TYPE 2 DIABETES PREVENTION

This fact sheet addresses the prevention of type 2 diabetes only, as type 1 diabetes (or juvenile diabetes) is not currently preventable. Please see the *Diabetes Facts and Figures* or *Living with Diabetes* fact sheets for more information on type 1 diabetes.

There are several factors that may contribute to a person's risk of developing type 2 diabetes. These include:

- Pre-diabetes;
- Being overweight or obese;
- Advanced age;
- Having high blood pressure and/or high cholesterol;
- Physical inactivity;
- Having a family history of diabetes;
- Belonging to certain high-risk ethnic populations (e.g. Aboriginal, African, Hispanic, Asian);
- A history of gestational diabetes; and/or
- Having other conditions which may include vascular disease, polycystic ovary syndrome, acanthosis nigricans or schizophrenia.

Pre-diabetes

Pre-diabetes is a key risk factor for type 2 diabetes. It is a risk condition where blood glucose (sugar) levels are elevated, but are not high enough for a diagnosis of diabetes. Blood glucose is the main sugar found in the blood and the body's main source of energy. Pre-diabetes is diagnosed by measuring impaired fasting glucose or impaired glucose tolerance.

The Public Health Agency of Canada estimates that pre-diabetes affects roughly 5 million Canadians over age 20. The burden of pre-diabetes is expected to grow significantly over the next decade – due to the aging of the population, the increase in obesity, and other demographic changes. The prevalence among adults over age 20 is expected to increase to 6.3 million by 2016 – an increase of over 1 million new cases. Among those aged 40 to 74 who would likely benefit most from screening and early detection, the prevalence is expected to increase from about 3 million (22%) in 2004 to 4.3 million by 2016.

Why is pre-diabetes important?

If left untreated, over half of those with pre-diabetes will be diagnosed with type 2 diabetes within 8 to 10 years and face elevated risk of cardiovascular disease and other diabetes-related complications.

Reducing the risk of diabetes

The risk of developing type 2 diabetes can be greatly reduced through lifestyle choices. People can minimize the risk of diabetes by losing excess weight, managing diet and exercising. Some lifestyle factors that should be considered are outlined below.

Body Mass Index

The Body Mass Index (BMI) is a simple method of indirectly estimating adiposity (excess fat). Excess body weight is a risk factor for developing type 2 diabetes. Weight loss of 5% to 10% has been shown to significantly reduce the risk of diabetes.

BMI is a widely accepted way of assessing overweight or obesity in most people aged 20 to 65 (exceptions include people who are very muscular, athletes, and pregnant or nursing women).

- According to World Health Organization (WHO) guidelines, for adults over 20 years old, BMI falls into one of the following categories:
  Below 18.5 = Underweight;
  18.5–24.9 = Normal;
  25.0–29.9 = Overweight/Pre-obese
  30.0–39.9 = Obese; and
  Above 40.0 = Very obese

- You can calculate your BMI and obtain additional information at www.hc-sc.gc.ca

Waist circumference
The BMI assessments do not take into account where fat is stored – the risk of developing type 2 diabetes is higher if fat is stored around the abdomen (rather than the hips and thighs). Medical assessments of people with diabetes should include both height and weight measurements, a calculation of BMI and a measurement of waist circumference to assess a person's degree of abdominal fat. Excessive upper body fat, or abdominal obesity, is a strong independent predictor of metabolic co-morbidities (e.g. hypertension). Cut-off values for waist circumference vary among expert guidelines: Health Canada identifies waist circumference values of 102 cm (40 inches) in men and 88 cm (35 inches) in women as being associated with substantially increased abdominal fat accumulation and health risks.[1]

Eating a healthy, balanced diet
Eating foods that are rich in fibre and lower in fat and adding more fruits and vegetables can help people control their diet and maintain or lose weight. In addition to monitoring the types of food that are eaten, people should also monitor portion size while still ensuring that they meet healthy nutrient intakes. Canada's Food Guide can assist with making healthy choices. Visit Health Canada's website at www.hc-sc.gc.ca

Increasing physical activity
Increasing physical activity can help control weight and reduce the likelihood of developing type 2 diabetes. Canada's Physical Activity Guide to Healthy Active Living can assist with making wise choices about incorporating physical activity into every day life. Visit the Public Health Agency of Canada's website at www.phac-aspc.gc.ca

Managing high blood pressure, cholesterol and glucose
Diabetes and high blood pressure are often found together. Up to three-quarters of people with undiagnosed diabetes have high blood pressure. Studies show that management of blood pressure, cholesterol and glucose can substantially reduce the risk of developing complications and slow their progression. A health care provider (e.g. physician, nurse, pharmacist) can assist with strategies to monitor and manage blood pressure, cholesterol and glucose.

Finding Additional Information and Support

For general help and support about types 1, 2 and gestational diabetes in your province, please visit the Canadian Diabetes Association (www.diabetes.ca) or Diabète Québec (www.diabete.qc.ca)

For information specific to type 1 diabetes, please visit the Juvenile Diabetes Research Foundation Canada (www.jdrf.ca)

1 Canadian Diabetes Association 2008 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes.* 2008;32(suppl 1): S77

For information about renal or kidney-related diseases and complications, please visit the Kidney Foundation of Canada (www.kidney.ca)

For information about blindness or vision-related diseases and complications, please visit CNIB (www.cnib.ca)

For information about research on diabetes, obesity, nutrition and metabolic disorders, please visit the Canadian Institutes of Health Research – Institute of Nutrition, metabolism and Diabetes (www.cihr.ca)

For information on the Canadian Diabetes Strategy, please visit the Public Health Agency of Canada (www.diabetes.gc.ca)

For information on the Aboriginal Diabetes Initiative, please visit Health Canada (http://www.hc-sc.gc.ca/fniah-spnia/diseases-maladies/diabete/index-eng.php)

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