



## GET TO THE HEART OF IT:

Managing Blood Pressure,  
Cholesterol and Diabetes



People with diabetes have an increased risk of heart attacks, strokes, and poor circulation in the lower legs and feet.

Other factors can make the risk for a person with diabetes even higher. They include:

- smoking
- having high cholesterol
- having high blood pressure
- having a family history of heart disease
- being overweight or inactive
- living with a lot of stress

You can protect your heart and circulation with good control of your diabetes, blood pressure, and cholesterol.

## **What Causes a Heart Attack or Stroke?**

Our blood vessels bring oxygen and nutrients to the heart and brain. When a vessel becomes completely blocked, tissue starts to die from lack of oxygen and nutrients from the blood. A heart attack or stroke occurs.

A blood vessel that is only partly blocked can lead to chest pain (angina) around the heart. Or, it can cause a 'mini-stroke' in the brain. Over time, these partly blocked blood vessels can become completely blocked. Poor circulation in the small blood vessels also causes other complications of diabetes, such as eye, nerve, and kidney disease.

## **Know Your ABC's: Managing Glucose, Blood Pressure and Cholesterol**

### **A1C blood test**

The 'A' in 'ABC' stands for the A1C blood test. This test measures how well your blood glucose has been controlled over the past 2 to 3 months. Your test result should be **7% or less**.

High blood glucose over time can damage many organs in the body, including the heart and blood vessels. Good blood glucose control combines:

- a healthy weight
- a healthy diet
- regular physical activity
- stress management
- medications that lower blood glucose, in the form of pills or insulin, if needed

Before and after meals, make sure that your blood glucose levels are within target:

Before meals	4 to 7 mmol/L
2 hours after meals	5 to 10 mmol/L

### Blood Pressure

The 'B' in 'ABC' stands for blood pressure. This is a measurement of the force of your blood against the blood vessel walls. The target for people with diabetes is **less than 130/80mm Hg**.

The top number (130) in this target is the pressure when your heart contracts and pushes blood out (systolic pressure). The bottom number (80) is the pressure when the heart rests between beats (diastolic pressure).

Good blood pressure control includes medications that lower blood pressure and healthy lifestyle habits that help to manage your blood glucose.

### Cholesterol

The 'C' in 'ABC' stands for cholesterol. This is a fat that we all have in our blood and cells. There are two types of cholesterol:

- **LDL (low-density lipoprotein)** is often called "bad" cholesterol. Higher levels of LDL can increase the risk of heart disease.
- **HDL (high-density lipoprotein)** is often called "good" cholesterol. Higher levels of HDL can reduce the risk of heart disease.

Your healthcare team will monitor your cholesterol levels. Your goal is to keep your LDL (bad) cholesterol to 2.0 mmol/L or less.



Lowering your cholesterol includes making healthy lifestyle choices. It is very helpful to eat a diet that is:

- low in saturated fat and trans fat
- low in cholesterol
- high in fibre

## Healthy Eating for a Healthy Heart

You can follow the picture below to help you with planning your meals and snacks.

**Vegetables** at least 2 kinds



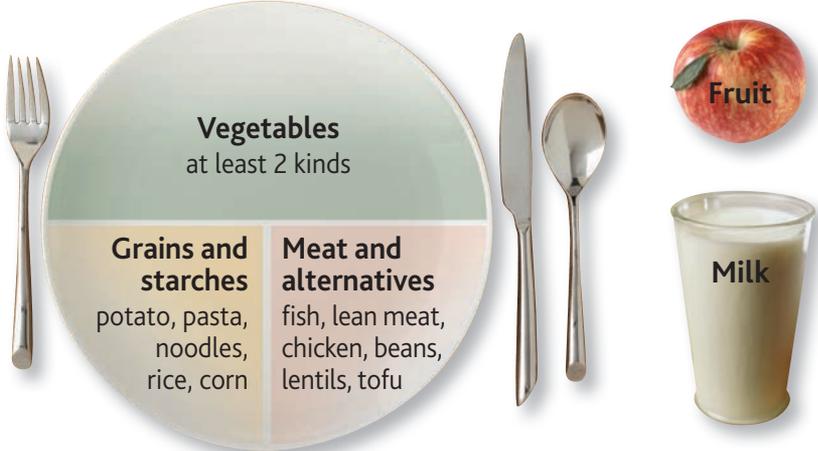
**Grains and starches**  
potato, pasta, noodles,  
rice, corn

**Meat and alternatives**  
fish, lean meat, chicken,  
beans, lentils, tofu



Photo Credit: Vancouver Coastal Health – Healthy Living Program

When eating away from home, whether at a house party, at a buffet or at a restaurant, follow The Plate Method for healthy eating.



## Control the Salt You Eat

- Avoid seasonings that contain the words 'salt' or 'sodium'. Examples are garlic salt, celery salt, sea salt, kosher salt, and monosodium glutamate (MSG).
- Avoid salty sauces such as chili sauce, shrimp paste, seafood paste, fish sauce, cuttlefish sauce, soy sauce, oyster sauce, black bean sauce, hoisin sauce, teriyaki sauce, fermented soy bean paste (miso), Korean barbecue sauce (bulgogi marinade), ketchup and barbecue sauce.
- Flavour your foods with herbs and spices such as parsley, shallot, thyme, sage, clove, fresh garlic or garlic powder, fresh onion or onion powder, ginger, red or green chili, szechwan pepper, lemon or vinegar.
- Drain and rinse the water from canned vegetables, because it contains salt.
- Limit frozen and convenience foods, and fast-food restaurant meals, which are all high in salt.
- Limit salty foods such as salted dried fish, fermented bean curd, century eggs and preserved duck eggs. With time your taste buds will adjust to the natural flavours of food without added salt.

## Control the Fats You Eat

- Choose lower-fat foods.
- Limit high-fat fried foods, such as fried dumplings and rolls, deep-fried chicken, deep-fried tofu, deep-fried squid, deep-fried shrimp, barbecue pork, chips and pastries.
- Limit saturated fats, such as animal fats. Most saturated fats are solid at room temperature, like butter, lard, and the skin on chicken.
- Avoid trans fats, found in processed foods and in shortening.
- Instead of frying in fat or oil, choose healthier cooking methods such as steaming, baking, poaching, and braising.

## Control the Cholesterol You Eat

Limit food sources of cholesterol, such as organ meats, egg yolks, liver, and shrimp.

## Eat Lots of Fibre

Fibre is a type of carbohydrate that is not digested by the body. There are two kinds of fibre, insoluble and soluble. **Insoluble fibre** acts like a

sponge. As food goes through the gut, it absorbs water, helping to move feces out and relieve constipation. Wheat bran and whole grains have lots of insoluble fibre. So do the skins of many fruits and vegetables. Seeds are also rich sources of insoluble fibre. The more the food has been refined or processed by milling, peeling, boiling or extracting, the less fibre it contains. Eat more unrefined foods to obtain insoluble fibre.

**Soluble fibre** breaks down as it passes through the digestive tract, forming a gel. This gel 'traps' some substances related to high cholesterol. Soluble fibre may lessen heart disease risks by reducing the absorption of cholesterol into the bloodstream. Soluble fibre includes pectin used in making jelly and gums such as guar gum. It is found in oats, peas, beans, lentils, some seeds, brown rice, barley, fruits (such as apples), some green vegetables (such as broccoli), and potatoes.

### Choosing Vegetables and Fruits

- Choose a variety of colours to get different nutrients.
- Choose fresh or frozen vegetables and fruit, if you can.
- Avoid fruits packaged with sugary syrups.
- Avoid vegetables packaged with sugary syrups and pre-made sauces.

### Choosing Grains and Starches

- Choose grains and starches that are low on the Glycemic Index.
- Choose grains and starches that are high in fibre.
- Choose whole grain breads and cereals.
- Choose brown rice and long-grain rice over polished or white rice.

### Choosing Milk, Milk Products, and Alternatives

- Choose lower-fat milk, such as skim or 1%.
- Choose low-fat yogurt and cheese.
- Low-fat milk alternatives include soy milk and rice-based products.



## Choosing Meat and Alternatives

- Include fish in at least 2 meals per week.
- Choose plant-based protein more often, such as tofu, lentils, beans and other legumes.
- Choose lean meats. Trim off the fat. Remove the skin from poultry.
- Choose lower-fat cheese with less than 20% milk fat (M.F.).

## Lifestyle for a Healthy Heart

### Medications

If your doctor prescribes medication to help bring down your blood pressure and cholesterol:

- Take your medication as prescribed.
- Try to take each medication at the same time of the day every day.
- Talk to your doctor or pharmacist if you have any questions.

### Managing Stress

Stress can be hard on your heart health. Here are some tips to help you cope with it:

- Physical activity and healthy eating help relieve stress and improve heart health at the same time.
- Socializing and laughter are great stress relievers.
- Try listening to music, meditating, or doing tai chi.
- Avoid unhealthy stress busters such as smoking, alcohol, and poor food choices. Look for a support group in your community.
- Make time for yourself!

### Getting Active

In general, the more physical activity you do, the more benefits you will get. It does not matter what your starting point is. Talk to your healthcare team about the right starting point for you.

This chart shows how regular exercise helps keep your heart healthy and manages your diabetes.

<b>As soon as you exercise:</b>	<b>Long-term benefits of exercise:</b>
Exercise lowers your blood glucose within 1 hour.	Your blood glucose improves over time.
Your mood, sleep patterns, and energy level improves.	Reduce your body fat.
Your body puts insulin (your own or prescribed) to better use.	You help to keep your pancreas, kidneys, eyes, and nerves healthy.

### Make a list of the ways you can get regular physical activity:

1.

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2.

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3.

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### Be a non-smoker

Smoking affects blood pressure in two ways:

- Nicotine in cigarette smoke causes blood vessels to narrow. This increases blood pressure.
- When you smoke, the drugs you take to control blood pressure do not work as well.

Ask your healthcare team about local programs and medications that can help you to quit.

### Be careful with alcohol

Drinking alcohol can cause 3 problems:

- It interferes with the blood flow to and from the heart. This raises blood pressure.
- It can make blood glucose levels either too high or too low.
- It can lead to high triglycerides.

Talk to your healthcare team about whether it is safe for you to drink alcohol, and how much.



## My Healthy Habits Checklist

Check the box that best describes your habits.

	Yes	No	Not sure
I limit the alcohol I drink to what is best for me.			
I take my blood pressure medication as my doctor prescribed.			
I take my cholesterol medication as my doctor prescribed.			
I have healthy eating habits such as choosing low-fat foods and avoiding saturated and trans fat.			
I limit cholesterol-containing foods such as organ meat, egg yolks, liver, and shrimp.			
I make high-fibre choices (such as eating whole grain breads, cereals, brown rice, lentils, and dried beans).			
I eat enough vegetable and fruit servings every day by following <i>Eating Well with Canada's Food Guide</i> .			
I am physically active by exercising 150 minutes each week.			
I manage stress in a healthy way.			
I am a non-smoker.			

## Sample Healthy Habits Plan:

### Make a plan for limiting alcohol.

For example, "I will ask my healthcare team how many drinks I am allowed each day."

### Make a plan for taking my medications as prescribed.

For example, "I will ask my healthcare team what times of day for taking my medications are best."

### Make a plan for healthy eating habits.

For example, "I will ask my healthcare team about the foods that are low-fat, low-cholesterol and high-fibre."

### Make a plan for physical activity.

For example, "I will start to walk around the neighborhood for ten minutes, three times a day, for five days a week."

### Make a plan for managing stress.

For example, "I will ask my healthcare team about healthy ways to manage stress, such as doing yoga."

## The bottom line

Healthy eating, physical activity, managing weight and stress, and taking your medications as prescribed can all help you to control your blood pressure, improve your cholesterol and lower your risk!

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## Glossary of terms

- **A1C test:** A blood test that indicates an average of your overall blood glucose levels over the past 120 days.
- **Moderate aerobic activity** makes you breathe harder and your heart beat faster. You should be able to talk, but not sing. Examples include walking quickly, skating, and bike riding.

- **Vigorous aerobic activity** makes your heart rate increase quite a bit. You won't be able to say more than a few words without needing to catch your breath. Examples include running, basketball, soccer, and cross-country skiing.
- **Fibre:** Fibre is a type of carbohydrate that is not digested by the body. There are two kinds of fibre, insoluble and soluble.

**Insoluble fibre** acts like a sponge. As food goes through the gut, it absorbs water, helping to move feces out and relieve constipation. Wheat bran and whole grains have lots of insoluble fibre. So do the skins of many fruits and vegetables. Seeds are also rich sources of insoluble fibre. The more the food has been refined or processed by milling, peeling, boiling or extracting, the less fibre it contains. Eat more unrefined foods to obtain insoluble fibre.

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- **Saturated fat:** Most saturated fats are solid at room temperature, like butter and the skin on chicken.
- **Trans fat:** Trans fat is a type of fat that is made when a liquid vegetable oil is changed into a solid form of fat. It is often used in processed foods because it can improve the taste and texture of foods, as well as keep foods fresh longer. Trans fat has been found to increase the risk of heart diseases because it raises the LDL (bad) cholesterol and lowers the HDL (good) cholesterol.
- **Triglycerides:** Triglycerides are a form of fat in your blood that the body makes from sugar, alcohol, and some foods. Triglycerides can harden and narrow the arteries when there are too many of them in the blood. When you have high blood pressure or diabetes, your risk for having higher levels of triglycerides is also higher. This can increase your risk for developing heart disease.



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Diabetes GPS is a tool developed by the Canadian Diabetes Association

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