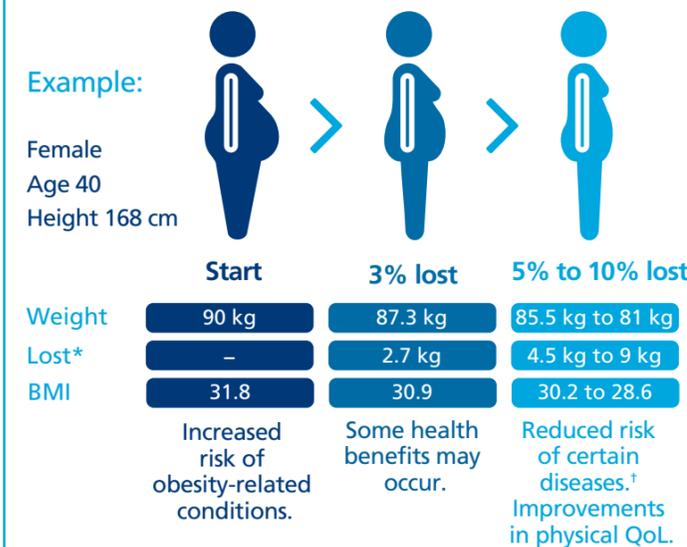


# Substantial benefits associated with weight loss.

“The first goal is to STABILIZE weight and PREVENT further weight gain. Substantial health benefits can be derived with MODEST (5–10%) weight loss.”—CON (Canadian Obesity Network)<sup>1</sup>

## Weight loss in people living with obesity



\* Weight lost from start. † Diabetes, cardiovascular. Example for illustrative purposes only.

## Potential benefits of 5–10% weight loss include:

- ↓ **58% reduction** in the risk of developing type 2 diabetes<sup>19</sup>
- ↑ **Improved** glycemic control<sup>20</sup>
  - **0.5% reduction** in A1C<sup>21</sup>
  - **1.1 mmol/L reduction** in fasting blood glucose<sup>21</sup>
- ↓ **Reduced** blood pressure<sup>20</sup>
- ↓ **Reduced** cholesterol levels<sup>20</sup>
- ↓ **30% decrease** in sleep apnea symptoms<sup>14</sup>
  - Reduced frequency of sleep apnea, improved sleep quality and reduced daytime somnolence<sup>20</sup>
- ↑ **Improved** health-related quality of life (HRQoL) in people living with obesity, particularly physical aspects<sup>22</sup>
- ↓ **Alleviated** osteoarthritis, and back and joint pain<sup>20</sup>
- ↑ **Improved** lung function and breathlessness<sup>20</sup>

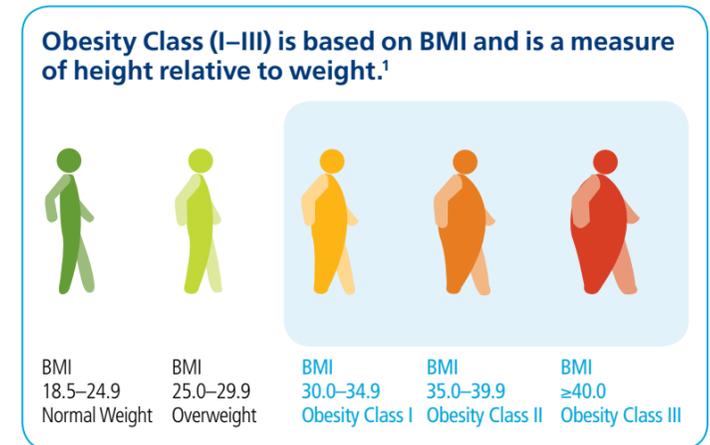
# The weight of obesity in Canada.

## Obesity—a chronic disease.

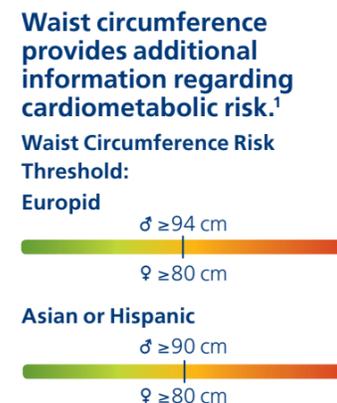
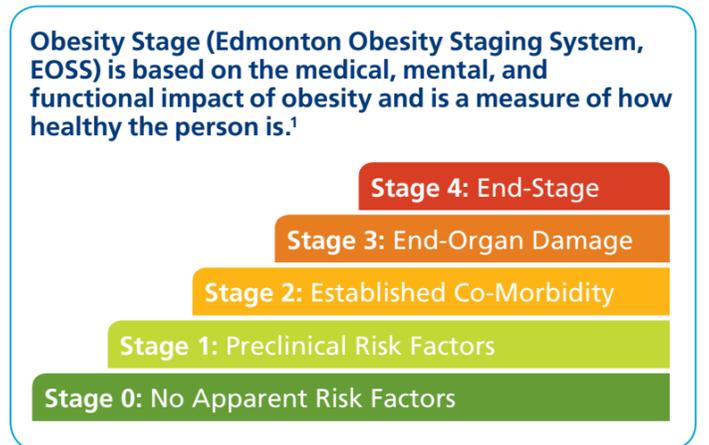
“Obesity is a chronic and often progressive condition not unlike diabetes or hypertension.”  
—CON (Canadian Obesity Network)<sup>1</sup>

“[Obesity] must be viewed as a chronic disorder that essentially requires perpetual care, support, and follow-up.”  
—AACE (American Association of Clinical Endocrinologists)<sup>2</sup>

“It is important for health care providers to recognize obesity as a disease so preventive measures can be put in place...”  
—CMA (Canadian Medical Association)<sup>3</sup>



Body Mass Index (BMI) = Weight (kg)/Height (m)<sup>2</sup>



BMI is a measure of a person's size. To determine a person's overall health, the Edmonton Obesity Staging System helps clinicians grade obesity based on simple criteria obtained from medical history, physical examination and standard diagnostic tests.<sup>4</sup>

## Obesity is highly prevalent in Canada.



**References:**

- Canadian Obesity Network. 5As of Obesity Management. Available at: [www.obesitynetwork.ca](http://www.obesitynetwork.ca). Retrieved November 17, 2014.
- Mechanic J, et al. American Association of Clinical Endocrinologists' position statement on obesity and obesity medicine. *Endocr Pract*. 2012.
- Canadian Medical Association. CMA recognizes obesity as a disease. 2015. Available at: <https://www.cma.ca/En/Pages/cma-recognizes-obesity-as-a-disease.aspx>. Retrieved March 3, 2017.
- Canadian Obesity Network. Edmonton Obesity Staging System. Available at: [www.obesitynetwork.ca/de.aspx?id=425](http://www.obesitynetwork.ca/de.aspx?id=425). Retrieved December 1, 2014.
- Twells LK, et al. Current and predicted prevalence of obesity in Canada: a trend analysis. *CMAJ Open*. 2014;2(1):E18-E26.
- Statistics Canada. Table 117-0005 - Distribution of the household population by adult body mass index (BMI) - Health Canada (HC) classification, by sex and age group, occasional (number), CANSIM (database). Retrieved January 1, 2018.
- Prospective Studies Collaboration. Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. *Lancet*. 2009;373(9669):1083-1096.
- Janssen I. The public health burden of obesity in Canada. *Can J Diabetes*. 2013;37(2):90-96.
- Grover SA, et al. Years of life lost and healthy life-years lost from diabetes and cardiovascular disease in overweight and obese people: a modelling study. *Lancet Diabetes Endocrinol*. 2015;3(2):114-122.
- Must A, et al. The disease burden associated with overweight and obesity. *JAMA*. 1999;282(16):1523-1529.
- Freedhoff Y, et al. *Best weight: a practical guide to office-based obesity management*. Canadian Obesity Network; 2010.
- Li C, et al. Prevalence of self-reported clinically diagnosed sleep apnea according to obesity status in men and women: National Health and Nutrition Examination Survey, 2005–2006. *Prev Med*. 2010;51(1):18-23.
- Lau DC, et al. 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children. *CMAJ*. 2007;176(8):1-117.
- Peppard PE, et al. Longitudinal study of moderate weight change and sleep-disordered breathing. *JAMA*. 2000;284(23):3015-3021.
- Public Health Agency of Canada. *Fact Facts from the 2009 Canadian Community Health Survey - Sleep Apnea Rapid Response*. Ottawa; 2009.
- Anis AH, et al. Obesity and overweight in Canada: an updated cost of illness study. *Obes Rev*. 2010;11(1):31-40.
- Colditz GA. Economic costs of obesity. *Am J Clin Nutr*. 1992;55(2):503S-507S.
- Bustillos AS, et al. Work productivity among adults with varied Body Mass Index: Results from a Canadian population-based survey. *JEGS*. 2015;5(2):191-199.
- Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med*. 2002;2002(346):393-403.
- World Health Organization. Obesity: preventing and managing the global epidemic. Report of a WHO consultation. *World Health Organ Tech Rep Ser*. 2000;894:1-253.
- Wing RR, et al. Benefits of modest weight loss in improving cardiovascular risk factors in overweight and obese individuals with type 2 diabetes. *Diabetes Care*. 2011;34(7):1481-1486.
- Warkentin L, et al. The effect of weight loss on health related quality of life: systematic review and meta analysis of randomized trials. *Obes Rev*. 2014;15(3):169-182.

# The weight of obesity on Canadians.

Obesity is a complex and multifactorial disease with a substantial personal impact.

## Life expectancy decreases with increasing BMI

Compared to an overweight person, class I obesity is associated with a:

- 60–120%** increased diabetic, renal, and hepatic mortality
- 40%** increased vascular mortality
- 20%** increased respiratory mortality

AN ESTIMATED  
**10,648**  
PREMATURE DEATHS  
occurred in Canada in 2011 as a direct consequence of obesity.<sup>8</sup>



Compared to a woman aged 20–39 with a normal BMI (<25 kg/m<sup>2</sup>), the predicted lifespan is:<sup>9</sup>

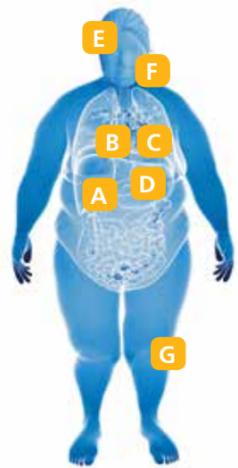
**5.6 years less** with class I obesity (BMI of 30 to 35 kg/m<sup>2</sup>)  
**6.1 years less** with class II–III obesity (BMI ≥35 kg/m<sup>2</sup>)



Compared to a man aged 20–39 with a normal BMI (<25 kg/m<sup>2</sup>), the predicted lifespan is:<sup>9</sup>

**5.9 years less** with class I obesity (BMI of 30 to 35 kg/m<sup>2</sup>)  
**8.4 years less** with class II–III obesity (BMI ≥35 kg/m<sup>2</sup>)

Adapted from Grover SA, et al. Estimation of the years of life lost for people with class I, II, or III obesity compared to a normal BMI (18.5–25 kg/m<sup>2</sup>) based on a disease-simulation model. Data are based on cardiometabolic risk factors in US adults in the National Health Examinations and Nutrition Survey data from 2003–10.



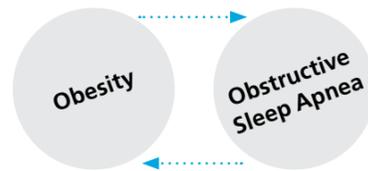
Studies have shown various health consequences of class II obesity:<sup>10–12</sup>

- A** **5–8 times** greater prevalence of type 2 diabetes<sup>10</sup>
- B** **2-fold** greater prevalence of hypertension<sup>10</sup>
- C** **2–3 times** greater prevalence of coronary heart disease<sup>10</sup>
- D** **1.3 times** greater prevalence of dyslipidemia<sup>10</sup>
- E** **5-fold** greater risk of major depression<sup>11</sup>
- F** **>17 times** greater prevalence of sleep apnea<sup>12</sup>
- G** **2–3 times** greater prevalence of osteoarthritis<sup>10</sup>

Multiple chronic diseases are associated with obesity.<sup>13</sup>

## Did you know? The obesity cycle—Reciprocal link between obstructive sleep apnea and obesity<sup>14</sup>

**10%** increase in body weight = **6-fold** risk of developing obstructive sleep apnea



Obstructive sleep apnea may predispose to worsening obesity through:

- Sleep deprivation
- Daytime somnolence
- Metabolic disruptions

Canadians with obstructive sleep apnea are more likely to have diabetes, hypertension, heart disease and mood disorders.<sup>15</sup>

Obesity and its complications have a significant burden on people with obesity, their families, and their caregivers.

# The economic weight of obesity in Canada.

Conditions associated with obesity have a substantial economic cost.

THE ANNUAL ECONOMIC BURDEN OF OBESITY IN CANADA WAS

**\$7.1 billion** in 2006.<sup>8,16</sup>

**\$3.9 billion**

**DIRECT COSTS**

to the healthcare system (e.g., hospitalizations, medications, physician and emergency room visits)

**\$3.2 billion**

**INDIRECT COSTS**

(e.g., costs related to disability and lost productivity due to illness or premature death)

## Obesity was also responsible for high costs associated with its comorbidities<sup>16</sup>



## Days missed from work (absenteeism) and working at less than full capacity (presenteeism) were more common for people with obesity, and were at a cost to both employees (in lost wages) and employers (in work not completed)<sup>17,18</sup>

