The Changing Landscape of Obesity Management

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Learning Objectives

- Impact of obesity on Canadians
- Obesity as a chronic medical condition
- Benefits of weight reduction
- Challenge of managing obesity
- Changing landscape of obesity treatment
The Obesity Epidemic...
What is Obesity?

- Obesity is defined as an abnormal or excessive accumulation of fat tissue to the extent that health is impaired.
- BMI is the preferred measure of obesity

\[
BMI = \frac{\text{body weight (kg)}}{(\text{height [m]})^2}
\]

<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt;18.5</td>
</tr>
<tr>
<td>Normal range</td>
<td>≥18.5 and &lt;25</td>
</tr>
<tr>
<td>Overweight</td>
<td>≥25 and &lt;30</td>
</tr>
<tr>
<td><strong>Obesity</strong></td>
<td>≥30</td>
</tr>
<tr>
<td>Obese class I</td>
<td>≥30 and &lt;35</td>
</tr>
<tr>
<td>Obese class II</td>
<td>≥35 and &lt;40</td>
</tr>
<tr>
<td>Obese class III</td>
<td>≥40</td>
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</tbody>
</table>
25% Canadian Adults Have Obesity

Disease prevalence reported by Statistics Canada in 2011

Severe obesity is as common as COPD and about 10x more common than breast cancer.
What is the Impact of Obesity?
Clinical Impact

- Neuropsychiatric disease
  - Depression
  - Dementia
- Stroke
- Skin disorders
- Cardiovascular disease
  - Dyslipidemia
  - Hypertension
  - Left ventricular hypertrophy
  - Coronary heart failure
- Type 2 diabetes
- Prediabetes
- Pancreatitis
- Sleep apnea
- Lung disease
- Liver disease
  - NAFLD
  - NASH
- GI disease
  - GERD
  - Gallbladder disease
- Osteoarthritis
- Gout
- Sexual dysfunction
- Infertility
- Various Cancers:
  - Breast
  - Prostate
  - Endometrial
  - Colon
  - Etc...

References:
Clinical Impact of BMI between 35-40

Economic Impact of Obesity...

$6.0 billion
DIRECT COSTS

>4% of Canada’s total health care budget

Direct costs only... this number does not include indirect costs....

Absenteeism and presenteeism are more common for people with obesity, and costs both employees (in lost wages) and employers (in work not completed)\(^1\)\(^2\).

• 75% have tried to lose weight for over 11 years.
• 25% have tried countless times to lose weight
• 33% withdraw from social situations
• 50% state that weight has had a negative impact on relationships with friends, family and/or spouses.
• 55% have low self-esteem

Health Quality Council of Alberta’s 2012 Satisfaction and Experience with Health Care Services Survey

OBESITY IN CANADA. A Joint report from the Public health Agency of Canada and the Canadian Institute of Health Information. 2011
The Impact of Obesity...Weight Bias

- Weight stigma almost parallels racial discrimination.
- Weight bias results in inequities in employment, health care and education;
Meet Jody, age 59

- BMI: 45.2
- **PMHx:**
  - OA knees, bilateral
  - Hypertension
  - Sleep Apnea
  - Reflux
- **Meds:**
  - Naproxen
  - Nexium
  - Coversyl
- **Goals:**
  - Improve mobility so that she can be more active
  - Reduce blood pressure
  - Improve quality of life
Jody’s Weight History

At physician’s office for support

Marriage

Initiated self diet

Initiated self diet
Why does this happen?

- Does she keep “failing”?
- Should she just “try harder”?
- Should she just eat less and move more?
- Is this her “fault”?

*Do WE understand the challenge our friends, families, patients and coworkers are up against?*
To understand obesity, we have to understand what it “normal”...

- How does the body regulate weight and appetite?
- Why do we gain weight?
Why do we gain weight?

OBESITY

Calorie intake

Calorie burning

Hedonic input

Experienced palatability or pleasure

Obesogenic Environment

Inactive, sedentary workplace, high sugar high fat foods, fast foods, bigger portion sizes etc

NEUROHORMONAL SIGNALING

Adipose tissue

Pancreas

Stomach and Gut

Genetics

Medications

What does it mean to LOSE weight?
Physiologic and metabolic responses to weight loss favor weight regain\textsuperscript{1-3}

CCK, cholecystokinin; GLP-1, glucagon-like peptide-1; PYY, peptide YY.
Jody’s Weight History

- Marriage
- Initiated self diet
- Initiated self diet
- Joined commercial program

Weight

Time

YEARS
Obesity is a **CHRONIC CONDITION**

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**Phase I**
(Weight Loss)

**Phase II**
(Weight-Loss Maintenance)

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When you stop treatment, the disease comes back!

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3-6 months  

Indefinitely
“Obesity is a chronic and often progressive condition not unlike diabetes or hypertension.”

“...obesity is a primary disease, and the full force of our medical knowledge should be brought to bear on the prevention and treatment of obesity as a primary disease entity…”

“Recognizing obesity as a disease will help change the way the medical community tackles this complex issue that affects approximately one in three Americans”

“Obesity is a chronic medical condition requiring long-term intervention of 3 main types: lifestyle modification, medication and surgery.”

“Obesity is a chronic disease, prevalent in both developed and developing countries, and affecting children as well as adults”

“FDA agrees with these comments that obesity is a disease...Being overweight, i.e., being more than one's ideal weight but less than obese, however, is not a disease.”

Obesity is not a “lifestyle” problem.
Obesity is recognized as a chronic disease and global health issue

“We should continue to advocate for effective public policy, education and awareness to prevent obesity, but we must also provide better care and treatment. Declaring obesity as a chronic disease can help both of these efforts.”
Weight reduction improves obesity related comorbidities

Benefits of 5–10% weight loss

1. Reduction in risk of type 2 diabetes
2. Reduction in CV risk factors
3. Improvements in blood lipid profile
4. Improvements in blood pressure
5. Improvements in severity of obstructive sleep apnea
6. Improvements in health-related quality of life
7. Improvements in health-related quality of life
8. Improvements in health-related quality of life

References:
Why Treat Obesity?

- **58% reduction** in the risk of developing type 2 diabetes
- **Improved** glycemic control
  - 0.5% reduction in A1C
  - 1.1 mmol/L reduction in fasting blood glucose
- **Reduced** blood pressure
- **Reduced** cholesterol levels
- **30% decrease** in sleep apnea symptoms
  - Reduced frequency of sleep apnea, improved sleep quality and reduced daytime somnolence
- **Improved** HRQoL in people living with obesity, particularly physical aspects
- **Alleviated** osteoarthritis, and back and joint pain
- **Improved** lung function and breathlessness

Potential impact of a 5% average BMI reduction in the US by 2020: disease rates

- 2.9 million cases of heart disease and stroke avoided
- 3.6 million cases of diabetes avoided
- 1.9 million cases of arthritis avoided
- 3.5 million cases of hypertension avoided
- 0.3 million cases of cancer avoided

Potential impact of a 5% average BMI reduction in the US by 2020: cost savings

<table>
<thead>
<tr>
<th>Comorbidity</th>
<th>Potential savings ($ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease and stroke</td>
<td>110</td>
</tr>
<tr>
<td>Diabetes</td>
<td>77</td>
</tr>
<tr>
<td>Arthritis</td>
<td>20</td>
</tr>
<tr>
<td>Hypertension</td>
<td>15</td>
</tr>
<tr>
<td>Cancer</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
</tr>
</tbody>
</table>

F as in Fat 2012. Available at: http://healthyamericans.org/assets/files/TFAH2012FasInFatFnRv.pdf [Accessed June 17, 2014].
Obesity Treatment: What are the options?

- Overweight: BMI ≥ 25 kg/m²
- Obese Class 1: BMI ≥ 30 kg/m²
- Obese Class 2: BMI ≥ 35 kg/m²

Lifestyle (LS) ~ 1 - 5%
LS + Pharmacotherapy ~ 5 - 15%
Surgery ~ 20 - 40%

Adapted from Lau DCW et al. Can Med Assoc J 2007;176 (8 suppl):S1-S13
Unmet need in obesity treatment
Bariatric Surgery

0.1% of eligible subjects receive surgery annually

Padwal et al.  Int J Health Equity 2012
Unmet need in obesity treatment: Health Behaviour Focussed Interventions

Availability of weight management services is far outstripped by need

Figure 1. Number of programs per million of overweight or obese population in Canada in 2011. (Source: Statistics Canada, CANSIM, table 105-0501 and Catalogue no. 82-221-X. Last modified: 2012-06-19)
Pharmacotherapy for Weight Loss and Weight Loss Mainentance

![Graph showing weight loss and maintenance over months with control and medication groups.](image-url)

*New promising medications have been developed and are becoming available for clinicians to use to support their patients... BUT will they be accessible to patients?*

Jody’s Weight History

At physician’s office for support

Graph:
- Weight axis
- Time axis
-婚姻
- Initiated self diet
- Initiated self diet

At physician’s office for support
Jody’s Weight Progress: Limited Support

9 months later
Jody’s Weight Progress: Good Support

3 months later
- Discontinue BP meds
- Discontinue Reflux meds

9 months later
- More energy
- More productive
Obesity is a chronic medical condition impacting many Canadians both individually and societally.

- Modest weight reduction carries many health and economic benefits, but there is an unmet need in Canada.

- The landscape of obesity understanding and treatment is changing.

- Change needs to happen in every sector of society.

\[ \Delta E = P_{in} - E_{out} \]

Change in fat mass = Energy consumed – Energy expended

The First Law of Thermodynamics (i.e., energy conservation)
TIME TO ACT ON OBESITY

November 19, 2015 6:00-8:00 PM
Parkdale Community Centre