



Not getting enough exercise can increase insulin resistance and your risk for heart disease. The potential benefits of regular physical activity include:

- Improved cardiovascular fitness
- Lowered blood pressure
- Improvements in cholesterol levels
- Improved blood glucose control

In its publication 'Canada's Physical Activity Guide', Health Canada recommends a variety of activities from three different activity groups:



1. Endurance activities:

Walking, swimming, hiking, skating, dancing, cycling, crosscountry skiing, tennis

2. Flexibility activities:

Stretching, gardening, dancing, vacuuming, T'ai Chi, golf, yoga, bowling, curling

3. Strength and balance activities:

Climbing stairs, weight training, carrying groceries, standing up and sitting down several times in a row, piling wood

If you have a medical condition or are over 69 years of age, or know of any reason why physical activity might not be good for you, check with your doctor about the appropriateness of increasing your physical activity.

Health Canada recommends 60 minutes of 'light effort' physical activity (e.g. light walking, stretching, easy gardening) every day. Physical activity doesn't have to be difficult to improve health. It can be worked into your daily routine. The activity doesn't have to be done all at once either, but can be broken down into smaller segments (no less than 10 minutes) if desired. To maintain and improve your health, the Canadian Diabetes Association recommends engaging in moderate effort activity such as biking, brisk walking, swimming or dancing, for at least 150 minutes per week (spread out over at least 3 nonconsecutive days of the week).



WHERE TO FIND MORE INFORMATION

The Heart and Stroke Foundation of Canada

222 Queen St., Suite 1402
Ottawa, Ontario K1P 5V9
Phone: 613-569-4361
Check your local phone listings for the regional office nearest you or visit their website.
ww2.heartandstroke.ca

The Canadian Diabetes Association

National Office:
15 Toronto St., Suite 800
Toronto, Ontario M5C 2E3
Call 1-800-226-8464 for the regional office nearest you or visit their website.
www.diabetes.ca

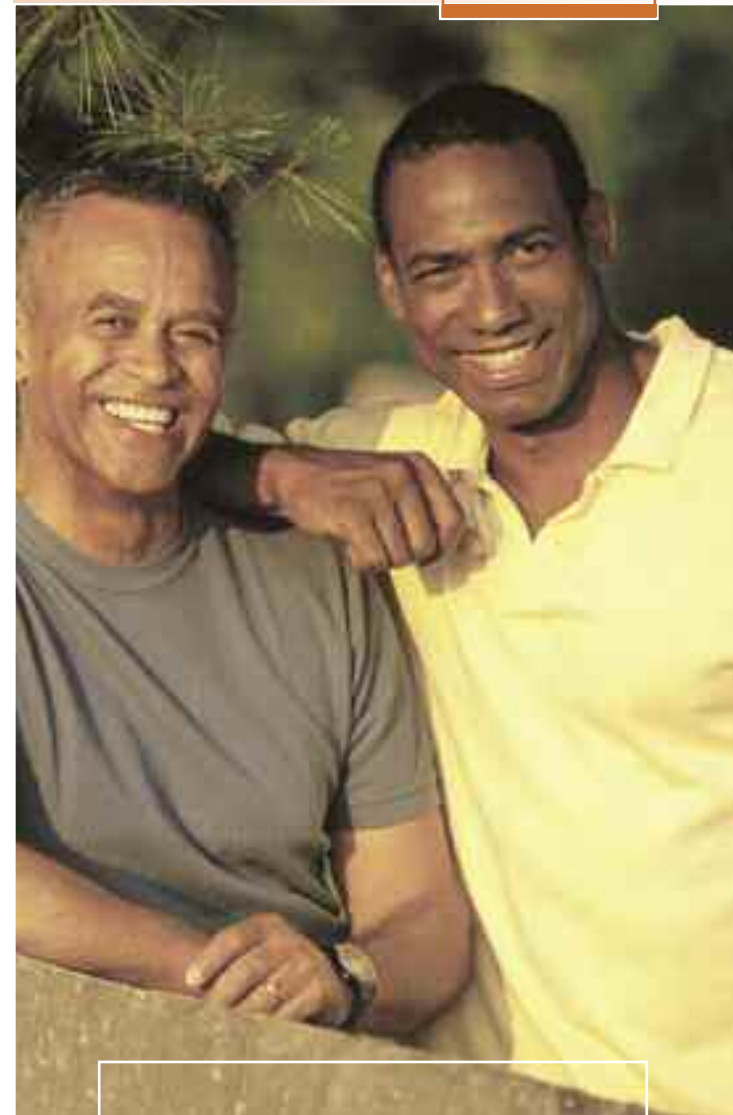
Canadian Health Network

www.canadian-health-network.ca

Canada's Physical Activity Guide

Phone: 1-888-334-9769
www.paguide.com

The information found in this PROfile health brochure is of a general nature only. It is not intended to replace the advice of your pharmacist, physician, or other healthcare provider. If you have questions relating to your specific health concerns, please contact your personal healthcare provider.



Your PROfile Pharmacist has many resources for diabetes education and is always available to discuss your health concerns!

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Diabetes & Heart Disease

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WHY ARE PEOPLE WITH DIABETES AT INCREASED RISK FOR HEART DISEASE?

People with diabetes are two to four times more likely than the general population to develop heart disease (coronary artery disease) in their lifetime. In order to understand why this is so, we need to discuss a condition known as ‘insulin resistance’.

Insulin and insulin resistance - Insulin is needed for the entry of blood sugar (glucose) into the cells of tissues. Diabetes (high sugar in the blood) develops under two conditions:

1. There is not enough insulin to allow the blood sugar into cells (the initial problem in type 1 or ‘insulin-dependent’ diabetes).
2. The cells for some reason are ‘resistant’ to the effects of insulin (the initial problem in type 2 or ‘adult-onset’ diabetes). About 90% of people with diabetes have type 2. Researchers have discovered that insulin resistance is present long before type 2 diabetes is diagnosed in this group of people. They have also linked increased insulin resistance to a group of heart disease risk factors that include:
 - High blood pressure
 - High levels of triglycerides (a type of fat that increases risk of heart disease)
 - Low levels of HDL (the ‘good’ cholesterol that reduces risk of heart disease)
 - Production of a type of LDL (the bad cholesterol) that increases risk of heart disease
 - Increased levels of a factor (PAI-1 or plasminogen activator inhibitor) that increases the clotting ability of blood, which in turn increases risk of heart disease

This group of risk factors has been called the ‘insulin resistance syndrome’ or metabolic syndrome. Evidence strongly suggests that increased insulin resistance associated with type 2 diabetes is largely responsible for increased heart disease risk.

WHAT INCREASES THE RISK FOR INSULIN RESISTANCE?

Being overweight - People who are overweight have increased insulin resistance compared to those who are close to their ideal body weight. The ‘epidemic’ of type 2 diabetes currently taking place in Canada can be in part attributed to a doubling of the prevalence of obesity in this country over the past 20 years. There is a general consensus based on large studies that most cases of type 2 diabetes can be prevented or delayed by early and effective weight management.

Weight distribution is also an important factor in the risk for development of type 2 diabetes. People with excess fat around the waist (i.e. ‘apple shape’) are at higher risk for heart disease than those whose excess weight is mostly around the hip area (i.e. ‘pear shape’).

Risk factors - The following are risk factors for metabolic syndrome and increased risk of heart disease:

- High blood pressure (130/85 mm Hg or higher)
- Low HDL cholesterol (less than 1.3 mmol/L for women and less than 1.0 mmol/L for men)
- Fasting blood glucose of 6.1 mmol/L or more
- Overweight
- Waist circumference (greater than 88 cm for women, greater than 102 cm for men)
- Physical inactivity
- Smoking
- Unhealthy eating habits

Other important risk factors for heart disease are:



As is evident from the list above, it is important for people with diabetes and all adults to keep weight, blood pressure, blood glucose and cholesterol within target ranges. Regular health check-ups are essential for preventing heart problems through management of risk factors. It is also important to remain physically active and to consume a heart-healthy diet that minimizes fat intake.



STRATEGIES FOR REDUCING HEART DISEASE RISK

According to Canadian Guidelines, most people with diabetes are classified as ‘at high risk’ for developing heart disease within the next 10 years. For people in this category the following targets are recommended:

Cholesterol levels.

LDL Cholesterol: less than 2.0 mmol/L
Total Cholesterol: HDL Cholesterol ratio: less than 4.0

Blood Pressure. Less than 130/80 mm Hg

Smoking. Smoking increases heart disease risk even further in people with diabetes. Smokers should be aware of the dangers involved and consider quitting.

Alcohol. Studies suggest that light to moderate alcohol intake (approximately 1.5 ounces daily) may reduce the risk of heart disease. Drinking more than moderate amounts of alcohol increases triglyceride levels and increases the risk of heart disease.

MEDICATIONS

Evidence based guidelines suggest that all people with both diabetes and heart disease, or with risk factors for it, should take an **ASA tablet** (81mg to 325 mg) daily, unless there is an allergy to ASA or other medical reasons for not taking it. You should discuss the benefits and risks of using daily ASA with your doctor. The second choice for prevention of heart disease (for people who can't take ASA) is clopidogrel.

Evidence from scientific research suggests that all people with diabetes over the age of 55 should take an **ACE Inhibitor** (e.g. ramipril, enalapril, benazepril, quinapril, lisinopril, fosinopril) on a daily basis unless there is a medical reason for not taking it. You should talk about the benefits and risks of using an ACE inhibitor with your doctor.