

How do I start resistance training?

To start resistance training, figure out the amount of weight for each exercise. Start with a weight (or colour of exercise band) that feels comfortable to do 10 repetitions.

How much weight should I lift?

To find out if you are using the correct weight or exercise band, answer these questions:

1) After doing the last repetition, do you feel that you can do 5 to 10 more repetitions?

   If you answer yes, the weight or exercise band is **too light or easy**

What is a repetition?

A repetition is one complete motion of an exercise

2) Are you struggling to do the last repetition?

   If you answer yes: the weight or exercise band is **too heavy or hard**

3) After the last repetition, do you feel as if you could do 2 to 3 more repetitions and no more?

   If you answer yes, this is a **good starting weight or exercise band to use**

Recall, keep your RPE between 11 (fairly light effort, strain and/ or discomfort) and 16 (a solid hard effort, strain and/ or discomfort).

Start with 1 set of 10 repetitions for each exercise. For example, perform the bicep curl 10 times. Start with 1 circuit of the exercise routine. For example, a circuit includes all the exercises in your program. Complete each exercise in the entire routine once before doing a second set.

How often and how intense is my resistance training?

Do resistance training 2 times per week. This is the lowest number of times needed for you to gain benefit. If you enjoy resistance training, you can do it every other day, which is 3 times per week. Leave at least one day of rest between each resistance training session. This allows your body time to rest and repair your muscles between each exercise session.

The intensity of resistance training differs for everyone. Below outlines the factors that impact the intensity of your resistance training program:

A. The amount of weight you lift or amount of resistance from an exercise band will change the intensity. The heavier the dumbbell (or more resistance from a band) the higher the intensity.

B. The number of times you perform an exercise will change the intensity. The number of times you perform an exercise is called **repetitions**. The more repetitions you do, the higher the intensity.

   – 1 bicep curl = 1 repetition

   – 2 bicep curls = 2 repetitions

   – 3 bicep curls = 3 repetitions

   Start with doing a bicep curl 10 times or 10 repetitions.

C. The number of times you repeat 10 repetitions changes the intensity. The number of times you repeat your repetitions is called a set. A set of repetitions is done with a break in between. The more sets you do, the higher the intensity.

   For example, do 2 sets of 10 bicep curls with a break in between.

What is a set?

A set is a group of repetitions done without stopping

Safety Tips for Resistance Training

Below are tips to ensure you are safe when you are doing resistance training. Safety tips are:

- Warm-up before resistance training and cool-down after resistance training. Try walking comfortably for 5 to 10 minutes as your warm-up and cool-down
- Do all exercises in the order prescribed
- Take at least a 30 to 60 second rest between exercises
- Use proper technique for each exercise. Technique is the way you do the exercises. Talk to your exercise team for help with your resistance training technique

- Do each exercise slowly and breathe normally. Do not hold your breath – this increases your blood pressure
- Lift the weight to a count of 2, lower the weight to a count of 3. This pace will ensure you are not rushing which can lead to injuries
- Keep your Rating of Perceived Exertion (RPE) between 11 (fairly light effort, strain and/ or discomfort) and 16 (a solid hard effort, strain and/ or discomfort). Keeping your RPE between 11 and 16 will ensure you are working at an intensity to get benefit without injuring yourself. You can find a full RPE Scale from 6 to 20 in the Toolbox section of this guide.

11	Fairly light
12	
13	Somewhat hard
14	
15	Hard
16	

- Stretch your muscles after you cool-down. Stretching may help improve your flexibility. You can find a copy of a set of stretches in the Toolbox section of this guide
- Take at least one rest day between resistance training sessions. Rest will prevent injuries and allow your muscles to recover before the next session

- Stop your exercise if you feel:
  - signs or symptoms of low blood sugar
  - chest discomfort
  - dizzy
  - short of breath
  - muscle or joint soreness

Safety Alert!

Stop and talk to doctor or exercise team if you have any symptoms such as pain or shortness of breath

- Track your progress on your exercise diary. Your exercise team will review your exercise diary and help you progress your resistance training program
- After your resistance training, your muscles may feel sore and stiff. This is normal. Muscle soreness happens because of very small tears that occur within your muscle. Muscle soreness happens when you first start resistance training, try a new exercise or increase the weight you lift. Soreness and stiffness happens many hours after you exercise and can last up to 4 days. Wait until all soreness and stiffness is gone before trying the exercises again. Giving your muscles time to heal will allow you to make the most gains in strength. Talk to your exercise team if you are sore and stiff for more than 4 days

How do I progress my resistance training?

Your body will adapt to each exercise over time. Progress your resistance training to ensure your body is still working hard enough to gain all the benefits of resistance training.

How do I progress my repetitions and weights (or resistance bands)

When you are ready, slowly increase the number of repetitions you do from 10 to 15

Once you can do 15 repetitions with ease:

- Increase the weight you lift by 2 to 5 pounds and drop your repetitions back down to 10

OR

- Change your exercise band for one that has more resistance and drop your repetitions back down to 10

Use the chart below to help you select the next correct weight or band colour

Tool to Help You Increase the Weight You Lift or Band You Use

When progressing your dumbbells, follow this order												
Lightest →												Heaviest
1 lb	2 lbs	3 lbs	5 lbs	8 lbs	10 lbs	12 lbs	15 lbs	20 lbs	25 lbs	30 lbs	35 lbs	40 lbs

When progressing your exercise bands, follow this order				
Lightest →				Heaviest
Yellow	Red	Green	Blue	Black

It is important to remember that:

- Not all exercises progress at the same rate
- Not all muscle groups will be ready to progress at the same time
- Not all muscles use the same weight

How do I progress my sets?

Once you can do 1 set for each exercise with ease, increase to 2 sets for each exercise. This can take 2 to 3 weeks. Do not do more than 2 sets.

Summary:

- Talk to your doctor or exercise team before you start your aerobic exercise or resistance training program
- Build up slowly to 30 to 60 minutes of aerobic exercise (walking, biking), 5 days per week. You can break up this time with rest breaks or into 10 minute bouts of exercise throughout your day
- Strengthen your muscles by doing resistance training 2 days per week
- Remember to do your Rating of Perceived Exertion (RPE), Talk Test and heart rate when you exercise
- Stop exercise if you experience any signs or symptoms of low blood sugar, chest pain, shortness of breath or dizziness

Get Active

Chapter 3
Your Exercise Safety

You Will Learn About:

1. Common exercise safety tips
   a. How do I prevent low blood sugar?
   b. Can I eat, drink alcohol or smoke before I exercise?
   c. Can I exercise when I'm ill?
2. Foot care with your exercise
   a. Running shoes
   b. Socks
3. How to prevent muscle and joint injuries while you exercise
4. How to exercise safely in hot and cold weather
5. How to exercise safely with certain medical problems

1. Common Exercise Safety Tips

How do I prevent low blood sugar?

Exercise lowers your blood sugar and helps manage diabetes. While you exercise, your muscles use the sugar in your blood. Your muscles use the sugar in your blood for many hours after you exercise too.

Check your blood sugar before and after exercise. Do this at least for the first 5 sessions, and anytime you make a change to your exercise program. Your blood sugar tells you how your body reacts to exercise.

Some diabetes medicines can cause low blood sugar (hypoglycemia). If you are **on** insulin or a medicine from the Secretagogue class of medication, take extra care. These medicines increase your risk of **low blood sugar**, especially after exercise.

Safety Alert!

You are at risk for low blood sugar (especially after exercise) if you take any of the following diabetes medicines:

- Insulin
- Secretagogue medicines such as:
  - Diamicron (Gliclazide)
  - Amaryl (Glimepiride)
  - Glyburide (Diabeta)
  - Repaglinide (Gluconorm)

Recall, low blood sugar (hypoglycemia) happens when your blood sugar is less than 4 mmol/L or you have the signs or symptoms of low blood sugar (e.g., feeling shaky, easy to bother, difficulty concentrating). Have a fast-acting carbohydrate with you, such as juice or sugar (glucose) tablets. Drink or eat this carbohydrate if your blood sugar is low. Read Section, 'Treat Diabetes: Chapter 4' on Low Blood Sugar to learn more.

If you are taking a medicine listed in the Safety Alert about the risk of low blood sugar with certain diabetes medicines, follow the steps below:

1. Check your blood sugar before exercise. If your blood sugar is less than 5 mmol/L, eat a snack before you exercise. This will help you avoid low blood sugar during or after exercise. This snack should have a slower acting carbohydrate and protein like reduced-fat cheese and crackers. Slower acting carbohydrates raise your blood sugar slowly over a period of time.

   To avoid needing to snack before exercise, try to plan your exercise when your blood sugar is naturally higher. Plan your exercise about 2 hours after a meal (when your food is digested) or before taking your insulin.

2. Check your blood sugar after exercise. If your blood sugar is between 4 to 5 mmol/L after exercise, eat your usual meal. Have a snack if your meal is more than 1 hour away. This snack should have a slower acting carbohydrate and protein like a slice of wholegrain bread with reduced fat cheese. Slower acting carbohydrates raise your blood sugar slowly over a period of time. Your blood sugar will keep dropping hours after exercise. The snack prevents low blood sugar after your exercise.

3. Check your blood sugar before you drive. Your blood sugar must be above 5 mmol/L if you drive after exercise. This blood sugar level will prevent low blood sugar while you are driving. Recheck your blood sugar on long drives. Carry a fast acting carbohydrate and your glucometer with you in the car in case you need them.

Safety Alert!

If you treat an episode of low blood sugar (hypoglycemia), make sure your blood sugar is above 5 mmol/L for at least 45 minutes before driving

4. Your blood sugar levels will change after you start a new exercise program. You may have low blood sugar more often after you start. Talk to your healthcare team about your diabetes medicines if this happens. You will likely need the amount of diabetes medicine you take changed.

If you are **not** taking insulin or a medicine from the Secretagogue class of medicines, **low blood sugar is rare.** Still check your blood sugar before and after a few exercise sessions to know how your body reacts.

If you are taking insulin, avoid injecting insulin in an exercising muscle. For example, do not inject into your thigh if you are walking or cycling. Instead, inject insulin into sites on your belly.

If you have had previous episodes of low blood sugar take extra care. Take extra care if you cannot tell when you have low blood sugar too. Check your blood sugar before, during and after your exercise. Your blood sugar tells you how your body reacts to exercise. Have proper nutrition and timing of medicines to avoid low blood sugar.

Did You Know?

Engaging in a prescribed exercise program is shown to lower your A1c (a measure of how well you managed your blood sugar over the past 3 months) by about 1 percent. This means exercise is just as effective as a diabetes medicine.

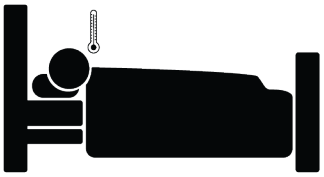
Can I eat, drink alcohol or smoke before I exercise?

Do not have alcohol, caffeine, cigarettes or marijuana before exercise. Alcohol, caffeine, cigarettes and marijuana can increase your heart rate. If your heart rate is above your target heart rate range, then exercise is not safe. Alcohol, caffeine, cigarettes and marijuana also make your exercise feel tougher.

Avoid exercise within 2 hours after a heavy meal. Your body needs time to digest all the food before it is ready for exercise. What you can do is some form of light physical activity such as going for a slow walk with your dog, family or friends. Follow your usual eating and medicine schedule. Fit your prescribed exercise into your day when you are not too full from a meal.

Can I exercise when I'm ill?

Do **not** exercise if you are ill with a chest infection or flu. If you have an infection and taking antibiotics you need to rest. Your body needs time to rest and to fight the illness. Talk to your doctor or exercise team about when you can return to exercise.



Allow yourself the time to rest. When you are feeling better, restart your exercise slowly over time. Restart your exercise by doing half the time and less intensity. Think about how long you stopped exercising. It will take the same amount of time to build back up.

For example, if you are prescribed to walk 2 miles in 40 minutes (a 20 minute per mile pace) and you stop exercising for 2 weeks then:

- Restart with 1 mile and build up slowly to 2 miles over the first week. Walk slower than your prescribed walking pace. Walk at a 22 minute per mile pace or slower.
- If you feel up to it, work on speeding your walking pace back to your prescribed pace during week 2

If you have questions, talk to your exercise team for help.

You may notice a change of blood sugar while you are ill. Changing blood sugars happen when your body is fighting an illness, especially if you become dehydrated (loss of body fluids). Check your blood sugar more often when you are ill. Respond and treat a low blood sugar when necessary. Do not stop taking your insulin. Ask your doctor if you need to adjust your medicines.

2. Foot Care With Your Exercise

You are more prone to get sores or blisters on your feet because of diabetes. You are more prone since diabetes impacts the flow of blood to your skin and nerves. Sores and blisters make walking uncomfortable. The sores or blisters will get worse with walking.

Do not exercise if you have an open sore or a blister on your foot. Sores and blisters take longer to heal when you are living with diabetes. Wait until your sores and blisters heal before you start your walking program or they could get much worse. Talk to your podiatrist or chiropodist. These two professionals are specialists in foot care.

Since your skin needs to be free of sores and blisters, ensure you buy and wear the right kind of socks and shoes. Below outlines shoes and socks for your exercise.

Rules with your running shoes

Use running shoes for your exercise. Do not use cross trainers, court shoes or walking shoes. Running shoes are more stable, have cushions and support. Have your feet checked and the way you walk observed before you buy running shoes. This kind of check is done by a professional and a qualified salesperson to determine your specific shoe needs.

Shop for shoes during the middle of the day. Shop at this time since your feet naturally expand due to swelling and activity.

Your shoes must fit you well. Try different models of shoes. If the shoes are too tight, you can get blisters, sores and bruises. Have 1 cm or ½ inch width of space between your longest toe and the end of the shoe. This extra space allows for swelling when you exercise. Wear your shoes indoors only for first 1 to 2 weeks. This time indoors determines if the shoes will work for you. These shoes last 6 to 12 months or about 500 miles (800 to 1200 km).

Rules with your socks

Wear socks without seams on the inside. The seams may lead to rubbing, blistering and foot ulcers. Buy socks made of synthetic materials (e.g., polyester) to help take away moisture from your feet. Diabetic socks or usual sport socks are made to take away the moisture. If you use sport socks, turn them inside out to avoid the seams. Cut the top elastic off too so the sock doesn't dig into your skin.

Light coloured socks help you find any wounds. You will see blood from blisters with light coloured socks. Check your feet regularly for wounds.

3. How to Prevent Muscle or Joint Injuries While You Exercise

If you have any muscle or joint injuries, start your exercise program slowly. Also start your exercise program slowly if you have old muscle or joint injuries. Allow your body to rest and heal from any injury. Start your exercise program slowly to prevent feeling tired as well. Your exercise program should not cause any pain or discomfort. Stop your exercise if you have any pain or discomfort. Try to exercise at a lower intensity or use lighter weights. Lighter intensity may lower your pain and discomfort. Talk to your physiotherapist or exercise team for help.

Once you exercise on a routine, you may have some aches and pains. These aches and pains are from pushing yourself too hard. Pushing yourself too hard can cause injuries. To avoid injuries, ensure you:

- Exercise at the right intensity level as prescribed by your exercise team
- Take rest days
- Do full warm-ups and cool-downs

If you start to feel any aches in your feet, knees, hips or lower back, take action:

First

- Try a brand new pair of running shoes. Your old pair of shoes might be worn out. Worn out shoes no longer have the amount of cushioning and support you need

Next

- Walk at a slower pace. Take shorter steps while walking and see if this lowers your discomfort. Talk to your doctor or a physiotherapist if the discomfort persists

After exercise, it is normal to be sore and stiff. Feeling sore and stiff happens with new exercises or increased intensity levels. Feeling sore and stiff will disappear on its own. Do a cool-down and stretch to lower your sore and stiff feelings. If you feel sore and stiff for more than a week, see your doctor.

4. How to Exercise in Hot and Cold Weather

Exercise in hot weather

High heat and humidity causes higher heart rates and blood pressures during exercise. Heat and humidity may also cause shortness of breath even with normal activity. You may also feel irregular heartbeats (palpitations), light-headed or dizzy. Hot days also increase the smog and pollution in the air. Smog and pollution may also cause irregular heartbeats, light-headedness or dizziness. See the Heat Safety Index and Air Quality Health Index to see if it is safe for outdoor exercise. Follow these steps:

1) Check the Weather Report

Check the local weather report at the time of your exercise, and note the temperature, humidity and the air quality (smog alerts and the air quality health index).

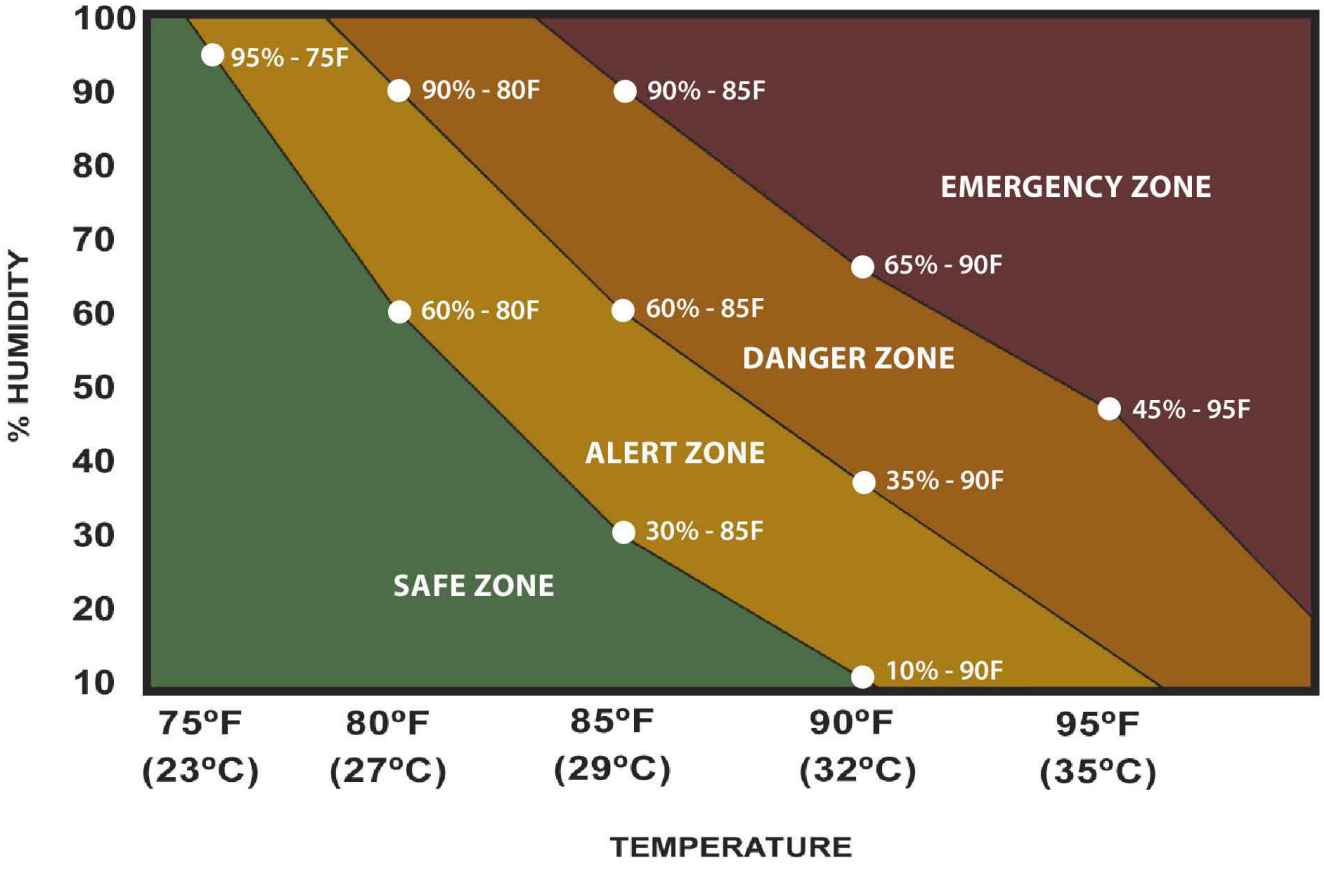
2) Check the Heat Safety Index

The Heat Safety Index can help you decide if it is safe to exercise and go outdoors. This index uses temperature and percentage of humidity (how much water is in the air) to create four safety zones: safe, alert, danger and emergency.

To use this index:

- Find the current local temperature along the bottom of the scale
- Find the current percentage of humidity along the left hand border of the scale
- Find the point on the graph where these two points come together. See what safety zone this point is found in
- Follow the instructions in the 'what you do for each heat safety zone' chart

Heat Safety Index



What You Do For Each Safety Zone

Safe	Alert	Danger	Emergency
• Exercise as usual • Safe to exercise outdoors	• Decrease your exercise intensity (slow your walking pace) • Watch for symptoms (e.g., shortness of breath, increased tiredness)	• No outdoor exercise • Exercise in an air conditioned environment only	• Avoid going outdoors

Check the Air Quality

It is important that you check the air quality before you exercise outdoors. When you check the air quality you are seeing how much air pollution there is. Air pollution happens when many pollutants (a substance that is harmful to your health) are in the air. Air pollution is a health concern for all people. It is an even greater concern for people living with heart or lung disease, older people and younger children.

When you check the weather report for air quality, look for:

- The Air Quality Health Index (AQHI)

Air pollution can be measured by the AQHI. This index tells you the level of common air pollutants.

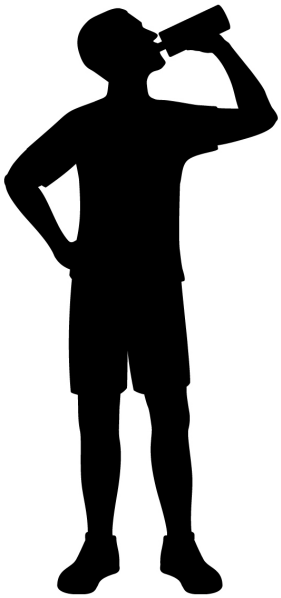
In Ontario, the range for the index is 0 to 10. The lower the number, the better the air quality. If you live outside of Ontario, go to your local public health website to find out how your area lists the air quality index.

Check the air quality index before you exercise outdoors then follow the instructions in the 'what you do for each air quality category' chart.

What You Do for Each Air Quality Category

Low Risk 1 to 3	Moderate Risk 4 to 6	High Risk 7 to 6	Very High Risk 4 to 6
• Exercise as usual • Safe to exercise outdoors	• Decrease your exercise intensity • Watch for symptoms • Consider rescheduling your outdoor exercise	• No outdoor exercise • Exercise in an air conditioned environment only	• Avoid going outdoors

1) Stay hydrated (ensure you drink plenty of water)



Drink water before, during and after your exercise. Dehydration (loss of body fluids) can lead to higher heart rates, shortness of breath and feeling dizzy. If you exercise for up to 1 hour, follow the guidelines below:

- Drink 6-8 ounces of water (about 175 to 240mL) before exercise
- Drink 6-8 ounces of water (about 175 to 240mL) every 20 minutes during exercise and after you cool down
- Do not wait until you feel thirsty
- **Speak to your doctor if you have limits on how much fluid you can have each day**

2) Wear light coloured, loose, comfortable clothing

This clothing reflects the sun and allows air flow to help you stay cool. Choose a fabric that helps sweat move away from your body. Dry wick (synthetic man-made) fabrics work best. Wear a hat or visor and use sunscreen to protect your skin. If you are traveling, give yourself about a week to adjust to the new temperature.

3) Check your blood sugar

Your blood sugar changes based on the weather. Each person responds differently. Your blood sugar levels can lower in hot weather. Your blood sugar is lower because your blood vessels in your skin open wider. Your blood vessels are open wider to keep you cooler. Also, insulin acts quicker during warm weather. This is because of more blood flow to your skin as your body tries to stay cool.

Your blood sugar can also be higher in hot weather. Higher blood sugar happens when you are dehydrated (loss of body fluids) or your body is under stress. Stress like dealing with the heat and humidity. Be aware and check your blood sugar more often in hot weather. Some diabetes medicines make you more likely to become dehydrated and sunburnt. Talk to your pharmacist about your medicines.

Exercise in cold weather

Cold weather can make your exercise feel tougher. Cold weather makes your arteries tighten. When your arteries tighten, it is harder for blood to get through to deliver oxygen to your heart and exercising muscles. Cold weather also causes your heart rate and blood pressure to rise. High heart rates and blood pressures make your heart work too hard and put you at risk for heart problems.

You may prefer to exercise outdoors even when it's cold. Follow the precautions below for safe exercise:

- Do not exercise outdoors if the temperature with wind chill is below -10°C. Your body will have to work too hard with colder temperatures
- Wear layers of clothing. Layers of clothing includes a hat to help keep warm. Remove a layer of clothing if you get too warm. Staying warm will make exercise feel more comfortable. It also keeps your arteries wider to let blood flow to your heart and muscles
- The layer of clothing next to your skin should be moisture wicking "dry-fit" material. Clothing material such as polyester or a ribbed shirt with wool/cotton blend. You will be too cold if the layer on your skin gets wet from your sweat

- Cover your mouth and nose with a scarf. This scarf helps warm the air you breathe and keeps you warmer
- Wear your running shoes outdoors. Your running shoes have the best traction and are lightweight
- Slow down if it is windy or icy. A slower pace prevents falls
- Keep hydrated (drink plenty of water), even during the winter
- Keep your glucometer and insulin at room temperature. They will not work if they have been frozen. Unopened insulin can be kept in the fridge
- Choose an exercise route clear of snow and ice to avoid falls

5. How to Exercise with Certain Medical Problems

You can still exercise with certain medical problems. Talk to your family doctor or exercise team before you exercise if you have any of these problems.

Loss of feeling in your feet

Check your feet for sores often. If you do not have much feeling in your feet, you may not notice sores. Do not do weight-bearing exercise like walking if you have open sores on your feet. Instead, use an exercise bike until the sores have healed. Talk to your doctor if you have sores on your feet.

Eye Problems

It is safer to exercise on a stationary (exercise) bike if you have poor eyesight. Have your eye pressure checked by your eye doctor. Your eye doctor will check for glaucoma and ensure it is safe for you to exercise. If you have retinopathy, avoid resistance training. Resistance training can make your retinopathy worse. Discuss your exercise program with your eye doctor.

An amputation or physical limitation from a stroke

There are many exercises you can do depending on the affected body part. Try a stationary bike, an arm ergometer, or swimming. Many of the resistance training exercises are still effective. Talk to your exercise team for your custom program.

Knee, back or shoulder pain or injury

If you suffer from knee, back or shoulder pain, you can still exercise. It is crucial that you perform exercises with the correct technique. Technique is the way you perform your exercise. The exercises using your injured body part can be changed or avoided. Only do exercises that do not cause any pain. Do exercises in a position that feels right for you. Talk to your physiotherapist or exercise team to find exercises for your specific needs.

Arthritis

Exercise and movement of the joints help improve arthritis pain. It is important to progress your exercise slowly. See how you feel 1 to 2 days after an exercise session. Listen to your body. If you have joint pain, stop your exercise and take a rest day. Try your exercise again the next day.

Charcot's Foot

Charcot's foot is a condition that weakens the bones in your feet. Avoid any unneeded activity on your feet. You can do many resistance training exercises sitting in a chair. Use a stationary bike or an arm ergometer for exercise. Talk to your exercise team for help.

Dialysis appointments due to chronic kidney disease

A good time to exercise will vary if you have dialysis throughout the week.

It will depend on your symptoms and your energy level. Start with small sessions of exercise. Try 5 to 10 minutes of exercise at a level that feels right to you. Talk to your doctor or your exercise team for help.

Heart Disease and Stable Angina

If you have heart disease, speak with your doctor before you start an exercise program.

Angina is symptoms that occur when your heart does not get enough oxygen. Symptoms of angina include:

- chest pain
- chest tightness
- arm pain
- jaw pain
- back pain between your shoulders
- shortness of breath

Stable angina is angina symptoms at a known intensity level of exercise. Keep your exercise intensity below this level to avoid angina symptoms. Talk to your exercise team about the right level of exercise for you. Have your nitroglycerine with you while you exercise. Know what to do if you have angina symptoms while exercising. Slow your exercise pace and stop exercising. Take your angina medicine as prescribed. If your symptoms do not resolve, get immediate medical attention. If you live in Ontario, call 9-1-1.

For more detailed information about heart disease visit our Cardiac College website at **www.cardiaccollege.ca**

Chronic Obstructive Pulmonary Disease (COPD) or breathing problems

Chronic Obstructive Pulmonary Disease (COPD) is a disease that causes

restricted air flow to your lungs. With COPD, shortness of breath will limit your exercise. Your exercise depends on the how much your lungs are affected. Exercise at a level where your breathing feels right. Stay within this level. Start with small sessions of exercise, about 5 to 10 minutes long. Talk to your doctor or exercise team for help.

Summary:

- Exercise lowers the sugar in your blood. If you take insulin or a medicine from the Secretagogue class of medicines you are at risk for low blood sugar (hypoglycemia) especially after exercise.

Safety Alert!

You are at risk for low blood sugar (especially after exercise) if you take any of the following diabetes medicines:

- Insulin
- Secretagogue medicines such as:
  - Diamicron (Gliclazide)
  - Amaryl (Glimepiride)
  - Glyburide (Diabeta)
  - Repaglinide (Gluconorm)

- Take a break from exercise if you are ill and return to exercise slowly
- Do not exercise if you have blisters, sores, muscle or joint pain
- The weather changes your blood sugar levels, take actions as needed to prevent problems
- You can exercise with other medical problems, work with your doctor or exercise team to adjust exercise to meet your needs

Eat Healthy

Eat Healthy

Chapter 1
Nutrition Basics

You Will Learn About:

1. The 4 food groups
2. What foods have carbohydrates, proteins and fats
3. What the right amount of carbohydrates is to eat
   a. The plate model
4. How to time your meals
5. Healthy snacks

The aim of healthy eating is to manage your blood sugar. You can help to prevent problems caused by diabetes with healthy eating.

Healthy eating lowers your blood sugar. Lower blood sugar lowers your A1c. Recall, your A1c tells you how well you managed your blood sugar over the past 3 months. Healthy eating can lower your A1c level by 1.0% to 2.0%.

To help manage your diabetes, eat foods from the 4 food groups each time you eat a main meal.

1. What Are the 4 Food Groups?

1. Vegetables and Fruits
2. Grain products
3. Milk and Alternatives
4. Meat and Alternatives

Eating a range of foods from the 4 food groups will help you to manage your blood sugar. You will also feel better and be more likely to do things in your daily routine (like exercise). Health Canada's 'Eating Well with Canada's Food Guide', gives you details about how to eat foods in the 4 food groups.

For more information on Eating Well with Canada's Food Guide, go to:

http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/food-guide-aliment/print_eatwell_bienmang-eng.pdf

2. What Foods Contain Carbohydrates, Protein and Fat?

- All food is made up of carbohydrates, protein or fat or a mix of these nutrients
- You need each of these nutrients (carbohydrates, protein and fat) to help

your body function. Eat a range of foods with these nutrients to have a healthy diet

What are carbohydrates?

Carbohydrates are your body's main source of fuel or energy. Carbohydrates act like the gasoline in a car. Carbohydrates turn into sugar (glucose) in your body. Your working muscles and brain need this sugar to work well. You cannot live without them.

Since carbohydrates turn into sugar (glucose) in your body, they will raise your blood sugar level. Learn which foods have carbohydrates. You need to eat the right amount of carbohydrates to be healthy and still manage your blood sugar.

What foods have carbohydrates?

Most foods from the 4 food groups contain carbohydrates.

Fruits and Vegetables

All fruit (except avocado) and starchy vegetables contain carbohydrates. Some examples of starchy vegetables include:

Potatoes, Yams, Sweet Potato	Parsnip	Green peas	Turnip (e.g. rutabaga)
Squash (e.g. pumpkin, butternut, buttercup, acorn)	Frozen mixed vegetables	Tomato sauce	Snow peas
Cassava or Yuca	Taro	Eddoes	Plantain
Jicama	Chayote	Dasheen	Breadfruit
Corn			

Some vegetables are not called carbohydrates. This is because they do not raise your blood sugar very much. Some examples are:

Asparagus	Bean sprouts	Broccoli	Beets
Carrots	Bok choi	Cucumber	Eggplant
Leeks	Lettuce	Kale	Onions
Cabbage	Mushrooms	Bell pepper	Okra
Celery	Endive	Radish	Yellow or green beans

Grains

Bread, buns, rolls (all types)	Bagel	Cold cereal	Noodles
Pita	Roti, chapatti	Corn, cornmeal	Rice (all types)
Quinoa	Matzah	Barley	Muffin
Oats	Pasta	Crackers	Flour (all types)

Milk and Alternatives (<u>not</u> cheese):

All types of cow milk	Soy beverage	Almond beverage	Yogurt (plain or flavoured)
Evaporated milk	Kefir	Ice cream	

Meat Alternatives:

Legumes such as:

Lentils or Dhal Fava beans	Chickpeas Split pea	Kidney (red or white) beans Romano	Black-eye peas Pigeon peas

Sugar and sweets are not part of the 4 food groups, but also contain carbohydrates. These foods include:

- Sugar (all types like brown sugar, raw sugar, cane sugar)
- Agave
- Honey
- Candy
- Regular pop
- Iced tea
- Fruit drinks
- Syrups (like maple syrup)
- Cakes and muffins
- Cookies
- Pies

These foods do not provide the same value as other foods. Sweets often contain a large amount of carbohydrates in a very small serving. Limit your portion size and limit the amount of sweets you eat. Eat healthy foods such as vegetables, fruits, legumes and whole grains at your meals.

What is protein?

Protein helps to build tissue and repair your body after damage or stress. Protein does not raise blood sugar.

What foods have protein?

The foods that have higher amounts of protein include:

- Fish (canned, frozen and fresh) – also contains fat
- Meat (beef, pork, lamb, goat, etc.) –also contains fat
- Poultry (chicken, turkey) – also contains fat
- Legumes (dried beans, lentils, chickpeas) – also contains carbohydrate
- Soy (such as tofu), tempeh (fermented soy)
- Edamame – also contains fat
- Eggs and egg whites
- Nuts and seeds – also contains fat
- Nut and seed butters (like peanut butter, almond butter, tahini) – also contain fat
- Cheeses – also contain fat
- Kefir, milk (all types), yogurt – also contain carbohydrate and fat

What is fat?

Fats do not raise blood sugar and are needed for good health. There are three main types of fats: unsaturated, saturated and trans.

Fats that come from plants and fish are known as unsaturated fat. Unsaturated fat can lower your LDL (bad) cholesterol. Recall that too much LDL (bad) cholesterol can lead to plaque buildup in your blood vessels. Read

Chapter 4 of this section on 'Cholesterol, Triglycerides and the Mediterranean Diet Pattern' to learn more.

What foods have fat?

Some examples of foods that contain unsaturated fats include:

- Vegetable oils (all types like olive oil, canola oil, sesame oil, sunflower oil)
- Avocado
- Nut or seed butters (like peanut butter, almond butter, tahini)
- Nuts and seeds (all types)
- Non-hydrogenated margarines
- Fish, especially fatty fish (like trout, sardines, mackerel, herring, salmon, tuna)

Fats found mostly in animals are known as saturated fat. Saturated fat may increase your LDL (bad) cholesterol. Some examples include:

- Bacon and turkey bacon
- Skin on poultry
- Lard
- Butter
- Cream (table, half and half, whipping)
- Palm oil, palm kernel oil, cocoa butter, coconut oil

Trans fats are artificial fats or industrially produced (factory-made) fats. These fats are not healthy. Trans fats can increase your LDL (bad) cholesterol and lower your HDL (good) cholesterol. Trans fats have been shown to increase the risk of heart disease in people living with diabetes.

Foods with trans fats include:

- Shortening
- Hard stick margarine
- Baked goods and snacks that contain partially hydrogenated oils

To learn more read 'Getting the Facts on Fats' in the Toolbox section of this guide.

3. What Is the Right Amount of Carbohydrates To Eat?

To get enough carbohydrates, almost half of your daily energy or calorie intake needs to include carbohydrates. You can eat more carbohydrates (up to 60 percent % of your daily calories) if most of your food choices are high in fibre and low glycemic index. Foods that are high in fibre and low glycemic index will not raise your blood sugar as much (refer to Chapter 3 for more information on fibre and glycemic index).

What is the Plate Model?

The Plate Model is a guide to help you know how much carbohydrate you can eat at each meal. Use the steps of the Plate Model as a guide only.

Step 1: Start with vegetables. Aim to fill ½ your plate with a mix of different coloured vegetables. Eating vegetables of different colours will give you different nutrients. Vegetables can be raw, cooked, frozen or canned

Step 2: Think about your portion of high fibre foods (Read Chapter 3 of this section on 'Fibre and Glycemic Index' to learn more) grains or starches (sweet potato, corn, brown rice and other whole grains). Fill ¼ of your plate with these types of foods. Start with this amount because these are the foods that will raise your blood sugar. You may wish to include a glass of milk and a piece of fruit. These foods also contain carbohydrate and can raise your blood sugar

Step 3: Complete your meal by filling ¼ of your plate with protein (lean meat, fish, poultry, tofu, egg whites and legumes)

Tips:

- Try to keep the amount of carbohydrate the same every time you eat your main meal. This will help you to keep your blood sugar within a healthy range
- Eat different kinds of foods to make sure you get the proper nutrients
- Reduce of the amount of sweets, regular pop, vitamin water, sports drinks, bubble tea and flavoured coffees you have. These foods and drinks contain a lot of sugar and do not provide a good balance of nutrients

4. How Do I Time My Meals?

Eat at least three meals a day and no more than six hours apart. Eat your meals at the same time every day. Eating three meals a day can help prevent low blood sugar and prevent you from getting too hungry. You may find that you crave food that is less healthy when you are too hungry.

Before you exercise, check the time. If it has been 4-6 hours since you ate, have a healthy snack such as fruit or lower fat, unsweetened yogurt. Refer to the Snack List below for more ideas. Healthy snacks can prevent low blood sugar during exercise.

A Registered Dietitian can answer your questions and help you to set goals to meet your needs.

5. Healthy Snack List

- Small handful of unsalted nuts
- 1 small banana with 1 tablespoon of peanut or almond butter
- A piece of fruit with nuts or peanut butter or almond butter
- Smoothie made with ½ cup of 1% milk plus ½ cup yogurt and any fruit of your choice. You can add ground flaxseed (1 tablespoon)
- ¼ cup hummus with either 4-6 high fibre crackers or ½ whole grain pita or ½ cup chopped carrots
- ¾ cup oven-roasted chickpeas sprinkled with paprika or chili powder. Add a little bit of oil when you roast them
- 1 small bowl of high fibre cereal with ½ cup skim/1% milk/soy beverage.
- ½ cup ricotta or cottage cheese mixed with fruit
- 1 slice of whole grain bread with 1 oz reduced fat cheese e.g. 15% M.F. (milk fat) or less
- 1 slice of whole grain bread with 1 mini can of tuna or 1 tablespoon almond butter or natural peanut butter
- 1 boiled egg with 1 slice whole grain bread or high fibre crackers
- ¼-½ avocado spread over high fibre crackers, (option: sprinkle hemp hearts)

Summary:

- Choose low glycemic index carbohydrates most of the time. Read Chapter 3 of this section on ‘Fibre and Glycemic Index’ to learn more
- Keep the amount of carbohydrates you eat the same at each meal
- Eat every 3-4 hours and eat at the same time every day
- Include foods from at least 3 of the 4 food groups at each meal
- Use the Plate Method to help plan your meals

Eat Healthy

Chapter 2

Mindful Eating and Intuitive Eating

You Will Learn About:

1. Mindfulness
   a. What it means to eat mindfully
2. Intuitive eating
   a. What it means to be an intuitive eater
3. How mindful and intuitive eating can help you manage your diabetes

1. What Does It Mean To Be Mindful?

Being mindful is when you focus on the present moment without judgment (**www.mindful.org**).

What does mindful eating mean?

Mindful eating is when you take notice of all that surrounds you before, during and after a meal. Mindful eating involves using all of your senses (sight, smell, sound, taste and touch) when you eat.

Eating this way allows you to look at food in a new way. For example, try asking yourself the questions below:

- When was the last time you noticed what your food looks like? Are you used to being on 'automatic pilot' (eating your food really fast without thinking, noticing or tasting it)?
- Do you notice how your food smells?
- Do you listen to sounds, like crunching?
- How often do you take the time to taste your food, notice the textures and savour the flavours?
- Do you notice how food feels when you are cooking or baking it?
- Do you notice how food feels while you are eating it?

Mindful eating is not something most people can do all of the time. But, you can plan to practice mindful eating some of the time. At these moments, allow yourself to enjoy eating with nothing else on your mind. Try to make mindful eating a habit. This habit can lead to a better feeling about the role of food in your life.

Mindful eating is not the same as 'restrictive' eating. Restrictive eating is when you try to control food to:

- Help you eat less
- Solve the problem of eating when you feel a certain way (emotional eating)
- Avoid food cravings

Mindful eating is not a way to have control over your food. Recall that being mindful is about being in the moment, without judgment. It means you are aware of your thoughts, feelings and actions around food because you are fully present. You make a choice to eat what food is before you, free of guilt and judgment.

2. What Is Intuitive Eating?

The word "intuitive" is a feeling you have that is based on what you sense to be true. Intuitive eating is your innate sense of what is right or wrong for your body.

Intuitive eating is:

- Eating in response to what you feel inside your body. Eating when you are hungry and stopping when you have had enough (not too much)
- Being aware of your likes and dislikes of certain foods and eating foods that feel right to you. Being aware allows you to get more pleasure when you eat

When you practice intuitive eating, you will start to notice how certain foods make you feel. If a certain food makes you feel bloated you may choose not to eat that food again. For example, someone who is lactose intolerant can recall how dairy products make them feel after eating. They can then make a choice to eat food with dairy or not.

Notice how you feel when you eat to learn how your body responds to certain foods. You can help yourself feel better by asking yourself two questions:

1. "Am I hungry?" 
2. "What am I feeling?"


Sad


Bored


Angry


Lonely

Does the way you feel trigger the need to eat? Being aware of what is causing you to want to eat can help you learn why you eat. It is o.k. to feel what you feel. Try not to judge your feelings. Instead, accept what happens and make a choice. Choose to eat or not to eat. If you choose to eat, then eat and be mindful. Do not judge yourself.

How to be an intuitive eater?

It takes time and practice to become an intuitive eater. Follow these steps to help you become an intuitive eater:

1. **Say 'goodbye' to food rules or diets.** Shift your focus away from food rules or diets that tell you what and how much you should eat.

   When you are an intuitive eater, you decide what to eat and how much to eat. You can make these choices based on how you feel at that moment and how you want to feel in your body later.

2. **Notice your body signals.** Notice when you start to feel hungry. Learn how hunger feels to you.

Some people feel hunger when their stomach feels empty. Some people feel hunger when they start to get a headache or their mood changes. Some people feel low in energy, shaky or sweaty.

3. **Use the 'Hunger Scale'.** Rate your hunger on a scale of 1 to 10 before you eat a meal. The lower the number, the more hungry you are. You can use the Hunger Scale again to notice how you feel after you eat.

1 ……10

Very Hungry **Not at all Hungry**

4. Choose healthy foods that are good for your body. Think about what foods make you feel healthy and good. When you choose foods that you enjoy and support your body, you will feel well and feel better about food.

3. How Can Mindful and Intuitive Eating Help You Manage Diabetes?

Mindful and intuitive eating can help you manage your diabetes. Notice how you feel in body and mind before and after eating. Check your blood sugar at different times to learn more about how your body responds based on how you feel and what you do.

For example:

- Check your blood sugar when you feel hungry to learn about yourself. Your blood sugar may or may not be low
- Check your blood sugar 2 hours after a meal to learn how your body responds to the type and amount of foods you ate

Eat Healthy

Chapter 3
Fibre and Glycemic Index

You Will Learn About:

1. Fibre
   a. The types of fibre
   b. How much fibre you need to manage your diabetes
   c. How to get more fibre in your day
   d. How much fibre there is in plant foods
2. Glycemic Index
   a. What the glycemic index is
   b. How low glycemic index foods can help you manage your diabetes
   c. What factors affect the glycemic index of foods

1. What Is Fibre?

Fibre is the part of the plant that your body cannot digest or break down. It is often called 'roughage'. Fibre is only found in plant foods.

Eating fibre helps you manage your health. You should eat a lot of fibre to:

- Lower your blood sugar
- Lower your LDL (bad) cholesterol
- Lower your blood pressure

Fibre also helps you feel full longer, after a meal. Feeling full longer can help you eat the right amount of food for your body (and not too much).

- As fibre passes through your bowels, it attaches to fat and sugar. This delays absorption into your body. The waste is then removed from your body when you have a bowel movement (poo). Regular bowel movements also keep your digestive tract healthy.

What are the types of fibre?

Two types of fibre found in food are: soluble and insoluble. Eating plant foods will give you both types of fibre.

What is soluble fibre?

Foods with soluble fibre absorb water. The water makes the fibre swell and thicken to form a sticky gel. Soluble fibre can help:

- Manage your blood sugar
- Lower your blood cholesterol

Some examples of food that are high in soluble fibre include:

- Barley
- Okra
- Eggplant
- Ground flax seed
- Legumes (beans, chickpeas, and lentils)
- Oats
- Avocado
- Pectin-rich fruits (apples, pears, berries, and citrus fruits like oranges)
- Psyllium
- Squash
- Sweet potato
- Turnip

What is insoluble fibre?

Foods with insoluble fibre do not absorb water. Insoluble fibre:

- Helps prevent constipation (not able to poo)
- Keeps your digestive system healthy
- Prevents some types of cancers

Insoluble fibre is found in the bran portion of whole grains and the skins of fruit and vegetables. Some examples include:

- Bran cereal
- Broccoli
- Brown rice

- Cabbage
- Celery
- Corn bran
- Green beans
- The skin on kidney beans and other legumes
- Leafy green vegetables
- Nuts
- Raisins
- Root vegetable skins
- Seeds
- Wheat bran
- Whole grains (such as wheat and rye)

How much fibre do I need to manage my diabetes?

Aim to eat 25 to 50 grams of fibre every day to keep your body healthy and manage your blood sugar.

If you do not eat 25 to 50 grams of fibre every day, you should increase the amount of fibre that you eat to this amount.

- Increase the amount of fibre you eat slowly, over time. This will help prevent gas and bloating
- As you eat more fibre, make sure you drink more water. This will help the fibre work better. It will also help prevent gas and bloating

Use the charts and tips below to help you eat more fibre.

Here is a sample day's menu showing the plant foods at each meal.

Breakfast:

- 1 cup cooked oatmeal
- ½ cup berries
- 1 Tablespoon chia seed
- Total fibre is 7.5 grams

Lunch:

- 2 cups mixed green salad with 1 cup chickpeas
- 1 slice whole grain bread
- ½ cup cherry tomatoes
- 1 banana
- Total fibre is 13.5 grams

Dinner:

- 1 cup cooked quinoa
- 1 and 1/2 cups steamed vegetables
- Total fibre is 9.7 grams

Total Fibre for the day is 30.7 grams

How can I eat more fibre?

There are many ways to eat more fibre in your diet. Below are tips on how to increase the amount of fibre you eat.

- Start your day with a cereal that is high in fibre. Try steel cut oats, Bran buds® or Fibre 1® cereal
- Add foods that are high in fibre to your cereal and yogurt. These foods include:
  - Fruit
  - Nuts
  - Ground flax seeds
  - Chia seeds
  - Psyllium or oat bran
- Add high fibre foods (like the ones listed above) to recipes when you cook or bake
- Plan your meals and snacks to always include fresh or frozen fruit and vegetables
- Aim to fill half your plate with vegetables. The more colour on your plate, the more fibre and the more nutrition you get
- Add other foods that are high in fibre to meals. For example, add legumes, such as beans, dried peas, chickpeas, or lentils. Try adding kidney beans or chickpeas to salads or rice dishes. Put lentils or black beans in soups. Include a bean salad as a side dish

How Much Fibre is in Plant Foods?

Below is a list of plant foods and the amount of fibre each one contains. Use this table to help increase the amount of fibre you eat. Recall that you should eat 25 to 50 grams of fibre every day.

Food	Serving Size	Total Fibre (g)
Vegetables		
Artichoke, cooked	medium	4.7
Asparagus, cooked	6 spears	1.8
Beans, green cooked	125 mL (½ cup)	5.6
Beets, skinless	125 mL (½ cup)	1.8
Broccoli, cooked	125 mL (½ cup)	2.0
Brussels sprouts, cooked	125 mL (½ cup)	3.0
Carrots, cooked	125 mL (½ cup)	2.2
Carrot, raw	1 medium	1.5
Collard greens, cooked	125 mL (½ cup)	2.8
Corn	125 mL (1/2 cup)	1.6
Eggplant	125 mL (½ cup)	1.3
Kale, cooked	125 mL (1/2 cup)	1.4
Okra, cooked	125 mL (½ cup)	2.1
Peas, green, cooked	125 mL (½ cup)	5.6
Pepper, green or red	medium	1.1
Potato, white, with skin, baked	1 small	3.8
Rapini, cooked	½ cup	1.8

Food	Serving Size	Total Fibre (g)
Vegetables (continued)		
Spinach, cooked	½ cup	2.3
Spinach, raw	1 cup	1.4
Sweet Potato, cooked, skinless	125 mL (½ cup)	1.7
Squash, cooked	125 mL (1/2 cup)	1.3
Turnip, cooked	125 mL (½ cup)	1.6
Fruit		
Apple with skin	1 medium	2.6
Apricots, raw, with skin	3	2.1
Apricots, dried	60 mL (¼ cup)	1.2
Avocado	1/2 fruit	6.7
Banana	1 medium	2.1
Blueberries	125 ml (1/2 cup)	2.0
Figs, dried	2	1.6
Fig, fresh	2	2.9
Mango	½ fruit	1.9
Nectarine, raw with skin	1 medium	2.3
Orange	1 medium	2.3
Peach, raw with skin	1 medium	1.9
Pear, with skin	1 medium	5.0
Pineapple	125 mL (1/2 cup)	1.1
Prunes, dried	3	1.8
Plum, with skin	1 medium	1.1

Food	Serving Size	Total Fibre (g)
Fruit (continued)		
Raspberries	125 mL (½ cup)	4.2
Strawberries	125 mL (1/2 cup)	3.0
Grains & Cereals		
Bran Buds (with Psyllium)	30 g (1/3 cup)	11.4
Barley, pearled, cooked	125 mL (½ cup)	2.0
Bread, whole grain	30 g (1 slice)	2.6
Brown rice, cooked	125 mL (½ cup)	1.1
Bread, rye	35 g (1 slice)	1.2
Bran cereal (non flake)	30 g (1/2 cup)	10.1
Crisp bread crackers	3 crackers	5.0
Melba toast, whole wheat	6 crackers	1.5
Oat bran, cooked	175 mL (¾ cup)	5.1
Oatmeal, cooked	175 g (3/4 cup)	3.5
Cheerios™	30 g (1 cup)	2.6
Pasta , cooked (whole wheat)	125 mL (½ cup)	2.1
Quinoa, cooked	125 mL (1/2 cup)	2.0
Meat Alternatives- Plant Proteins		
Almonds	24 g (1/4 cup)	2.5
Black beans, cooked	250 mL (1 cup)	5.2
Chickpeas, cooked	250 mL (1 cup)	4.0
Cashews	33 g (1/4 cup)	1.1
Edamame, (soybean, green, cooked)	125 mL (½ cup)	4.0

Food	Serving Size	Total Fibre (g)
Meat Alternatives- Plant Proteins (continued)		
Flax seed, milled/ground	15 ml (1 Tbsp)	2.0
Kidney beans, cooked	250 mL (1 cup)	12.0
Lentils, cooked	250 mL (1 cup)	8.9
Lima Beans	250 mL (1 cup)	8.0
Soybean, cooked	250 mL (1 cup)	11.4
Sunflower seeds, dry roasted	60 mL (1/4 cup)	3.0
Tofu, fried pieces	175 mL (¾ cup)	3.9
Peanuts	60 mL(1/4 cup)	2.9

Source: "Canadian Nutrient File 2010." **http://www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/index-eng.php** [Accessed March 23, 2013]

2. The Glycemic Index and Diabetes

What is the glycemic index (GI)?

The glycemic index (GI) ranks carbohydrate foods using a scale from 0 to 100. This scale is used to see how quickly the carbohydrates in these foods raise your blood sugar after eating them compared to a standard food (glucose or white bread).

Foods with a high GI digest and absorb quickly into your body and can cause a rise in your blood sugar after eating. Limit the amount of food you eat that has a high GI number.

Foods with a low GI digest and absorb more slowly. These foods take a longer time to raise your blood sugar and cause a lower rise.

Often, foods with more fibre have a low GI. Eat foods with a low to medium GI instead of foods with a high GI.

The glycemic index does not rank foods based on nutrient content. This means that some foods may have a low GI, but may not be high in nutrition. It is best to eat foods with a low GI and that are high in nutrients.

How can low GI foods help me manage my diabetes?

Research shows that eating foods that have lower GI can help you:

- Manage your blood sugar better
- Lower LDL (bad) cholesterol and triglycerides (a type of fat in your blood)
- Lower your risk of getting heart disease
- Feel full longer, after eating
- Check your blood sugar 2 hours after you start eating a meal. This can help you understand how the GI of foods affects your blood sugar

What other factors affect the GI of foods?

There are 4 main factors that impact the GI of foods:

1. Food preparation. The more processed food is, the higher the GI.

Processed foods have a high GI because much of the nutrients and fibre have been removed or broken. This makes the nutrients and fibre digest quickly and absorb in your body. These foods include:

- Instant noodles
- Instant rice
- Instant mashed potatoes
- White bread
- Soda crackers
- French fries
- Baking potatoes

These foods are high in GI and are not high in nutrients. Eat whole, fresh

foods instead of processed foods. For example:

- Choose steel cut oats instead of instant oatmeal
- Choose long-grain rice, such as basmati or brown rice, instead of instant short-grain or sticky rice
- Choose sweet potatoes or yams instead of instant mashed potatoes
- Choose to eat legumes (such as kidney beans, lentils, split peas and chickpeas) more often
- Choose fresh or frozen fruit instead of fruit juice. Juice is the processed form of fruit and will quickly raise your blood sugar

2. Cooking time. The longer you cook food raises the GI. Overcooking food also raises the GI.

- For example, cook pasta al dente. Al dente refers to pasta cooked only to the point that it is still firm when eaten. Soft or overcooked pasta will have a higher glycemic index. This means that you should avoid overcooking foods

3. Fat and Protein. Adding fat and protein helps to lower the GI. For example, Russet potatoes have a high GI. Adding some olive oil, non-hydrogenated margarine or plain Greek yogurt to a baked potato can lower the GI. If you eat foods that are high in GI, add fat and protein to them.

4. Portions. The amount you eat can affect your blood sugar even if the food has a low GI. For example, eating a large portion of a low GI food such as pasta can still result in a high blood sugar reading. Keep your portions small.

Summary

- Try to eat 25 to 30 grams of fibre each day
- Fibre is only found in plant foods such as vegetables and fruit, whole grains and cereals, legumes, nuts and seeds
- Fibre helps you manage diabetes by lowering your blood sugar, LDL (bad) cholesterol and blood pressure
- The glycemic index (GI) ranks carbohydrate foods using a scale from 0 to 100. Try to eat more foods with a low GI number
- If you plan to eat a food with a high GI number add fat or protein to your meal

Eat Healthy

Chapter 4

Cholesterol, Triglycerides and the Mediterranean Diet Pattern

You Will Learn About:

1. Cholesterol
   a. The types of blood cholesterol
   b. The targets for blood cholesterol
   c. Foods that raise and lower your blood cholesterol
2. Mediterranean Diet Pattern
   a. What the Mediterranean diet is
   b. How the Mediterranean diet helps manage diabetes
   c. Tips for eating a Mediterranean diet
3. Triglycerides
   a. What triglycerides are
   b. The target for triglycerides
   c. Foods that raise and lower triglycerides

People living with diabetes often have high cholesterol. Both diabetes and high cholesterol put you at risk for heart disease.

1. What is Cholesterol?

Cholesterol is a wax-like substance found in your body. Your body needs cholesterol to:

- Make vitamin D
- Make bile (a fluid made by the liver to help break down fats)
- Make male and female hormones (testosterone and estrogen)
- Keep your cell membranes (the wall that lines the cells in your body) healthy

Your liver makes most of the cholesterol in your body. The rest comes from the animal products you eat. Only animal products have cholesterol (animal products include meat, fish, eggs, and dairy).

Types of cholesterol in the blood

There are two main types of cholesterol:

1) Low density lipoprotein (LDL) cholesterol
2) High density lipoprotein (HDL) cholesterol

What is LDL Cholesterol?

LDL cholesterol is often called 'bad' cholesterol. LDL cholesterol is a problem when levels get too high in your blood.

- When LDL (bad) cholesterol gets too high, it can slowly collect as plaque on the walls of your blood vessels

- If too much plaque collects, the plaque narrows or blocks your blood vessel. This block prevents blood from getting to your heart or brain
- When blood cannot get to your heart or brain, you can have a heart attack or stroke

Reduce the amount of foods you eat with LDL (bad) cholesterol to keep your LDL cholesterol levels low (less than 2.0 mmol/L).

What is the Healthy Target for my LDL Cholesterol Level?

Your LDL (bad) cholesterol level is measured from a blood test. A healthy target for your LDL (bad) cholesterol level is less than 2.0 mmol/L.

What Foods Increase my LDL Cholesterol?

Foods high in trans fat and saturated fat increase your LDL (bad) cholesterol level. Trans fats are found in commercially prepared (factory-made) or processed foods and saturated fats are found mostly in animal foods.

What is HDL Cholesterol?

HDL cholesterol is often called 'good' cholesterol. HDL cholesterol helps carry LDL (bad) cholesterol away from the walls of your blood vessels.

What is the Healthy Target for my HDL Cholesterol Level?

Your HDL cholesterol level is measured using a blood test. A healthy target for your HDL cholesterol level is greater than 1.0 mmol/L.

What Foods Increase my HDL Cholesterol Level?

Foods that have unsaturated fats (such as omega-3 fats) that come from fish can increase your HDL (good) cholesterol level.

2. What Is the Mediterranean Diet Pattern and How Does It Help Manage Diabetes?

What is the Mediterranean Diet Pattern?

You can protect your heart and reduce your risk of heart disease by eating a Mediterranean diet pattern. A Mediterranean diet pattern includes healthy fats and oils that come from plants.

A Mediterranean diet pattern can lower your risk of getting a heart attack, angina or stroke by 50-70%.

A Mediterranean diet pattern is a pattern of eating that is common in the countries around the Mediterranean Sea. You can adapt this diet pattern to any country or culture. It is a way of eating and a lifestyle approach to manage your diabetes and health.

Features of a Mediterranean diet pattern include eating more fresh whole foods and mostly plants at every meal such as:

- Vegetables and fruit
- Pulses (dried beans/peas, lentils, and chickpeas)
- Whole grains (barley, oats, quinoa, brown and wild rice, etc.)
- Fats and oils that come from plants (olive oil, avocado, nuts and/or seeds)
- Fish

The Mediterranean diet pattern is not vegetarian, but you eat less meat and less higher fat dairy foods (such as cheese).

The type of fat found in animal foods is mostly saturated fat. Saturated fats raise LDL (bad) cholesterol in your blood. The Mediterranean diet pattern is

low in animal fats, high in fibre and low in the glycemic index (Read Chapter 3 of this section on 'Fibre and Glycemic Index' to learn more).

The Mediterranean diet pattern suggests cooking at home more often with fresh foods instead of using processed, prepared foods and restaurant meals.

Why follow the Mediterranean diet pattern?

Many studies show that a Mediterranean diet pattern can help you manage your diabetes and improve your health. A Mediterranean diet pattern can:

- Lower your A1c
- Improve how well your body uses insulin (a hormone in your body that helps control your blood sugar level)
- Lower your total and LDL (bad) cholesterol
- Lower your triglyceride level (a type of fat in your blood)
- Lower your blood pressure
- Protect the tissues of your body from damage (inflammation) that can lead to disease (such as arthritis, heart disease, and cancer)
- Prevent or delay diabetes if you are living with pre-diabetes
- Prevent heart disease and some cancers

Tips for Eating a Mediterranean Diet Pattern

Tip #1 – Have at least one serving of fruits and vegetables with every meal

- Choose fruits and vegetables that differ in colour
- Include fruits and vegetables that are raw, frozen, roasted, and steamed
- Add vegetables to soup or sauté them in a stir-fry

Tip #2 – Choose vegetarian sources of protein at least 3 times each week

- Add legumes such as chickpeas, lentils, and dried beans to salads and soups
- Add tofu or edamame to a stir-fry
- Replace some of the meat in recipes (such as chilli, pasta sauce, and tacos) with a vegetable protein

Tip #3 – Prepare your own food more often

- When you prepare your own food, you know what is going into your food. Foods that are prepared when you buy them are processed and tend to be higher in sodium, sugar and saturated fat

Tip #4 – Include healthy fats

- Use extra-virgin olive oil when cooking
- Make your own salad dressings using olive oil, vinegar, and other seasonings (such as mustard, small amounts of honey or maple syrup, garlic, and herbs)
- Eat nuts, peanuts, seeds, and avocados in salads or as a snack

Tip #5 – Choose whole grains that prevent your blood sugar from going too high and then dropping (have a low glycemic index)

- Eat foods such as, quinoa, brown rice, bulgur, barley, steel cut oats, rolled oats, and whole grain, dense bread

Tip #6 – Eat some dairy products

- Choose lower fat, plain Greek, or regular yogurt. Add fresh fruit and nuts for flavour
- Use cheese as a garnish. Add a small amount of Parmesan cheese to pasta or add a crumble of feta cheese to salads

3. What Are Triglycerides?

Triglycerides are a form of fat that is carried in your blood.

- High levels of triglycerides increase your risk for heart disease and a heart attack
- High fat foods, sugar and alcohol can lead to high levels of triglycerides
- People living with pre-diabetes or diabetes often have a higher than normal triglyceride level
- A Mediterranean diet pattern can lower your triglyceride level

What is the Healthy Target for my Triglyceride Level?

A healthy target for triglycerides is less than 1.7 mmol/L for people living with pre-diabetes and diabetes. Ask your doctor about your triglyceride level the next time you get your blood work results from the lab.

Foods that lower my triglyceride level:

Foods that are part of the Mediterranean diet pattern can lower your triglyceride level.

1. Vegetables, Fruit, Whole grains, Legumes, Nuts and Seeds

These foods are high in fibre and provide lots of vitamins and minerals that your body needs.

- Aim to include a vegetable and/or fruit every time you eat a main meal
- Eat a mix of different coloured vegetables. Eating vegetables of different colours will give you different nutrients
- Choose low glycemic index foods made from whole grains (such as barley, oatmeal, quinoa, brown or wild rice, kasha)

- Add legumes (dried beans, chickpeas and lentils) to foods you already eat. Add a handful of legumes to a green salad or pasta dish
- Have nuts and seeds as a snack instead of granola bars

2. Fish

Omega-3 fats are a type of healthy fat found in fish and some plant foods. Omega-3 fats can lower triglycerides and reduce inflammation (damage to the tissues of your body that can lead to disease such as arthritis, heart disease, and cancer).

- Aim to eat fatty fish 3 times each week (fresh or canned). Examples include: trout, halibut, bass, salmon, tuna, mackerel and sardines
- Eat plant sources of omega-3 fats such as walnuts, ground flaxseed & flaxseed oil, hemp seeds and hemp hearts, chia seed, and canola oil. Add hemp hearts, chia seed or ground flax seed to other foods

Foods that raise my triglyceride level:

1. Added or Free Sugars

Examples include:

- All types of sugar (raw sugar, white or brown sugars)
- Honey
- Sweets, pastries, desserts, granola bars
- Juices
- Jams, jellies, syrup
- Chocolate
- Candy
- Regular pop
- Sugar sweetened drinks

2. High Glycemic Index Foods (Read Chapter 3 of this section on 'Fibre and Glycemic Index' to learn more)

High glycemic index foods are often highly processed. Examples include:

- Sugar
- Crackers
- White flour (such as white bread)
- Short grain sticky white rice or instant rice
- Instant mashed potatoes
- Instant noodles
- Rice cakes

3. Too Much Alcohol

Some of the medicines you take may react poorly with alcohol. Talk to your doctor or pharmacist about how your medicines react with alcohol before you drink alcohol.

If you drink alcohol, limit how much you drink to avoid high triglyceride levels.

- Men: limit alcohol to 2 drinks each day at most
- Women: limit alcohol to 1 drink each day at most

Your triglyceride and blood sugar levels may increase if you mix alcohol with juice or regular pop since these drinks contain sugar

4. Trans Fats

Trans fats are commercially prepared (factory-made) fats. They are made from partially hydrogenated vegetable oil or shortening. Foods made with trans fats are highly processed.

Trans fats raise LDL (bad) cholesterol and lower HDL (good) cholesterol in your body. They also increase inflammation (damage to the tissues of your body that can lead to disease such as arthritis, heart disease, and cancer). Trans fats are not healthy for you. They can increase your chances of having heart disease, a heart attack or stroke.

Examples of foods often made with partially hydrogenated oil or trans fats include:

- Crackers and Cookies
- Cakes, pie crusts, pastries, donuts, croissants
- Vegetable shortening, hard margarine
- French fries, potato & corn chips
- Deep-fried restaurant or fast foods

Summary

- Eat foods rich in omega-3 fats (like fish, flax seed) to raise your HDL (good) cholesterol and lower your triglycerides
- Limit foods high in trans and saturated fats that raise your LDL (bad) cholesterol and triglyceride levels
- Following a Mediterranean diet pattern to help you manage your diabetes and lower your:
  - Blood sugar
  - LDL (bad) cholesterol
  - Triglycerides
  - Blood pressure

Eat Healthy

Chapter 5

Lower Your Blood Pressure with the DASH Diet Pattern

You Will Learn About:

1. The link between diabetes and high blood pressure
   a. What high blood pressure is
2. The link between sodium and high blood pressure
   a. How the DASH eating pattern can lower your blood pressure
   b. What amount of sodium is ok
   c. The hidden sources of sodium
   d. How you can eat less sodium
   e. What else you can do to lower your blood pressure

1. The Link Between Diabetes and High Blood Pressure

Your heart pumps blood around your body through blood vessels. Blood pressure measures the force of your blood against your blood vessel (artery) walls. High blood pressure happens when the force of blood against your blood vessel walls is too strong. High blood pressure is called 'hypertension'. There are often no signs of high blood pressure but when blood pressure is high, it can damage your heart, eyes, kidneys and brain.

People living with diabetes often have high blood pressure. High blood sugar makes it more likely that you will have high blood pressure. Over time high blood pressure can damage your blood vessel walls and lead to heart disease and stroke.

People living with diabetes are at a very high risk of heart disease and stroke. Coronary artery disease is the most common type of heart disease for people with diabetes.

2. The Link Between Sodium and High Blood Pressure

Salt and sodium are often used as though they are the same thing, but they are different. Sodium is a mineral that is found naturally in foods or added to foods by food makers. Table salt is a mixture of sodium and chloride. By weight, salt is about 40% sodium and 60% chloride.

Your body needs some sodium, but not too much. Sodium in your diet is linked to high blood pressure. If you have high blood pressure you need to manage it. If you do not have high blood pressure you can learn ways to prevent it. You can lower or prevent high blood pressure by the foods you eat each day.

How can the DASH eating pattern lower my blood pressure?

Research shows that a DASH eating pattern can lower your blood pressure. DASH stands for Dietary Approaches to Stop Hypertension. Key features of the DASH eating pattern include:

- Plenty of vegetables and fruit
- Unsalted nuts and seeds
- Whole grains, fish, poultry, and nuts
- More legumes and fish
- Lower fat dairy products
- Lower sodium
- Lower amounts of red meats, sweets, and drinks that contain sugar

The DASH eating pattern is about eating fresh, whole foods and more plants in place of processed and prepared foods. When you eat this way, your diet is lower in sodium, while higher in other nutrients such as fibre, potassium, magnesium and calcium.

The DASH eating pattern helps to lower blood pressure because it contains key nutrients, such as potassium, calcium, and magnesium. These nutrients help to lower blood pressure. The table below is an example of how many servings from each food group you can eat each day to lower your high blood pressure, or prevent it.

Food Group	Daily Servings
Grains and grain products	7-8
Vegetables	4-5
Fruits	4-5
Low fat dairy	2-3
Meats, poultry and fish	2 or less
Fats and oils	2-3
Nuts, seeds, legumes	4-5 per week

Source: National Heart, Lung and Blood Institute; For more information on the DASH diet: **http://www.nhlbi.nih.gov/health/health-topics/topics/dash/**

How much sodium can I eat?

A DASH-Sodium study was done to learn what amount of sodium is ok to eat. People in the study were put into 3 groups. Each group ate a different amount of sodium each day. The 3 levels of sodium were:

1. DASH diet with 3300 mg of sodium each day (about what most North Americans eat each day),
2. DASH Diet with 2300 mg of sodium each day, and
3. DASH Diet with 1500 mg of sodium each day

All people who followed the DASH diet had lower blood pressure at the end of the study. People in the group who only had 1500 mg of sodium each day lowered their blood pressure the most.

1500 mg of sodium is found in about ⅔ of a teaspoon of table salt.

Are there 'hidden' sources of sodium?

A 'hidden' source of sodium means you cannot see the sodium. Restaurant meals, fast foods and prepared foods from the counter at grocery stores are examples of hidden sources of sodium. This is because you do not know how much salt is in the food. Sodium is often added to these types of food.

If the food comes in a package, you can read the nutrition facts table to know how much sodium is in the food. Read Chapter 6 of this section on 'Learn How to Read Food Labels' to learn more.

Most of the sodium that people eat comes from the salt added to processed, prepared foods and meals prepared at restaurants. Fresh, whole foods that you prepare at home are naturally low in sodium. Choose to eat fresh, whole foods at home more often to eat less sodium.

How can I eat less sodium to prevent or manage high blood pressure?

1. Eat more fresh, whole foods

Include foods that are naturally low in sodium. For example:

- Fruit (fresh or frozen)
- Vegetables (fresh or frozen)
- Whole grains (such as oats, barley, rice, and quinoa)
- Legumes (chickpeas, lentils, beans); look for low sodium or no salt added canned beans

- Fish, poultry and lean meats (fresh or frozen)
- Unsalted nuts and seeds

2. Limit foods with hidden sodium

Eat less processed, prepared, and packaged foods, such as frozen dinners, canned soups, instant side dishes, sauces and pickles. A lot of sodium was added to these foods.

3. Read the Nutrition Facts Table

- Think about the serving size and how much you will eat.
- Choose products with **less than 200 mg** of sodium per serving or **less than 5% Daily Value (% DV).**

Nutrition Facts
Valeur nutritive

Per 4 crackers (20 g) / Portion (20 g)

Amount	% Daily Value / % valeur quotidienne
Calories / Calories 90	
Fat / Lipides 2 g	**3** %
Saturated / saturés 0.3 g + Trans / trans 0 g	**2** %
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 90 mg	**4** %
Carbohydrate / Glucides 15 g	**5** %
Fibre / Fibres 3 g	**12** %
Sugars / Sucres 1 g	
Protein / Protéines 2 g	
Vitamin A / Vitamine A	0 %
Vitamin C / Vitamine C	0 %
Calcium / Calcium	2 %
Iron / Fer	8 %

What else can I do to lower my blood pressure?

1. Drink less alcohol

Too much alcohol at one time can increase your blood pressure. The amount of alcohol you can drink without raising your blood pressure differs for men and women.

Men: limit alcohol to 2 drinks each day at most

Women: limit alcohol to 1 drink each day at most

If you are going to include alcohol, it is best to have it with a meal to prevent low blood sugar.

2. Exercise

Exercise and be active daily to help manage your blood pressure and blood sugar.

Summary

- Overtime, high blood pressure (hypertension) may cause damage to your heart (heart attack), brain (stroke), eyes (loss of vision) and kidneys (kidney failure)
- Learn to read a food label to see how much sodium is in the food you buy
- Limit the amount of alcohol you drink and follow the DASH eating pattern to lower your blood pressure
  - Plenty of vegetables and fruit
  - Unsalted nuts and seeds
  - Whole grains, fish, poultry, and nuts
  - More legumes and fish
  - Lower fat dairy products
  - Lower sodium
  - Lower amounts of red meats, sweets, and drinks that contain sugar

Eat Healthy

Chapter 6

Learn How to Read Food Labels

You Will Learn About:

The different types of nutrition information on a food label

1. Ingredient List
2. Nutrition Facts Panel
3. Nutrient Claims

Reading food labels can help you see what is in the food you buy. Knowing what is in the food you buy can help you manage your blood sugar. There are 3 places to learn about food from a food label:

1. List of Ingredients

All ingredients in the food item are listed by most to least amount of weight. This means that foods contain more of the ingredients at the start of the list and less of the ingredients at the end of the list. The ingredient list can help you look for certain ingredients and help you avoid those that you have been advised not to eat.

Sugar in your diet will raise your blood sugar. Sugar appears in many forms. Look for the names below in the ingredient list to find sugar in your food.

Molasses	Fruit puree	Liquid sugar	Honey
Juice	Invert sugar	Cane sugar	Agave
Dextrin	Sugar beets	Sucrose	Dextrose
Maple syrup	Brown sugar	Glucose-fructose	
Malt syrup	Anhydrous dextrose	Brown rice syrup	
Cane syrup	Fruit-juice concentrate	High fructose corn syrup	
High maltose corn syrup			

The example below is an ingredient list for a food that has a lot of sugar:

INGREDIENTS: GLUCOSE-FRUCTOSE, CHICORY ROOT EXTRACT (INSULIN FIBRE), SUGAR, WHOLE GRAIN ROLLED OATS, PUFFED WHEAT, HIGH MALTOSE CORN SYRUP, WHOLE GRAIN BARLEY FLAKES, CHOCOLATE CHIPS (CHOCOLATE LIQUOR, SUGAR, COCOA BUTTER, MILK INGREDIENT, SOY LECITHIN, NATURAL FLAVOUR), CORN BRAN, PALM KERNAL OIL, CRISP RICE (RICE FLOUR, MALT EXTRACT, SUGAR, SALT), CANOLA OIL, WHEAT BRAN, GLYCERIN, COCOA, WHOLE GRAIN WHEAT, GRAHAM FLOUR, SOY LECITHIN, CORN STARCH, NATURAL FLAVOUR, MALTODEXTRIN, SALT, TRISODIUM PHOSPHATE, BHT.

2. Nutrition Facts Table

(Adapted from www.eatrightontario.ca)

The nutrition facts table gives you information about the amount of fat, protein, carbohydrate, and other nutrients in food. To manage your diabetes, look for the amount of:

- Carbohydrates
- Fibre
- Sugar
- Fat
- Sodium

Nutrition Facts
Valeur nutritive
Serving Size (172 g) / Portion (172 g)

Amount	% Daily Value / % valeur quotidienne
Calories / Calories 200	
Fat / Lipides 1 g	**1** %
Saturated / saturés 0.3 g + Trans / trans 0 g	**1** %
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 7 mg	**0** %
Carbohydrate / Glucides 36 g	**12** %
Fibre / Fibres 11 g	**45** %
Sugars / Sucres 6 g	
Protein / Protéines 13 g	
Vitamin A / Vitamine A	1 %
Vitamin C / Vitamine C	1 %
Calcium / Calcium	4 %
Iron / Fer	24 %

Carbohydrate: The amount of carbohydrate on the nutrition facts table is for **total carbohydrate**. This total includes starch, fibre and sugars. If you are counting carbohydrates to manage your blood sugar, subtract the amount of fibre from the total carbohydrate listed. Do this because fibre does not raise your blood sugar.

Use the label on page 203 as an example:

- There are 36 grams (g) of total carbohydrate
- There are 11 grams (g) of fibre
- Subtract the amount of fibre (11g) from the total carbohydrate (36g)

  36g (total carbohydrate) subtract 11g (fibre) equals 25g
- This means there are 25 grams of carbohydrate that will turn into sugar in your body (instead of 36 grams)

Fibre: Fibre helps to manage your blood sugar, blood cholesterol and blood pressure. Aim to eat 25 to 50 grams of fibre every day to keep your body healthy and manage your blood sugar.

- Look for products that have a % Daily Value (% DV) of fibre of at least 15% to help you decide between products
- Compare the % DV of fibre between two products. A product with the higher % DV is the higher fibre choice

The % DV is found on the right-hand side of a nutrition facts table. It is a guide to help you make informed food choices.

Use the % DV to either:

1. Compare two foods to help you make an informed food choice, or
2. Choose foods that are **higher** in the nutrients you may want more of (example: fibre) or **lower** in the nutrients you want to avoid or eat less of (example: saturated fat, trans fats and sodium)

Sugars: The amount of sugar on the nutrition facts table includes sugars found naturally in foods (like in fruit and milk) plus added sugars such as white sugar, honey and syrups. Aim to lower the amount of food and drinks

you have that include added sugar or are sweetened. Look at the ingredient list to see if a food has added sugars.

Fat: The amount of fat in your food is on the nutrition facts table. Look for products with little saturated fat and no trans fat. Use the % DV to help you. A food with 5% DV or less of saturated fat is a low fat choice. Look for ingredients in the chart below to find saturated fat and trans fat in your food.

Sodium: The amount of sodium in your food is also listed on the nutrition facts table. Too much sodium can increase your risk for high blood pressure. A food with 5% DV of sodium or less is a low sodium choice. Sodium appears in many forms. Look for ingredients in the chart below to find sodium in your food.

Use the table on the next page to learn what ingredients should be thought of as fat or sodium.

Nutrient	Ingredients to look for on the ingredient list
Saturated fat	These ingredients tell you there is saturated fat in the food: • Butter • Coconut or coconut oil • Lard, shortening, suet, chicken fat, bacon fat, tallow or beef fat • Cocoa butter • Palm or palm kernel oil • Powdered whole milk solids
Trans fat	These ingredients tell you there is trans fat in the food: • Hydrogenated or partially hydrogenated fats and oils • Margarine and shortening made with hydrogenated or partially hydrogenated fats or oils
Sodium	These ingredients tell you there is sodium in the food: • Soy sauce • Fish sauce

3. Nutrition Claims

Some packaged foods have nutrition claims. There are two types of nutrition claims:

1. Nutrient content claims

    Nutrient content claims tell you about the amount of a nutrient in a food.

These claims can help you choose foods that have a nutrient that you may want less of (such as sugar) or that you may want more of (such as fibre).

2. Health claims

Health claims tell you how a food can improve your health when you eat it as part of your healthy diet. See this example of a health claim from Health Canada: 'a healthy diet containing foods high in potassium and low in sodium may reduce the risk of high blood pressure, a risk factor for stroke and heart disease'.

Nutrition claims follow rules from Health Canada. These rules make sure the claims are used in the same way on all food products. These claims only tell you about a few key nutrients. Refer to the nutrition facts table to make food choices that are best for you. Examples of nutrition claims are in the next table:

Examples of nutrition claims	What it means	Where you might see this claim	Beware
Cholesterol free No cholesterol	• A very small amount	Potato chips	• Cholesterol only comes from animals • Cholesterol free products may still be high in fat
Low fat	• A very small amount of fat • 3 grams of fat or less per serving	Fruit bottom yogurt	• Low fat does not mean low in sugar • Choose low fat yogurt with **no sugar added**
No sugar added	• Sugar has not been added to the product	Juice	• Juices are high in calories and have natural sugar
Light	• Foods that have less fat or calories (energy)	Light peanut butter	• Can also refer to colour or texture e.g., “light” or “lite” olive oil

Summary

- Sugar can appear in many forms (such as molasses, cane syrup, honey, dextrose, fruit puree etc.) on the list of ingredients
- Sodium can appear in many forms (such as soy sauce, fish sauce) on the list of ingredients
- Look for foods with at least 15 percent Daily Value (%DV) of fibre on the Nutrition Facts Table
- Look for foods with less than 5 percent Daily Value (%DV) of sodium on the Nutrition Facts Table
- Read Nutrition Claims carefully. For example, foods like potato chips with a claim to be `cholesterol free' can still be high in fat

Feel Well

Feel Well

Chapter 1

Managing Your Feelings and Diabetes Burnout

You Will Learn About:

1. How to manage your feelings about having diabetes
2. Diabetes burnout
    a. What is diabetes burnout?
    b. What are the signs and symptoms of diabetes burnout?
    c. How can self-compassion prevent diabetes burnout?
    d. How can you prevent or deal with diabetes burnout?

1. How to Manage Your Feelings About Having Diabetes

When you find out you have diabetes it is common to feel shocked. Shock means you cannot believe it is happening. You may also feel helpless, hopeless, afraid or angry. These emotions are normal. You react this way because having diabetes changes your life. Diabetes is not your fault. You did not choose for it to happen.

There are things you can do to manage your feelings. You can:

- Name what you are feeling, for example, 'I am scared'
- Accept you have strong emotions
- Learn about diabetes. Know what you can do to manage diabetes and thrive. Learn how to have a healthy life with diabetes

2. Diabetes Burnout

What is diabetes burnout?

Diabetes burnout happens when you get tired from trying to control your diabetes. Living with diabetes is a lot of work. Diabetes is a job that never ends. At times this job can feel too big, too long, too hard and never-ending. Sometimes, you just wish you had a break from having diabetes. Feeling too tired and empty to manage your diabetes is called diabetes burnout.

Diabetes burnout is common. People grow tired and bored of having to manage their disease. There are many tasks you need to repeat over and over again such as checking your blood sugar, taking your diabetes medicine and timing your food. The many tasks you need to repeat make it more likely to have diabetes burnout.

What are the signs and symptoms of diabetes burnout?

Below are some signs and symptoms of diabetes burnout:

- You lower your diabetes care
- You feel alone
- You have trouble getting support
- You feel like the only one dealing with diabetes
- You feel guilty or blamed
- You feel like you are being watched by others
- You feel angry or upset that your diabetes control is not perfect
- You feel like giving up
- Your behavior is unsafe for your diabetes
- You avoid trying to control your diabetes
- You stop taking your diabetes medicine
- You stop listening to your doctor

How can self-compassion prevent diabetes burnout?

Self-compassion means you have concern and sympathy for yourself. Self-compassion helps you:

- Feel better about your diabetes
- Get control of your emotions again
- Feel more hopeful
- Be warm and understanding toward yourself when you don't feel 'good enough'

For example, when your blood sugar level gets too high you might feel shocked or angry. Use self-compassion to notice your feelings and remind yourself you are doing a good job most of the time. Feeling shocked and angry are very common feelings when you are living with diabetes. It will get easier to notice these feelings over time so you can practice self-compassion instead.

Diabetes is not a weakness. Diabetes is also not a sign that you have done something wrong. Practice self-compassion to replace your self-blame. Understand that each person has their own health problems - yours is diabetes. It is a disease that you need to manage.

How do I prevent or deal with diabetes burnout?

There are many ways to prevent or deal with diabetes burnout. Below are 7 ways for you to try:

1. Accept and name how you feel. For example, 'I am really tired of managing my diabetes', or 'I feel overwhelmed by my diabetes'. It is okay to feel this way. Allow yourself to feel this way. State how you are feeling without trying to change it. Once you accept how you are feeling, you will feel better
2. Take care of yourself. Do something every day that does not involve your diabetes. This will allow you to feel cared for. For example, connect with a friend, have quiet time with a cup of tea or go for a nice walk in nature. Find something just for you and make time for it. Do this activity a few minutes a day to make a difference
3. Practice self-compassion. For example, it helps to tell yourself, 'Today, I am going to believe that doing my best is enough'
4. Be kind to yourself. Do not judge or be critical of yourself

5. View your diabetes as part of being human. This way you won't feel as alone
6. Live in the moment. Focus on the present moment. Do not think bad thoughts. Notice when your thoughts are turning into worries and fears. When this happens, think about putting those thoughts away in a box and focus back on the present moment
7. Remind yourself that diabetes is something that many people deal with. You are not alone

Summary

- A new diabetes diagnosis may cause shock. There are ways to deal with this shock
- Be mindful of diabetes burnout. You can prevent diabetes burn out by being mindful of your feelings and handling them before you burn out

Feel Well

Chapter 2
Sleep, Stress, Anxiety and Depression

You Will Learn About:

1. What it means to have a ‘good night sleep’
   a. How a good night sleep is different from a bad night sleep
   b. Tips for a better night sleep
   c. What sleep apnea is
2. What stress is and how you can manage it
3. What anxiety is and how you can manage it
4. What depression is and how you can manage it

1. A Good Night Sleep

What does it mean to have a good night sleep and a bad night sleep?

Getting a good night sleep is linked to better health. A good night sleep is also linked to better mood, less pain and clearer thinking. Adults between 18 and 65 years of age should get 7 to 8 hours of sleep each night.

There are a number of ways to know if you have a bad night sleep. A bad night sleep means you get:

- Too little sleep (less than 6 hours), **or**
- Too much sleep (more than 9 hours a night), **or**
- Inconsistent sleep (going to sleep and waking up at very different times each night)

Getting a bad night sleep is a problem if it happens three nights or more each week. If this happens, you will notice that it is hard to get through your day. For example:

- You may run out of energy in the afternoon. You may have to take a nap or have coffee, tea, or a snack for energy
- You may find it hard to focus at work
- You may get annoyed easily and feel moody

Getting a bad night sleep can make it harder to manage your blood sugar in the morning. A bad night sleep can also make pain problems worse.

Tips for getting a good night sleep

Getting a good night sleep improves your health. Once you have better sleep habits, you will have more energy during the day. Your mood will improve too.

Follow the tips below to help you have a good night sleep:

- Be active during the day
- Go to bed and wake up at the same time every day
- Keep your room cool and dark
- Remove devices. This means no computers, television or smart phones.
- Take one hour to relax before bed. To relax you might take a hot bath, listen to music, read, watch TV, or knit
- Limit drinking alcohol or doing exercise less than four hours before bed

What is sleep apnea?

Sleep apnea means you stop breathing when you sleep. You stop breathing because the air passage to your lungs gets blocked. The air passage is blocked by soft tissue in the back of your throat. This block makes your stress system wake you up so you can start to breathe again.

Sleep apnea makes your stress system wake you up as many as 30 times every hour to breathe. When you wake up this often you cannot get into a deep sleep at night. You wake up feeling like you did not sleep at all.

Sleep apnea makes your health worse. Each time your stress system wakes you up to breathe, your blood sugar goes up. You will notice that your blood sugar is high in the morning if you have sleep apnea. Sleep apnea also makes your blood pressure and cholesterol go up.

Sleep apnea is common in people living with type 2 diabetes (it is found in half of the people living with type 2 diabetes). You are more likely to have a heart attack or a stroke if you do not treat your sleep apnea (your risk is 4 times higher).

The symptoms of sleep apnea are:

- Loud snoring
- Feeling very tired during the day
- You stop breathing at night (other people may have noticed)
- High blood pressure

If you have some of these symptoms you may have sleep apnea. Ask your doctor if you should go for a sleep test.

2. Stress

What is stress and how can I manage it?

Stress is how your body reacts to a rise in demands in your life. Diabetes causes a rise in demands. As a result, diabetes often causes stress. When these demands do not go away you may begin to feel like you have no control in your life.

Diabetes can also make you feel weak and exposed. You may feel hopeless and helpless as you try to manage your diabetes. Stress changes your mood and lowers your drive to get things done. These things include managing your diabetes.

Change your life and make a choice to do so. Making a choice to change will lower your stress. Focus on things you can control and let go of things you cannot. Each person feels stress differently. Your thoughts, actions and how you react to something can improve how you deal with stress. Practice the skills below to manage your stress. Most of these skills can be learned within a week.

- Name the feeling you have and choose to change anyway. For example, 'I feel out of control,' 'I feel like this is too much', or 'I feel helpless'. Once you accept how you feel do something that helps you connect with your body
- Notice your body's signals. Knowing when these signals happen can take away your feeling of being out of control. If this does not work take the time to talk to a friend (someone you can talk to honestly). See if you can find one small step you can start with to make healthy changes
- Relaxation techniques (such as muscle relaxation)
- Diaphragmatic breathing (learning to breathe from your diaphragm or stomach)
- Mindful breathing
- Visualization
- Affirmations (think good things about yourself)
- Meditation

Take action:

- Talk to your doctor. Your doctor will help you with your stress
- Join a group, connect with old friends, get involved in your community, or volunteer. All of these activities will help you feel less stressed
- Get active. Find an exercise that you enjoy and that is safe. Try to get at least 20 to 30 minutes of exercise most days of the week

3. Anxiety

What is anxiety and how can I manage it?

Anxiety is a very strong feeling of being nervous or worried. Anxiety is common when you have diabetes. Anxiety can affect how well you manage your diabetes. Anxiety can mean you are less able to take care of yourself.

Anxiety has many symptoms. The symptoms of anxiety are listed below. Think about how you have been feeling over the past 2 weeks. You may have anxiety if you are:

- Not able to relax
- Very worried with fears that are silly
- Feeling tense
- Finding it hard to focus
- In a bad mood
- Not able to be patient
- Having trouble falling asleep or staying asleep
- Short of breath
- Having problems with your bowels [such as nausea, gas, bloating, stomach discomfort, diarrhea (poo is loose or watery), or constipation (trouble having a poo)

Take action:

- Talk to your doctor. Your doctor will help you know if you have anxiety. If you have anxiety your doctor may prescribe medicines. Your doctor may also refer you to another health care provider (such as a psychiatrist, psychologist or social worker)

- Join a group, connect with old friends, get involved in your community or volunteer. All of these activities will help you feel less anxious
- Get active. Find an exercise that you enjoy and that is safe. Try to get at least 20 to 30 minutes of exercise most days of the week

4. Depression

What is depression and how can I manage it?

Depression is a constant feeling of apathy, sadness or loss. Depression can affect your thoughts, behaviours and feelings. Depression is common in people with diabetes. When you are depressed, your diabetes control lowers. Being depressed means you may not take good care of your diabetes.

Depression has many symptoms. The symptoms of depression are listed below. Think about your mood over the past 2 weeks. You may have depression if you:

- Do not enjoy the activities that you often enjoyed
- Feel hopeless or sad
- Have a hard time falling asleep or staying asleep
- Have low energy
- Have changes in how you eat, either more or less
- Have bad thoughts about yourself
- Find it hard to focus
- Have lost your interest in sex
- Feel angry or get annoyed easily
- Have thoughts of death or suicide. Talk to someone (such as your doctor, family member or friend) right away if you are having thoughts of death or suicide

Take action:

- Talk to your doctor. Your doctor will help you know if you have depression. If you have depression your doctor may prescribe medicine. Your doctor may also send you to another health care provider (such as a psychiatrist, psychologist or social worker)
- Be social. Join a group, connect with old friends, get involved in your community or volunteer. All of these activities will help you feel less depressed
- Get active. Find an exercise that you enjoy and that is safe. Try to get at least 20 to 30 minutes of exercise most days of the week

Summary

- A good night sleep is important for good health. Talk to your doctor about a sleep study to screen for sleep apnea
- Stress, anxiety and depression can make it hard to manage your diabetes. Talk to your doctor about how you are feeling

Feel Well

Chapter 3
A Healthy Relationship

You Will Learn About:

What a healthy relationship is

a. What is a healthy relationship?

b. Sexual intimacy and how diabetes impacts it

A Healthy Relationship

What is a healthy relationship?

Healthy relationships are an important part of good health. Relationships act as your social supports. It is important to talk to others to get support. Social supports can include:

- Family
- Friends
- Colleagues
- Your community
- Your place of worship
- Your health care team

How you talk and feel is important for a good relationship. Below is a list of ways you can build healthy relationships:

- Talk about your feelings openly and honestly
- View yourself as a person who has important feelings
- Do not to assume that others know how you feel or think. People cannot read your mind. Tell them what you feel and need. Telling them what you feel will allow you to get the support you want
- Use feeling words when you are talking (such as mad, sad, frustrated and scared)
- Use the word 'I' when talking about your feelings such as, 'I feel angry when you tell me what to eat' or 'I feel sad when I cannot walk as fast as you'
- Be clear and direct about the help you want

To get the support you need, tell your family how you feel.

Sexual intimacy and how diabetes impacts it

All healthy relationships need respect, sharing and trust. In a romantic relationship, intimacy and sexuality are also important. Learn how diabetes can affect sexual intimacy to help you have a healthy relationship.

Sexual intimacy is being physically affectionate with another person (using your body to show that you like someone). Sexual intimacy is important for healthy relationships. Diabetes can cause problems with your sexual intimacy.

For women:

Diabetes can cause sexual dysfunction. Vaginal dryness is a common symptom of sexual dysfunction. Vaginal dryness means you are not able to produce the natural lubricant in your vagina.

Vaginal dryness is twice as common if you have diabetes. Diabetes damages the nerves and slows blood flow to your vagina. This damage causes dryness.

Vaginal dryness causes discomfort and pain during sex. Vaginal dryness also causes trouble with orgasms and can lower your interest in sex. You are not alone. Many women with diabetes have vaginal dryness too. Talk to your doctor if you are concerned.

If you have vaginal dryness, there are still many ways to be intimate with your partner. You can:

- Use lubrication during sex. This will make sex more comfortable. Your health care team may suggest lubrication when you are not having sex too. Using lubrication often may bring you comfort
- Explore parts of your body other than your vagina. Using other body regions allows you to have intimacy in other ways

- Depression, anxiety and stress cause changes in your interest in sex. Talk to your doctor about depression, anxiety and stress
- Manage your blood sugar. High blood sugar can make you more likely to get a yeast infection. Yeast cells live in your vagina. Sugar causes more yeast cells to grow which leads to a yeast infection. In women with diabetes, the fluids in your vagina (vaginal secretions) contain more sugar. This is because you have more sugar in your blood. Yeast infections often cause itching or discomfort around your vagina. You may also notice a white substance that looks like cottage cheese, a bad smell, pain when you pee, and pain during intercourse. Talk to you doctor before you take medicine to treat a yeast infection. These medicines can change the way your other medicines work in your body
- Limit the amount of alcohol you drink. Drinking too much alcohol can cause nerve damage and dehydration (not enough water in your body). Nerve damage and dehydration can lead to vaginal dryness
- Try other ways to be intimate. Such as hugging, snuggling, touching, kissing, massaging, making eye contact, and holding hands. These other ways of intimacy allow you to be close with your partner
- Talk openly with your partner about any sexual problems. Even with the most loving couples, sexual problems can cause a strain on the relationship if you don't discuss concerns in an open and loving way

For men:

Diabetes does not change your fertility (ability to conceive a child). Diabetes can cause sexual problems. The most common problem is erectile dysfunction (also known as impotence). Erectile dysfunction is when you cannot get or keep an erection long enough to have intercourse. Diabetes

causes damage to the nerves and blood vessels in your penis. This damage causes erectile dysfunction.

Most men – with or without diabetes – will find it hard to have an erection at times. Some factors that can make it hard to have an erection include being tired, stressed, depressed, or drinking too much alcohol. If you find it hard to have an erection at times, it does not always mean you have erectile dysfunction.

Erectile dysfunction is stressful and hard to understand. Erectile dysfunction can cause problems with intimacy and sex. Men with diabetes may not feel like having sex when their blood glucose levels are high. There are many ways to improve intimacy with your partner. You can:

- Manage your diabetes. Managing your diabetes will lower your risk of damage to your nerves and blood vessels in your penis. Avoid damage to lower your chance of erectile dysfunction
- Check your medicines. Some diabetes medicines cause erectile dysfunction (such as some tablets used to treat high blood pressure, depression or stomach ulcers). Talk to your doctor about the medicines you are taking
- Talk to your doctor about depression, anxiety and stress. Depression, anxiety and stress can make you lose interest in sex and make it hard to have an erection
- Limit the amount of alcohol you drink. Drinking too much alcohol can make it hard to have an erection
- Stop smoking. Smoking narrows your blood vessels. Since diabetes and smoking narrow your blood vessels, this will worsen your erectile dysfunction

- Try other ways to be intimate (such as hugging, snuggling, touching, kissing, massaging, making eye contact, and holding hands). These other ways of intimacy allow you to be close with your partner

Summary

- Healthy relationships are important to your health and wellbeing
- Talk openly with your partner about problems with sexual intimacy
- Find new ways to explore intimacy with your partner

Take Control

Take Control

Chapter 1
Vision, Goals and Action Plans

You Will Learn About:

1. Self-management and review what a “self-manager” is
   a. What is “self-management” and what is a self-manager?
   b. How self-management can help you
   c. What changes you can make to become a self-manager
   d. Who can help you become a self-manager
2. The steps to change your life
   a. Define your vision
   b. Set Goals
   c. Build action plans
3. How to problem solve to manage your diabetes
4. How to review your action plan

1. Define "Self-management" and Review What a "Self-manager" is

What is self-management and what is a self-manager?

Self-management means you take an active role in your health.

A self-manager learns about diabetes and how to control it. Sometimes being a self-manager means making changes. Become a self-manager and commit to making changes as needed to manage your diabetes.

Being a self-manager means you:

- Know about your health problems
- Make informed choices about your health
- Track and manage your symptoms
- Find answers and solve problems about your health

Your health care team will help you become a self-manager.

How can self-management help me?

Self-management helps you take better control of your diabetes.

Taking control means you manage your:

- Blood sugar
- Blood pressure
- Cholesterol

To help manage your blood sugar, blood pressure and cholesterol:

- Take your medicines as prescribed by your doctor
- Eat Healthy

- Exercise and be active
- Take care of your stress, depression
- Avoid smoking or breathing second-hand smoke
- Monitor your blood sugar, blood pressure and cholesterol levels

Self-management will help you live longer and feel better.

What changes can I make to become a self-manager?

You can make changes to become a self-manager. These changes will affect many areas of your life.

Changes can include:

- Taking your medicine as prescribed
- Eating habits
- Exercise habits
- Sleep habits
- How you deal with stress and emotions
- Quit smoking or avoid breathing second-hand smoke

These changes can impact your family, work and social life.

Who can help me become a self-manager?

Many people will help you become a self-manager. They can support you with your changes. Talk to the people below for help:

- Family doctor
- Diabetes doctor (endocrinologist)
- Pharmacist

- Diabetes education team (such as a nurse and a dietitian)
- Exercise team
- Social worker or psychologist
- Family and friends
- Other people living with diabetes

2. Review the Steps to Change Your Life

Become a self-manager to make changes in your life. There are 3 steps to help make changes:

1. Define your vision
2. Set goals
3. Build action plans

1. Define your vision

The first step to make changes is to define your vision. Your vision is what you work toward. Read the examples below to help you define your vision.

Picture yourself in the future and ask yourself 2 questions:

1. What do I want to feel like in the future?

For example:

- I will feel good
- I will feel healthy
- I will have more energy
- I will be happy
- I will feel closer to family and friends

2. What do I want to do differently in the future?

For example:

- I will do all the things I need to do each day
- I will be able to play with my grandchildren
- I will be able to play sports
- I will volunteer
- I will travel

Post your vision statement where you can see it every day. Places like in your home or office are great ideas. See it every day to remind you what you are working towards.

2. Set goals

After you have a vision, you need to make changes. These changes will help you reach your vision. Set goals to help you make these changes. You can set a few goals to reach your vision.

Ask yourself this question: What do I need to do to reach my vision?

There can be a few things you need to do to reach your vision. For example:

- Sleep better
- Eat healthy
- Exercise
- Manage stress
- Track and respond to blood sugar readings

Achieve your goals to get closer to your vision. For example, when you eat healthy and exercise you will have more energy.

As you write out your goals you may feel like the changes are too much to handle. It is normal to feel that way. Pick one goal to start. Do not make too many changes at once. If you still feel it is too much to handle, talk to your health care team for help.

Choose one goal to work on. Write this goal below.

The one goal I will to work on is:	**Example** To exercise on a routine

Answer the questions below about your goal.

1. List the reasons why you want to reach this goal. Think about how your life will change if you reach this goal.

Write down why you want to reach your goal:	Examples of why you want to **exercise on a routine:** • I will feel better in body and mind • My blood sugar will be better • I will sleep better • I will have more energy

2. How **important** is this goal right now? Circle a number on the scale below.

0	1	2	3	4	5	6	7	8	9	10
Not very important										Very important

It is crucial to believe your goal is important. Your rating should be 7 or higher to succeed. If the goal is important, you will work hard to achieve it. If you circled 6 or less the goal is not important enough right now. Choose a new goal.

If you circled 7 or higher, answer the next question below.

3. How **confident** are you to achieve this goal? Circle a number on the scale below.

0	1	2	3	4	5	6	7	8	9	10
Not very confident										Very confident

It is important you believe you can do this. Your rating should be 7 or higher to succeed. If you are confident, you are more likely to achieve your goal. If you circled 6 or less, you need more confidence to achieve this goal. Try to make changes to your goal to feel more confident. If you can't make changes to your goal, choose a new goal.

If you circled 7 or higher, answer the next question.

4. How **ready** are you to work on this goal? Circle a number on the scale below.

0	1	2	3	4	5	6	7	8	9	10
I am not ready				I am almost ready					I am very ready	

It is important that you believe you are ready. Your rating should be 7 or higher to succeed. If you circled 6 or less, then you are not ready to work on this goal. Choose a new goal.

You are more likely to achieve your goal if you:

✔ 1. Believe your goal is **important**,
✔ 2. Feel **confident** you can do it, and
✔ 3. Feel **ready** to work on the goal

Making Your Goal Detailed

Write down your goal. The next step is to make sure your goal is detailed. Ask yourself these 4 questions:

1. How will I know I have reached my goal?	**Example goal: Exercise** I will know I have reached my goal when I am walking for 30 minutes, 3 to 5 times each week.
2. Can I do what it takes to reach my goal? Is it too hard?	**Example goal: Exercise** I will start with 10 minutes of exercise 3 days a week. Then I will build up from there. If I take it slow then I think I can do this.
3. Is this goal going to help me reach my vision?	**Example goal: Exercise** Yes. If I exercise I will improve my health and have more energy. I will be able to play with my grandchildren.

4. When do I want to achieve this goal? Is there enough time?

Example goal: Exercise

I want to achieve this goal in 3 months. This is a good amount of time for 5 reasons:

- It gives me time to talk to my healthcare team about exercise
- It is enough time to find out what kind of exercise I like
- I have time to buy a pair of running shoes
- I will have time to figure out where I am going to exercise
- I will also have time to build the habit of doing exercise

3. Build action plans

Once you have your goal you will need an action plan. Create an action plan each week to achieve your goal. These action plans will help you take steps to achieve your goal.

You will need to make changes to achieve your goal. Making changes can feel like it is too much to handle. It is normal to feel this way. Break your goals down into smaller steps each week. This will make it easier to change. Weekly action plans help you decide what you do each week. Actions plans describe your actions to reach your goal.

Steps to Change

1. Define your vision
2. Set goals
3. Build action plans

Action Plans are:

- Related to the goal you have set
- Detailed
- Action based, which means they outline what you will do
- Reviewed weekly

Steps to Building Your Action Plan:

Answer the questions below to build your action plan each week:

1. What am I going to do?
2. When am I going to do it?
3. Where am I going to do it?
4. How much am I going to do it?
5. How often am I going to do it?

Fill in the blanks:

This week I will _____ (Example: walk)
(what)

_____ (Example: after dinner)
(when)

_____ (Example: around the block)
(where)

_____ (Example: 15 minutes)
(how much)

_____ (Example: 3 days this week)
(how often)

What do you need to do to meet this goal?

Write what you need to do here:	**Using the example above** I need to schedule 3 days this week to walk.

How **confident** are you to finish this week's action plan? Circle a number on the scale.

0 1 2 3 4 5 6 7 8 9 10

Not very confident Very confident

Review these tips:

- It is important you believe you can achieve your goal. Your rating should be 7 or higher to succeed.
- If your rating is 6 or less, choose a new goal. You can learn more about your goal to prepare yourself.
- If your action plan is big, set smaller action plans. Change parts of your action plan such as "how much" or "how often". This will help you feel confident and ready to get started.

Review Your Action Plan

Review your action plan once a week. Think about how you did with last week's action plan. Ask yourself:

- What went well with last week's action plan?
- What did not go well with last week's action plan?

If you achieved your action plan – that is great. Make a new plan for this week. Each week will keep you moving toward your goal and vision.

If you did not achieve your action plan - do not worry. Something may have got in your way. It can take months to create healthy habits that last. It is important to learn how to handle this. You must problem solve when you do not achieve your action plan. Problem solving helps you take charge of your life. It will also help you achieve your goal.

3. Learn How to Problem Solve to Help Change Your Life

Problem Solving

It is okay if your weekly action plan does not go as planned. Problem solving helps when your action plan does not go well. Problem solving is a key skill to learn. Here are steps to follow when things do not go as planned:

Remember

You are not alone. Talk to your healthcare team for help. Your family members or friends can also help. They can help you problem solve and stay on track.

1. Describe the problem
2. What stopped you from doing your action plan?
3. Brainstorm and think about other ways to achieve your plan
4. Pick one idea to try
5. Build your next action plan
6. Try a new idea if the first idea did not work

4. Review Your Own Action Plan

Your Vision

Your Goal

Your Action Plan

- This week I will:
- _____(What)
- _____(When)
- _____ (Where)
- _____(How much)
- _____(How often)
- My confidence rating that I can do this plan is:

1 2 3 4 5 6 7 8 9 10

not confident at all totally confident

Check your action plan next week to see how it went. You will need to problem solve and build your next action plan. Talk to your doctor about your action plan.

Toolbox

My Diabetes Medicines

Class of Medicine	Name of your Medicine	How much you take (dosage)	When you take it (when, how often)

Where Can You Do Your Exercise?

Outdoors

Exercise outdoors when the weather is appropriate. It is important to make sure that you have measured your walking route. See your options on how to measure your route below.

Indoor/Outdoor Track

- A walking track can help you measure your distance for walking/running
- You will need to know how many laps around the track is equal to a mile or kilometer

Fitness/Gym/Recreation Facility

- Your local recreation centre or local gym will have all the exercise equipment you need for your program (e.g., treadmills, stationary cycles, elliptical machines, weight machines)
- You may consider getting an annual or part-time membership to meet your needs. Your Diabetes Team can provide you with instructions on how to use these alternatives safely and provide you with appropriate exercise prescription guidelines for use with these machines
- Try to look for a Heart Wise Exercise facility
  - Fitness facilities with this symbol is like a check-mark for you to know that their programs:
    - Encourage regular aerobic activity
    - Incorporate a warm-up and cool-down with all their exercise
    - Allow you to exercise at a safe level and have different options for your exercise

Where Can You Do Your Exercise?

Mall

- Mall walking is a great free alternative. A variety of measured mall maps are available to you in the centre. They can also be accessed on line at: **http://www.takechargeonline.ca/resources/alumni-exercise/walking-maps**

Home Exercise Equipment

If you already have, or are thinking about buying a piece of home exercise equipment, speak to your Diabetes Team. They can provide you with an exercise prescription to use on exercise equipment to substitute or replace your outdoor walking program.

Rating Scales

Rating of Perceived Exertion Scale (RPE)	
6	
7	Very very light
8	
9	Very light
10	
11	Fairly light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Very very hard
20	

- Use the Rating of Perceived Exertion Scale (RPE) to rate how much effort you are using during your exercise
- Record this on your exercise diary

Rating of Perceived Pain Scale (RPP)	
0	Nothing at all
0.3	
0.5	Extremely weak (just noticeable)
1	Very weak
1.5	
2	Weak
2.5	
3	Moderate
4	
5	Strong
6	
7	Very strong
8	
9	
10	Extremely Strong

- Use the Rating of Perceived Pain Scale (RPP) if you experience pain during your exercise
- Record this on your exercise diary

Pulse Taking

Where to find your pulse:

1. Wrist - below the base of the thumb (Radial Artery Pulse)
   - Place 2 to 3 fingers on your wrist below the base of your thumb
   - Apply light pressure until you feel a heartbeat

2. Neck below the angle of the jaw (Carotid Artery Pulse)
   - Place 2 to 3 fingers on the side of your neck beside your Adam's apple in the hollow area
   - Be careful you do not press too hard; there is a risk of becoming lightheaded

How to count your pulse:

- You will need something to time yourself counting. Use a stopwatch or a second hand on your watch
- Count the number of beats you feel while you time yourself for 10 seconds

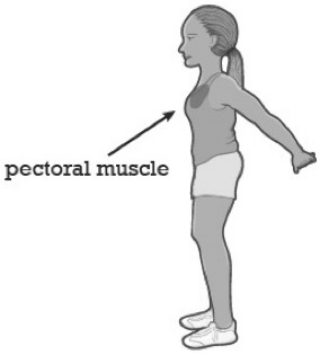
When to take your pulse:

- Before you exercise (at rest) (before you warm up)
- Immediately at the end of your exercise (exercise rate) (before you cool down)

Stretches

1. Chest Stretch (Pectoral Muscle)

- Stand with your feet shoulder width apart
- Relax your shoulders and make sure they are not hunched up
- Clasp your hands behind your back (if you cannot clasp them, then place them behind your back)
- Looking straight ahead, open up the chest and squeeze your shoulder blades together
- Hold the stretch while continuing to breathe for 15-30 seconds
- Ensure you feel a stretch, not pain/discomfort



2. Shoulder Stretch (Deltoid Muscle)

- Stand with your feet shoulder width apart, arms by your side
- Relax your shoulders and make sure they are not hunched up
- Take one arm and bring it across your chest
- Take the other arm and place it on your elbow to help hold it in position
- Ensure your arm is across your chest and not across your neck
- Hold the stretch while continuing to breathe for 15-30 seconds
- Ensure you feel a stretch, not pain/discomfort
- Repeat to stretch the opposite shoulder

Stretches

3. Thigh Stretch (Quadricep Muscle)

- Using a wall for support, stand sideways to the wall
- Take hold of your ankle, foot, sock, or pant leg as you bend your leg back from the knee (see figure)
- The knee should be facing down toward the floor and in line with the leg that is planted on the floor
- Hold the stretch while continuing to breathe for 15-30 seconds
- Ensure you feel a stretch, not pain/discomfort
- Repeat to stretch the opposite thigh

4. Hamstring Stretch

- Using a wall or table for support, stand sideways to it
- Put all of your body weight on one leg and bend that leg
- Take the opposite leg and place the heel on the floor or on a small step with the toes pointed up. Keep this leg straight
- From this position, bend forward from the waist – you will feel a stretch in the back of the upper leg that is straight
- Hold the stretch while continuing to breathe for 15-30 seconds.
- Ensure you feel a stretch, not pain/discomfort
- Repeat to stretch the opposite hamstring

Stretches

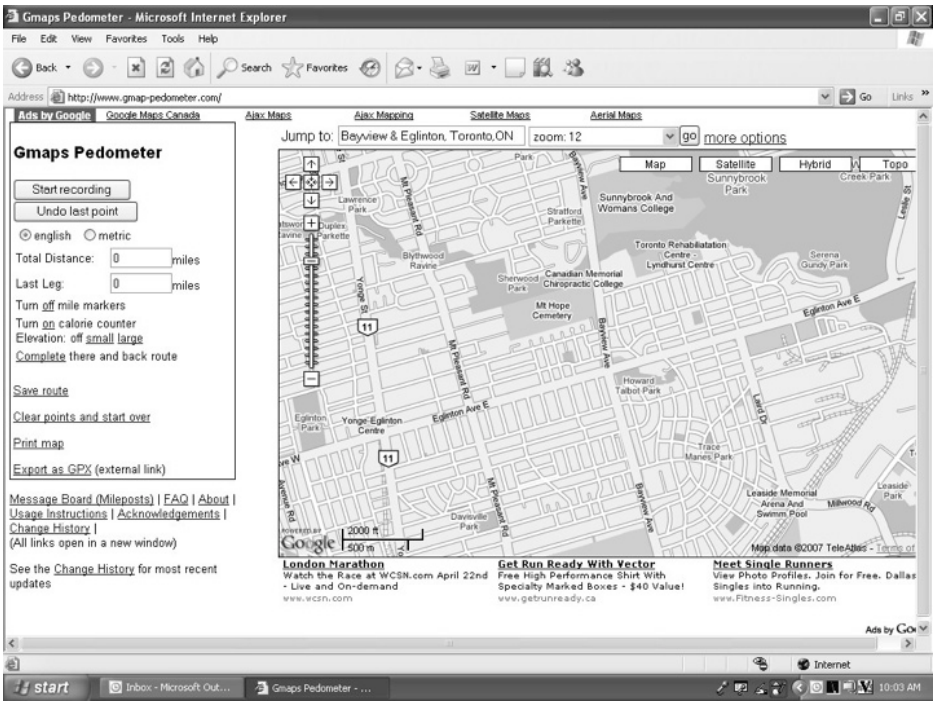
5. Calf Stretch

- Using a wall for support, face the wall standing with both feet close to it. Place your hands on the wall at chest height
- Take a step back with one leg keeping that leg straight and lean into the wall keeping the front leg bent
- Ensure both feet are facing forward
- As you lean into the wall, you will feel a stretch in the calf of the back leg
- Hold the stretch while continuing to breathe for 15-30 seconds
- Ensure you feel a stretch, not pain/discomfort
- Repeat to stretch the opposite calf

Measuring Your Walking Route

If your exercise prescription includes walking and/or running, there is a certain distance that is included. How do you know if you have walked that distance? There are a few ways to measure your walking route:

- Use the odometer on your car to measure the route
- Use an indoor or outdoor track. You will need to know how many laps around the track is equal to a mile or kilometer
- If walking in a mall, find the mall-map on our website at **http://www.uhn.ca/PatientsFamilies/Health_Information/Health_Topics/Documents/TRI_ Walking_Maps_Combined_Walking_Maps-D5895.pdf**
- Use a surveyor's measuring wheel to measure your distance. Talk to your Diabetes Team about borrowing the wheel from the program
- Go to this website **www.gmap-pedometer.com**. You can find the outdoor location of your route and measure it online. The website page will look like this:



Measuring Your Walking Route

Follow these instructions to measure your route on the Gmaps Pedometer Website:

- In the "Jump To" box, type in the exact address, city, postal code or the closest intersection to your walking route and click on "go".
- Use the + or – zoom level to find the exact starting point of your walking route. Use the up, down, left or right arrows to look at points on the map that aren't visible on the screen.
- Once you have found your starting point, press the "Start recording" button on the left side of the screen and then double-click on the starting point of your walking route on the map. Double-click the map every time you turn a corner. You should see a red teardrop-shaped icon on the screen while mapping your route.
- As you click on points, the "Total distance" box on the left side of the screen should be adding up the miles.
- If your course is a "there-and-back" route, click the "Complete there and back route" link on the left side of the screen once you reach the midpoint.
- If you make a mistake, simply click on the "Undo last point" box. To make a new route, click on "Clear points and start over" link.
- Routes can be saved and printed.
- In the top right hand corner of the map you can click on the "Map", "Satellite", "Hybrid" or "Topo" boxes to view different types of map images.

Running Shoes

The best footwear for this program is **running shoes**. Cross trainers, court or walking shoes are not a good choice. We all have individual supportive and cushioning needs. The running shoe category is the best one to offer all these features.

Most of these shoes are colourful. Get assessed by an experienced professional to determine your footwear needs.

Features of the Running Shoe

The uppers are typically a synthetic/nylon mesh combination. These materials offer the most breathability and flexibility and are very light weight.

The midsole will look (and feel) different, depending on your supportive requirements. Feet that need support (low arch or flat feet) will have two or more different densities of material and/or a more firm medial (inside of the foot) device to support your foot though the stride. Feet that require cushion (high arch or ridged feet) will have single density, soft midsoles.

Every good shoe in the running category will come with removable insoles. This allows for the use of orthotics and also the occasional washing.

Running Shoes

Remember, they are made of light weight foam that will shrink if you wash them in hot water. Wash them in cold water and by hand only.

What to Keep in Mind When Purchasing Footwear

Have your feet and gait (your walking stride) observed by a qualified salesperson. Call ahead of time and ask if there is someone that can "check my gait". If they do not offer the service, call somewhere else. Be sure the salesperson watches you walk or run in the shoes. This will determine if a shoe is over correcting or under correcting your step. Without a gait analysis during the fitting process, it's just guesswork.

Do not be fooled by a really soft, cushy feel. The softer the midsole, the less support the shoe has. Although some feet do require a highly cushioned shoe (high arched, rigid foot types), most people fall into categories that require more stability. Softer midsoles also tend to wear out more quickly.

Fit is important. Do not settle for a shoe that is too roomy or tight fitting. Shoes are now available in a variety of widths to meet the needs of the widest or narrowest of feet. An ideal fit will be roomy in the toe box. This will allow your toes to spread comfortably and when "toeing" off in your stride. If a shoe is too snug around your toes, you run the risk of blistering or bruising. Aim for approximately 1 cm or ½ inch width of space between your longest toe and the end of the shoe. This extra space will also allow for swelling as you exercise, especially on those warmer days.

Shoes will last 6 to 12 months or 800 to 1200km. This will vary according to your foot strike and/ or your weight.

Buying Exercise Equipment

Exercise equipment is great to use when the weather is too cold or too hot. Before buying the equipment ask yourself the following questions:

- What is my current fitness level now?
- What is my goal?
- Is the item safe for me to use?
- How much do I want to spend?
- Does the item have a warranty?
- How does this item compare to other equipment?

Talk to your diabetes team to help answer these questions.

Below is a list of various types of exercise equipment and information about what you should consider before buying.

Treadmills

Price:
Treadmills vary in price. The difference in price is based on durability the extra features included (e.g., computer programming, hear rate monitors, etc.). The durability and construction of the treadmill is most important.

Motor:
It is important that the treadmill you purchase has a motor. Do not buy a manual treadmill. Manual treadmills make you drive the belt forward. The motor on the treadmill should be at least a 1.5 horse power motor. Turn on the motor of the treadmill and listen to much noise and vibration it makes. This will be important for you when you are listening to music or the TV while exercising!

Buying Exercise Equipment

Belt Widths and Lengths:
The width of the belt is important for safety and comfort. Usually the width ranges from 17” to 22” and the lengths from 45” to 60”.

Emergency Shut Off:
The treadmill you choose should have an emergency shut off. This allows the treadmill to shut off if you fall.

Computer Feedback and Control Panel:
The control panel of the treadmill should display speed, distance and time. Pre-programmed workouts may be an option that most treadmills have. They are not necessary.

Heart Rate Monitors:
Some treadmills have contact heart rate monitors. You hold on to a hand-rail and the treadmill reads your heart rate and displays it on the control panel. It is not as accurate as taking it on your own or through the use of a transmitter type heart rate monitor.

Stationary Bikes

Price:
Prices ranges for stationary bikes depend on how many features are included.

Bike Styles:
Choose a bike style best for you. This will depend on your comfort and any joint/muscle problems you have.

Upright Style: set up and look is very similar to traditional outdoor bikes.

Buying Exercise Equipment

Recumbent Style: these bikes have a wider chair/seat with a back support and the pedals are out in front of you unlike the upright bike where the pedals are below you. This style of bike is becoming more popular as the comfort of the seat is greater.

Control Panel Features:
You should be able to determine 1) the speed at which you are pedaling (revolutions per minute (RPM), kilometers per hour (KMPH) or miles per hour (MPH)), 2) the distance covered, 3) the time of cycling, and 4) what level/ tension you are working at.

Other important features:

- Foot straps
- Adjustable seat height so when seated, there is a 15 degree bend in your knee on extension
- Seat tilt

Elliptical Machines

This machine is a great alternative for those wishing to have a non-impact aerobic work-out. It mimics walking or running and offers the option of incorporating the use of arm work as well.

Style:
It is important to try out the machine before buying. The size of machines and comfort can be different from each other. Some elliptical machines offer forward movement as well as backward movement.

Buying Exercise Equipment

Control Panel Features:
ou should be able to determine 1) the speed at which you are moving (revolutions per minute (RPM), kilometers per hour (KMPH) or miles per hour (MPH)), 2) the distance covered, 3) time of exercise, and 4) the level of intensity at which you are working.

Resistance Training Equipment

There is a variety of equipment for resistance training. The following options can be purchased:

- **Dumbbell weights** or "free weights" are common pieces of equipment to use for resistance training. They can be purchased in different materials, including rubber, cast iron or plastic. They can also be purchased as a fixed or adjustable weight.

- **Resistance training machines** are the pieces of equipment usually found in a gym. They incorporate a weight stack and pulley system that gives you resistance against a fixed movement. These machines can be purchased for home use as well.

An exercise band

- **Exercise bands** can be used for resistance training and may be a good choice if you do not have a lot of room to store equipment. If you need to, you can travel easily with this equipment. Each band colour equals a certain amount of resistance. The lighter the colour, the less resistance on the band. The darker the colour, the more resistance there is on the band.

Buying Exercise Equipment

Heart Rate Monitors

Monitoring your heart rate during exercise is important to make sure you are working at a safe intensity. Manually checking your heart rate is usually done by feeling your pulse on your wrist or neck and counting the beats you feel over 10 seconds. Sometimes this can be challenging. A heart rate monitor may be used instead. A belt with a transmitter is worn around your chest and sends the information to a watch that you wear on your wrist. You simply glance at your watch during your workout to know your heart rate. These monitors are very accurate. If you have an arrhythmias (irregular heart rhythms), it may not be accurate. Speak to your diabetes team before purchasing one.

UHN Cardiovascular Prevention and Rehabilitation

Toronto Rehab, Rumsey Centre, 347 Rumsey Road
(416) 597-3422 ext. 5200 Fax (416) 425-0301
Toronto Western Hospital, 399 Bathurst Street
(416) 603-5200 Fax (416) 603-5573

Name: _____

Class Day and Time: _____

Exercise Prescription: _____

Aerobic Training Diary

Date (month and day)	Type of Exercise	Distance (miles)	Duration (minutes and seconds)	10 second pulse		RPE (number)	Symptoms or Comments or Other Activities
				Before Exercise	After Exercise		

My Action Plan:

- What do I want to do?
- What will I really be able to do this week?

My plan will include:

- What I am going to do
- When I am going to do it
- Where I am going to do it
- How Much I am going to do it
- How Often I am going to do it

This week I will

- _____ (what)
- _____ (when)
- _____ (where)
- _____ (how much)
- _____ (how often)

My confidence rating that I can do this plan is:

1 2 3 4 5 6 7 8 9 10

not confident at all totally confident

Rating of Perceived Exertion **(RPE)**

6
7 Very, Very Light
8
9 Very Light
10
11 Fairly Light
12
13 Somewhat Hard
14
15 Hard
16
17 Very Hard
18
19 Very, Very Hard
20

Resistance Training Diary

Exercises	① Dumbbell Row	② Half Squat or Leg Extension	③ Bicep Curl	④ Leg Curl	⑤ External Rotation or Lateral Raise	⑥ Heel Raise or Toe Press	⑦ Chest Fly or Wall Push up	⑧ Abdominal Curl or Seated Curl	⑨ Triceps Extension	⑩ Bird Dog
Other Exercise										
Date:										
Weight										
Reps & #Sets										
RPE										
Date:										
Weight										
Reps & #Sets										
RPE										
Date:										
Weight										
Reps & #Sets										
RPE										

Medical Visits & Medicine Changes: List any changes in your medicine, hospital visits (emergency), doctor visits, lab tests etc.

Visits & Reason	Date	Name of Service or Test or Procedure

Name of Medicine	Date of Change	Dose (how much?) & Frequency (how often?)

Exercise Blood Sugar (Glucose) Diary

Date	Time	Blood Sugar (glucose) Before Exercise	Blood Sugar (glucose) After Exercise	Comments
Example: 04/25	10:00 am	9.8	7.2	

If exercise is new for you

- Monitor your blood sugar levels before and after exercise for 6 or more exercise sessions

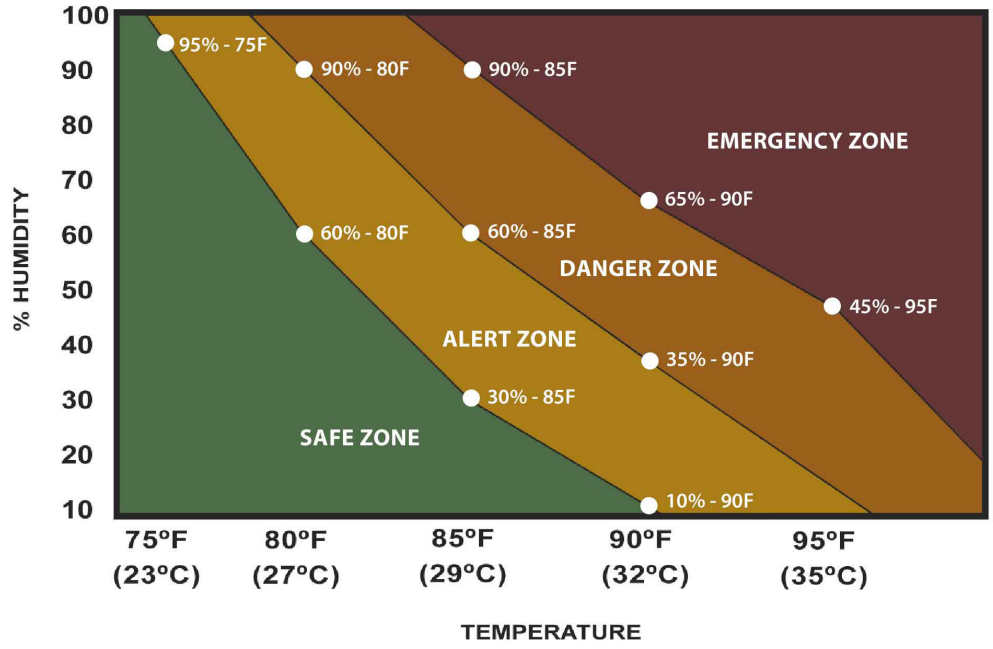
If you have been exercising consistently over the past couple of months you may consider monitoring your blood sugar levels before and after exercise if:

- You are experiencing difficulty managing your blood sugar OR
- You are trying a new exercise prescription

Heat Safety & Air Quality Index

Heat Safety Index

To use this scale, look for the air temperature along the bottom of the scale and the percentage of humidity along the left-hand border. The intersecting points will identify one of four zones.



Your Action Steps for Exercise for Each Heat Safety Zone

Safe	Alert	Danger	Emergency
• Exercise as usual • Safe to exercise outdoors	• Decrease your exercise • Watch for symptoms	• No outdoor exercise	• Avoid going outdoors

Heat Safety & Air Quality Index

Air Quality Health Index

When you check the weather report for air quality, look for:

- The Air Quality Health Index (AQHI)

Air pollution can be measured by the AQHI. This index tells you the level of common air pollutants. In Ontario, the range for the index is 0 to 10. The lower the number, the better the air quality. If you live outside of Ontario, go to your local public health website to find out how your area lists the air quality index.

Heat Safety & Air Quality Index

Your Action Steps for Exercise for Each Air Quality Range:

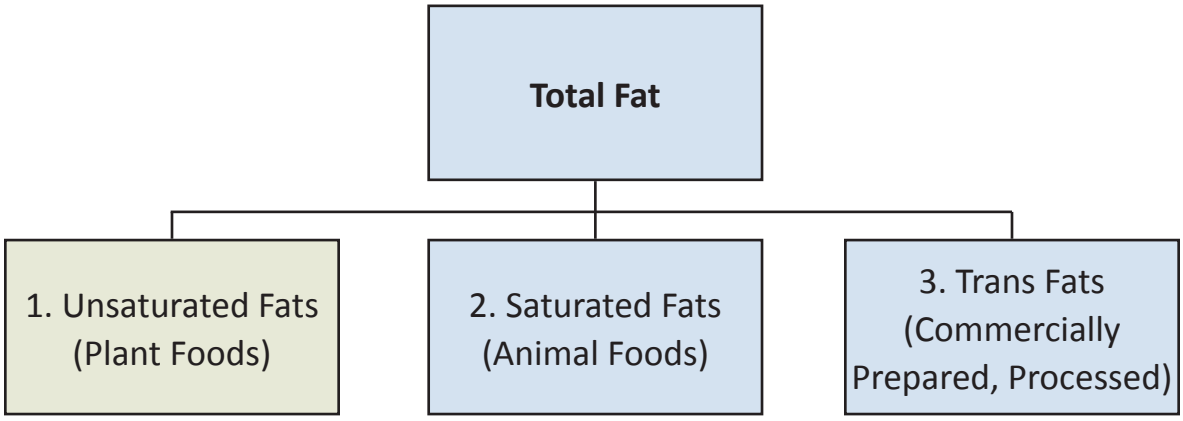
Low Risk 1 to 3	Moderate Risk 4 to 6	High Risk 7 to 6	Very High Risk 4 to 6
• Exercise as usual • Safe to exercise outdoors	• Decrease your exercise intensity • Watch for symptoms • Consider rescheduling your outdoor exercise	• No outdoor exercise • Exercise in an air conditioned environment only	• Avoid going outdoors

The Weather Network or Environment Canada can give you up to date weather conditions (including the air quality) for the day:

www.theweathernetwork.com or **www.weather.gc.ca/forecast** or **www.airqualityontario.com**

Getting the Facts on Fats

There are 3 main types of fat:



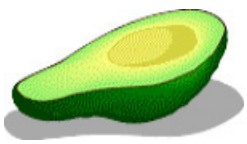
1. Unsaturated Fats:

- Found in plant foods and oils made from these plants
- Help lower LDL (bad) cholesterol
- Help reduce your chances of getting heart disease, having a heart attack or stroke

Examples of food that contain unsaturated fats include:

- Olive oil and olives
- Canola oil
- Natural peanut butter
- Peanut oil and peanuts
- Avocado
- Almonds
- Cashews






Getting the Facts on Fats

- **Omega-3** fats are a type of unsaturated fat that are important for health. Omega-3 fats can lower triglycerides (a type of fat in your blood). High triglyceride levels put you at risk for heart attack or stroke. Examples of food that contain omega-3 unsaturated fats include:

- Walnuts
- Ground flaxseed & flaxseed oil
- Hemp seeds and hemp hearts
- Chia seed
- Canola oil
- Fatty fish: mackerel, trout, salmon, unsalted herring, sardines





2. Saturated Fats:

- Found in all animal products
- Found in tropical oils (such as cocoa butter, palm oil, coconut and coconut oil, and palm kernel oils)
- Raise LDL (bad) cholesterol in your blood

Getting the Facts on Fats

Foods High in Saturated Fat	Changes You Can Make
Marbled or fatty meats such as: • Corned beef, brisket • Regular ground beef, short or spare ribs • Skin on chicken & turkey, chicken wings • Bacon (all kinds) • Sausages • Goose or duck • Breaded or battered foods • High fat luncheon meats	• Choose leaner meats such as: – Beef: round, sirloin, chuck or loin – Ground beef: extra lean – Lamb: leg, arm or loin – Pork: tenderloin, leg or shoulder – Veal: all trimmed cuts • Replace luncheon meats with lower sodium canned fish or chicken/turkey packed in water • Remove the skin from chicken & turkey • Eat a smaller amount of meat • Include fish more often • Eat meat less often. Cook with dried peas, beans, lentils or tofu
High Fat Dairy Foods • Whole milk (3.5%) • High fat cheeses with more than 20% M.F. (milk fat). • Yogurts with more than 2% M.F • Butter • Cream (any type)	• Eat lower fat dairy products – Cheeses with less than 15% M.F – Have 1% or skim milk – Low fat plain or fat-free, low sugar fruit yogurt • Choose non-hydrogenated margarine or olive oil and avocado as a spread

Getting the Facts on Fats

3. Trans Fats:

- Mainly found in processed foods that have partially hydrogenated vegetable oils
- Raise LDL (bad) cholesterol and lower HDL (good) cholesterol in your blood. These fats are not healthy. They can increase your chances of getting heart disease, having a heart attack or stroke. Eat as little trans fats as possible.

Foods With Trans Fats	Changes You Can Make
Found mostly in commercially prepared (made at a factory), processed food items: • Crackers and Cookies • Cakes, pie crusts, pastries, donuts • Vegetable shortening, hard margarine • French fries, potato & corn chips • Deep-fried restaurant or fast foods	Replace commercially prepared, processed foods with healthy choices: • Fruit & ¼ cup nuts • Raw veggies and hummus • Low fat, low sugar yogurt • Whole grain crackers & ricotta cheese

Vision, Goal, Action Planning Worksheet

See Your Vision

- Describe your best self
- What do you want to feel like in the future?
- What do you want to look like in the future?
- What do you want to be doing differently in future?

Set Your Goal

- What do you have to do to achieve your vision?
- What change in your life has to happen?
- Are you ready to make this change?
- A good goal is specific, measurable, achievable, realistic and is timely

Build Your Action Plan

- How are you going to achieve your goal?
- Each week, ask yourself:
  - What am I going to do?
    - When am I going to do it?
    - Where am I going to do it?
    - How much am I going to do it?
    - How often am I going to do it?
- Each week ask, what went well? What did not go as planned?
- Problem-solve when your plan does not go as planned

Vision, Goal, Action Planning Worksheet

My Vision

My Goal

My Action Plan

- This week I will:
- _____(What)
- _____(When)
- _____(Where)
- _____(How much)
- _____(How often)
- My confidence rating that I can do this plan is:

1 2 3 4 5 6 7 8 9 10

not confident at all totally confident

Check in with yourself next week to see how your action plan went.

Problem solve for things that did not go as planned. Then build your next action plan.

My Weekly Action Plan

Ask yourself: What do I want to do?
What will I realistically be able to do this week?

My plan will include:

What I am going to do
When I am going to do it
Where I am going to do it

How Much I am going to do it
How Often I am going to do it

This week I will _____(what)

_____(when)

_____(where)

_____(how much)

_____(how often)

My confidence rating that I can do this plan is:

1	2	3	4	5	6	7	8	9	10
Not confident at all									Totally confident

Remember:

- If your rating is 7 or higher, that is great. You believe you can do this.
- If your rating is less than 7, then you may want to learn more about the area you wish to target, or do more to prepare yourself to work on that area. Taking smaller steps towards your goals may also help you feel more confident and ready to achieve your action plans. For example, you may adjust the different parts of your action plan such as “how much” or “how often”.

Books and Websites

General Resources

- Canadian Diabetes Association: **www.diabetes.ca**
- Cardiac College: **www.cardiaccollege.ca**
- Heart and Stroke Foundation: **www.heartandstroke.ca**
- Eat Right Ontario: **www.ontario.ca/eatright**
  – Call 1-877-510-5102 to talk to a Registered Dietitian for free
- Dietitians of Canada: **www.dietitians.ca**
- Health Canada (Food Guide, Label Reading): **healthycanadians.gc.ca**
- Loblaws in-store Registered Dietitians: **www.loblaws.ca**

Glycemic Index

- The University of Sydney: **www.glycemicindex.com**

Sodium

- Sodium: **www.sodium101.ca**
- Find out how much sodium you consume
  Go to: **www.projectbiglife.ca/sodium/**

Food Labels

- Health Canada (Food Guide, Label Reading): **www.healthycanadians.gc.ca**

Books and Websites

Pulses & Lentils

- US Dry Pea & Lentil Council **www.pea-lentil.com**
- Pulse Canada **www.pulsecanada.com**
- Canadian Lentils **www.lentils.ca**

Cookbooks

- Spilling the Beans – by Julie Van Rosendaal, Sue Duncan
- The New Moosewood Cookbook – by Mollie Katzen
- The New Becoming Vegetarian – by Brenda Davis, RD & Vesanto Melina, MS, RD, BPC.
- Becoming Vegan – by Brenda Davis, RD & Vesanto Melina, MS, RD, BPC.

Feel Well Books

- Mind over Mood Workbook by Dennis Greenberger
- Depressed and Anxious: The Dialectical Behaviour Therapy Workbook for overcoming Depression and Anxiety by Thomas Marra

UHN Toronto Rehabilitation Institute

Acknowledgements:

This guide was developed with the hard work and dedication of the Patient and Family Education Committee and the patients, their families and volunteers of the Cardiovascular Prevention & Rehabilitation Program.

This project was sponsored by Sun Life Financial.

Sun Life Financial | TEAM UP AGAINST DIABETES

Toronto Rehab Foundation UHN

Patient & Family Education

University Health Network
Toronto Rehab

Cardiovascular Prevention & Rehabilitation Program
347 Rumsey Road, Toronto, ON M4G 1R7
Phone: (416) 597-3422 ext. 5200
Website: www.diabetescollege.ca