

Grand Rounds in Family Medicine

February 3, 2021

Presentation:

Obesity in Primary Care:

A Clinical Guidelines Update

Scientific Planning Committee Disclosure

- **Faculty: Dr. Stephen Wetmore**
Dr. Scott McKay
Dr. Richard Pawliszyn
- **Relationships with commercial interests:**
No conflicts of interest.

Disclosure of Commercial Support

- **This program has received no in-kind support.**
- **This program has received no commercial financial support.**

Faculty/Presenter Disclosure

Presenter: Dr. Sonja Reichert

Relationships with for-profit and not-for profit interests:

- ***Advisory board participation:*** Novo Nordisk, Astra Zeneca, Sanofi, Abbott, Eli Lilly
- ***Member of a speakers' bureau:*** Novo Nordisk, Astra Zeneca, Sanofi, Abbott, Eli Lilly, Boehringer Ingelheim, Merck, Janssen
- ***Received payment from an organization (including gifts, other consideration, or in-kind compensation i.e. travel/meals):*** Novo Nordisk, Astra Zeneca, Sanofi, Abbott, Eli Lilly, Boehringer Ingelheim, Merck, Janssen, CIHR, Servier
- ***Receipt of a grant or an honorarium from a for-profit or not-for-profit organization:*** McGill & McMaster CPD office, CIHR, CCRN (Canadian Collaborative Research Network)
- ***Participating, or have participated within the last two years, in a clinical trial:*** Novo Nordisk – principle, and sub-investigator CIHR (sub-investigator)
- ***Relationship with one or more other for-profit or not-for-profit organizations that fund this program:*** Western University – Brian W. Gilbert Chair in Primary Health Care

Mitigating Potential Bias

Presenter received a detailed letter from the Organizing Committee outlining the learning objectives and content expectations for each presentation.

Presentation have been reviewed by a member of the Scientific Planning Committee to ensure balance in content and the absence of bias.

3 Key Objectives...

1. Understand *in brief*, the biological, environmental and psychological factors which contribute to the pathophysiology of obesity in adults
1. Understand how to initiate and continue patient dialogue that avoids stigma and bias
2. Comprehend the strategies for the assessment and management of obesity as a chronic disease

Epidemiology of Adults living with Obesity in Canada

- **In 2016, obesity (BMI ≥ 30 kg/m²) affected 26.4% or 8.3 million Canadian adults**
 - Class II and III obesity increased by 455% (from 1.1% to 6.0%) affecting an estimated 1.9 million adults
- **The prevalence of obesity in Canada varies by geographical region**
 - In 2015–2016, the prevalence of obesity was highest in the Atlantic provinces (NF, PEI, NS, and NB) and lowest in BC and QC





Epidemiology of Adults living with Obesity in Canada (cont.)



The prevalence overweight and obesity in children has increased over the past 40 years

- In 2014, prevalence increased from 23.3% in 1978/79 to 31.4%



Ethnicity may influence the risk of developing obesity and obesity-related conditions

- In Ontario, adults of white and black ethnicity have similar rates of obesity (~18%)
- Lower rates of obesity were observed in South Asian (9.6%) and Chinese (4.2%) populations



The economic burden of obesity in Canada is significant

- In 2010, the annual direct medical care costs for hospital admissions, medication use, physician fees, and emergency room visits were ~\$3.9 billion
- When including indirect costs (e.g., short and long-term disability, absenteeism, presenteeism, and premature death) the cost increases to \$7.1 billion

<https://obesitycanada.ca/guidelines/chapters/>



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CMAJ August 4, 2020, Volume 192, Issue 31: A Clinical Practice Guideline



**CANADIAN ADULT
OBESITY CLINICAL
PRACTICE GUIDELINES
(CPGS)**

[CPG Summary \(CMAJ\)](#)

[CPG Full Chapters](#)

[Guideline Endorsement](#)

Here you will find all of the guideline chapters.

- [Obesity in Adults: A Clinical Practice Guideline – CMAJ](#)
- [Reducing Weight Bias in Obesity Management, Practice and Policy](#)
- [Epidemiology of Adult Obesity](#)
- [The Science of Obesity](#)
- [Prevention and Harm Reduction of Obesity \(Clinical Prevention\)](#)

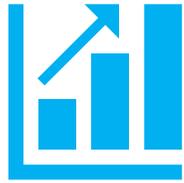
Tools & Resources

➤ [OC Connect](#)

➤ [OC Connect Pro](#)

➤ [CPG Quick Guide \(Download\)](#)

Rationale for the New Clinical Practice Guidelines



Increased Prevalence
of Obesity

YET, patients rarely
consulted



HCPs do not feel
equipped to effectively
manage obesity



Lack of recognition
of obesity as a
chronic disease

2006

**Almost 15 years
without an update to
the Clinical Practice
Guidelines**

Obesity Redefined to Support the Evidence

Then...

"Obesity is defined by a BMI of $\geq 30 \text{ kg/m}^2$ "



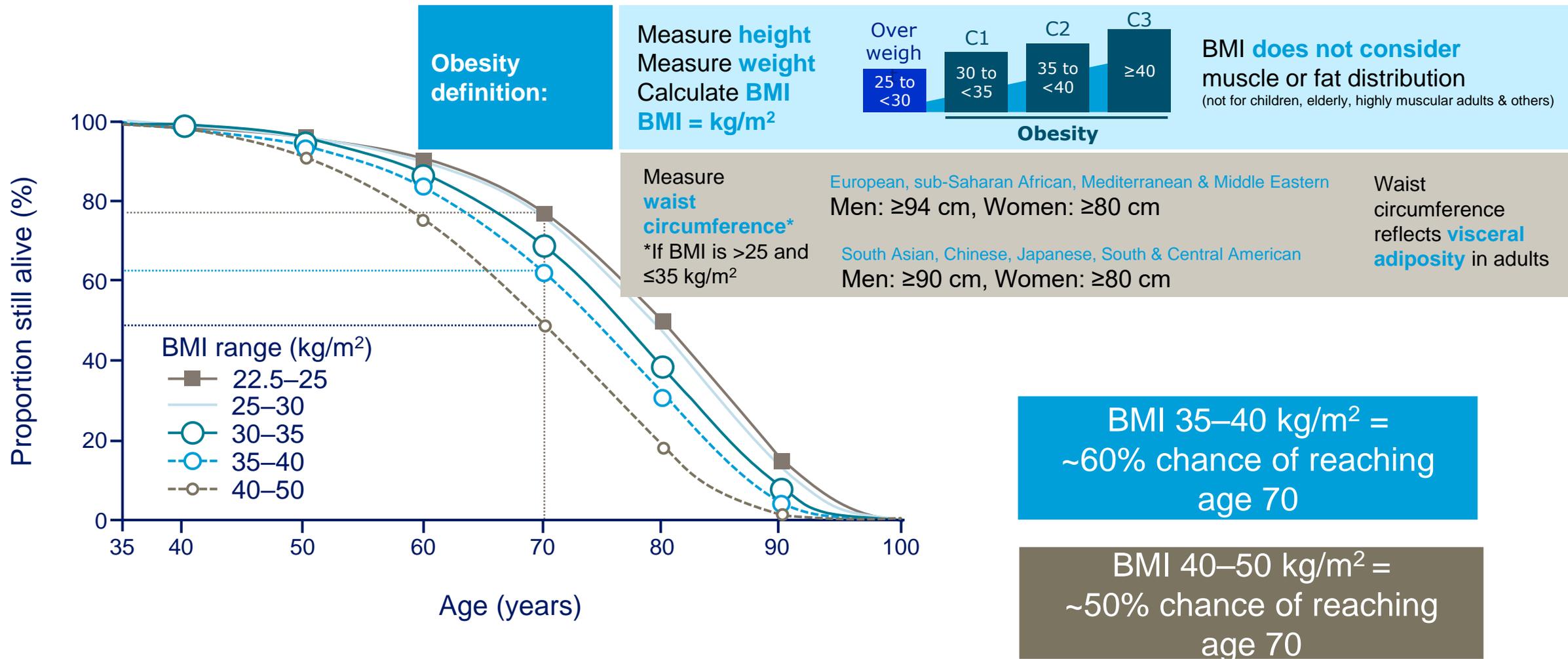
Now...

"Obesity is a complex chronic disease in which abnormal or excess body fat (adiposity) impairs health, increases the risk of long-term medical complications and reduces lifespan."



The new Canadian Adult Obesity Clinical Practice Guidelines call for a shift in the obesity treatment paradigm, **focusing on patient centric care**, moving away from **"eat less and move more"**, and advocating for HCPs to focus on a patient's overall health and experience rather than solely on their weight, **AND** determining the **root causes of obesity**.

Life Expectancy Decreases as BMI Increases



Data are based on male subjects; $n=541,452$.
 Prospective Studies Collaboration. *Lancet* 2009;373:1083–96.

Reducing Weight Bias and Stigma in Obesity Management in Canada

Weight bias

The negative weight-related attitudes, beliefs, assumptions and judgments in society that are held about PwO



Weight stigma

The manifestation of weight bias through harmful social stereotypes that are associated with people living with obesity

- PwO face substantial weight bias and stigma, which contribute to increased morbidity and mortality independent of weight or BMI
- **~40% of adults** report a history of experiencing some form of weight bias or stigma (among family, employers, HR professionals, HCPs, and among PwO themselves)
- Personal bias' can be assessed by completing *the Implicit Association Test*, a self-assessment tool for weight bias
- Consider using **patient-first** language: Say: "You have obesity," not, "You are obese"
- Make your practice **more accessible**: Wide (or armless), sturdy seats in the waiting room, extra-large blood pressure cuffs, etc.

The Science of Obesity

- A complex interplay of genetic, metabolic, behavioural, and environmental factors

Factors that impact the development of obesity:

Genes

- 140+ genes
- i.e. leptin receptor
- Prader-Willi (rare)

Hormones

- Gut-derived
- GLP-1, PYY, CCK, PP, Ghrelin

Environment

- Increased processed food availability
- Rapid urbanization



Brain

1. Hypothalamus (homeostatic domain) Neurons in the arcuate nucleus: AgRP & NPY when activated by the gut/adipose tissue stimulate hunger. POMC & CART neurons down-regulate hunger
2. Mesolimbic (hedonic area) – opioid and endocannabinoid signals
3. Cognitive function (executive function)

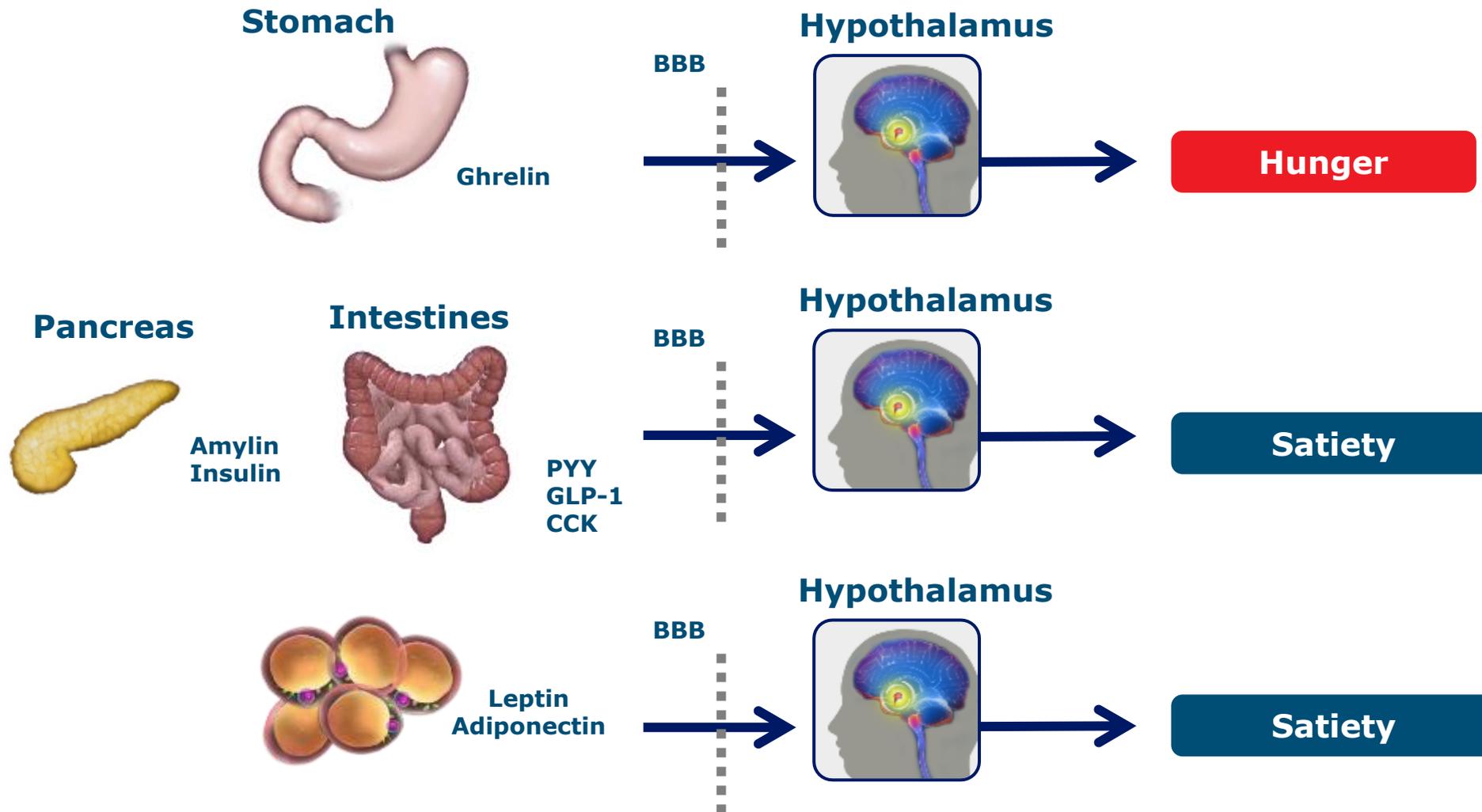
Adipose tissue

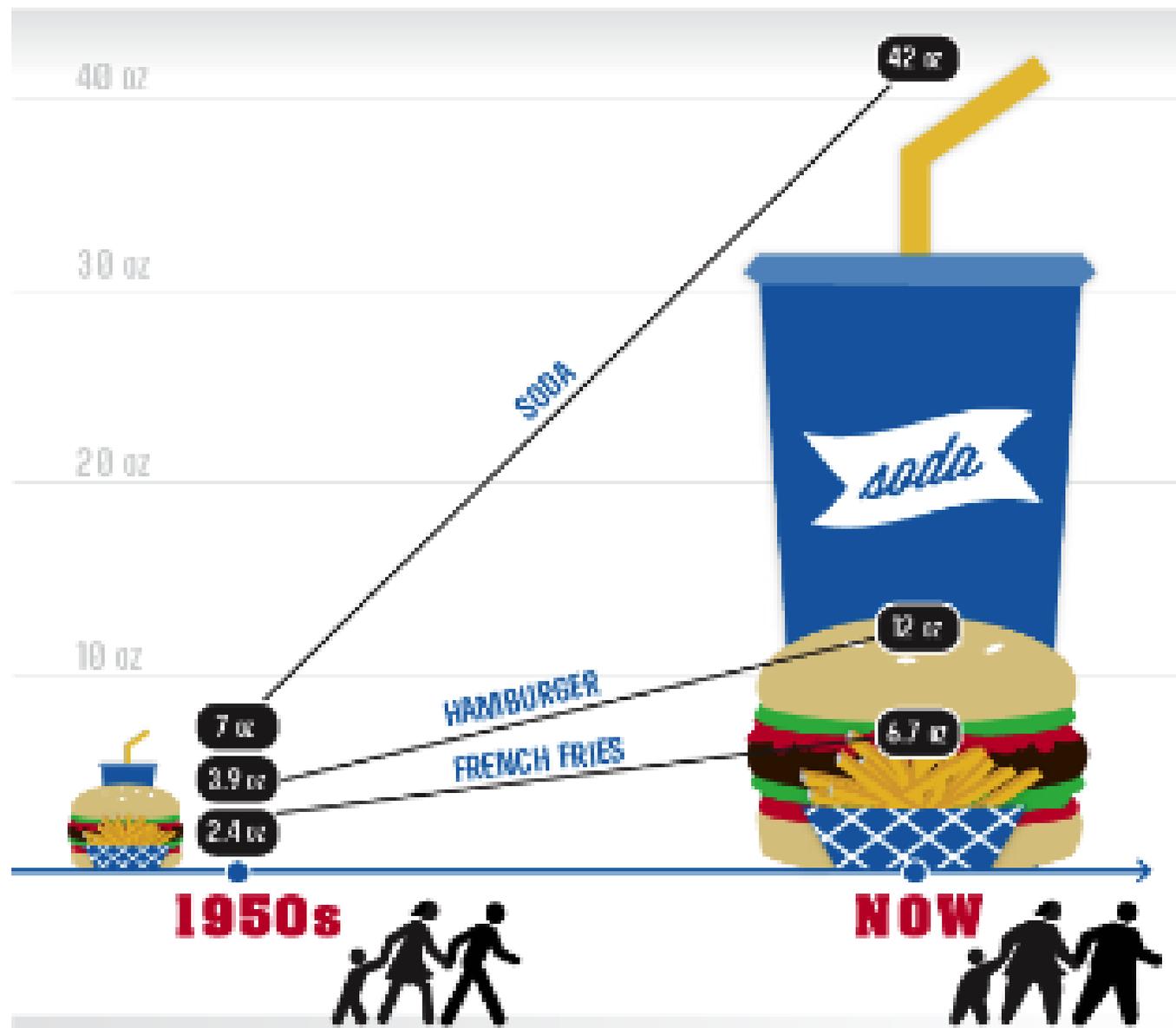
- As adiposity increases, Leptin increases = satiety in the brain, and vice versa

Gut microbiome

- Affected by surgery
- Future of fecal transplants?

Multiple Hormones Play a Key Role in Hunger/Appetite and Satiety





FOR MORE INFORMATION, VISIT
[MakingHealthChoices.org/TimeToTakeBack](http://makinghealthchoices.org/TimeToTakeBack)



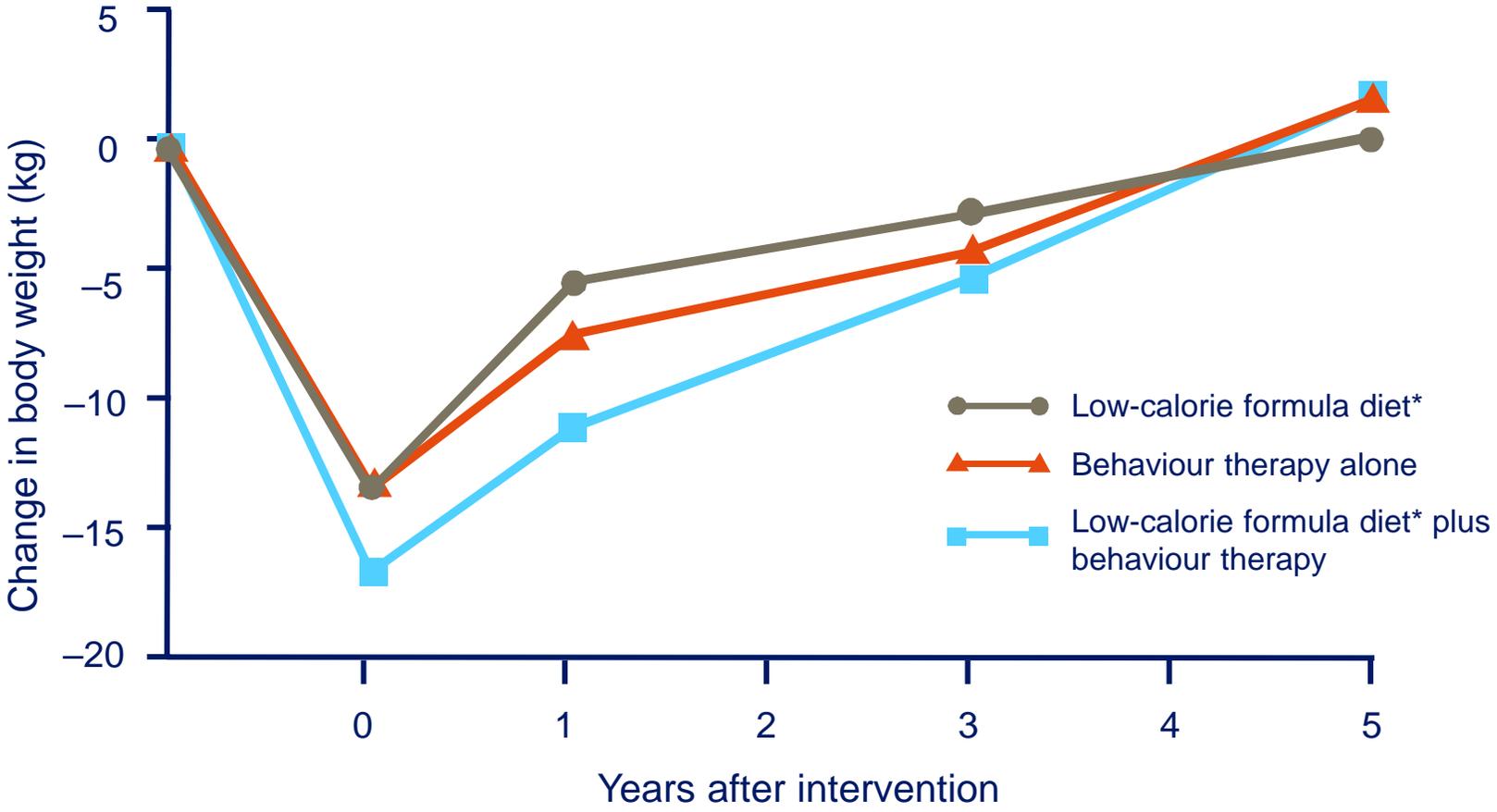
Weight Gain is Natural



Weight Loss is Difficult



Weight Regain is Highly Likely Following the end of Many Weight Loss Interventions



A long-term approach to obesity management is required for maintaining weight loss

*1200 kcal/day diet.
Wadden TA et al. *Ann Intern Med* 1993;119:688-93.

Meet today's patient: Susan

2020 annual
physical



Susan
Age: 42
years

Accountant

Weight

143 kg

BMI

44.1 kg/m²

Height

180 cm

Medication

ACE inhibitor, citalopram

Medical history:

- EOSS Stage 3 obesity
- Hypertension for 10 years
- Prediabetes
- Leg lymphedema
- Work/COVID related **stress**
- Smoker, 1 pack cigarettes/day
- Diagnosed with depression
- Obstructive sleep apnea

Diet:

- Split 30/70 between home-cooked meals and takeout/ready meals
- Enjoys sugary snacks and alcohol occasionally
- Emotional eating due to stress

Physical activity:

- Sedentary due to lymphedema
- Fatigues easily when attempting to exercise

Comments:

Having difficulty managing comorbidities and functional limitations impacting her mobility and range of motion

According to the Obesity Canada guidelines, what is the first step in managing Susan's weight?

A

Understand her obesity "history"

B

Ask her permission to discuss weight management

C

Reassess her pre-DM, BP, ALT

D

Treatment(s) will depend on her EOSS, BMI & adiposity-related comorbidities

Assessment and Diagnosis of People Living With Obesity

1 ASK FOR PERMISSION

“Would it be okay if we discussed your weight today?”



- Approach patients with compassion and empathy
- Use **Obesity Canada's 5As** of Obesity Management™ to initiate the discussion
- Acknowledge the complexity of this disease
- It's okay if they are not okay to discuss wgt. today.
- A visit for OA may be just that.
- Reinforce that your door is always open

2 ASSESS THEIR STORY



- **Obesity classification**
 - BMI and waist circumference
- **Disease severity**
 - **Edmonton Obesity Staging System**

Use the **4Ms Framework** to perform a complete obesity assessment:



Mechanical



Metabolism



Mental



Social Milieu

Assessment and Diagnosis of People Living With Obesity

3

ADVISE ON MANAGEMENT

- **Focus on building individualized care plans that:**
 - Address the **root causes of obesity when possible**
 - Provide support for behavioural change

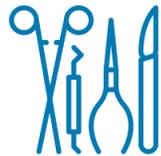


Psychological &

Cognitive Behavioural Interventions, Nutrition & Physical Activity.
Modulators: Sleep, Mental Health, Stress/Mindfulness



Pharmacotherapy



Bariatric surgery

4

AGREE ON GOALS



- **HCPs should collaborate with patients to:**
 - Create a personalized, sustainable action plan
 - Mitigate weight stigma
 - Redefine success "**Best Weight**"
 - Manage Expectations: 5-10-15% loss

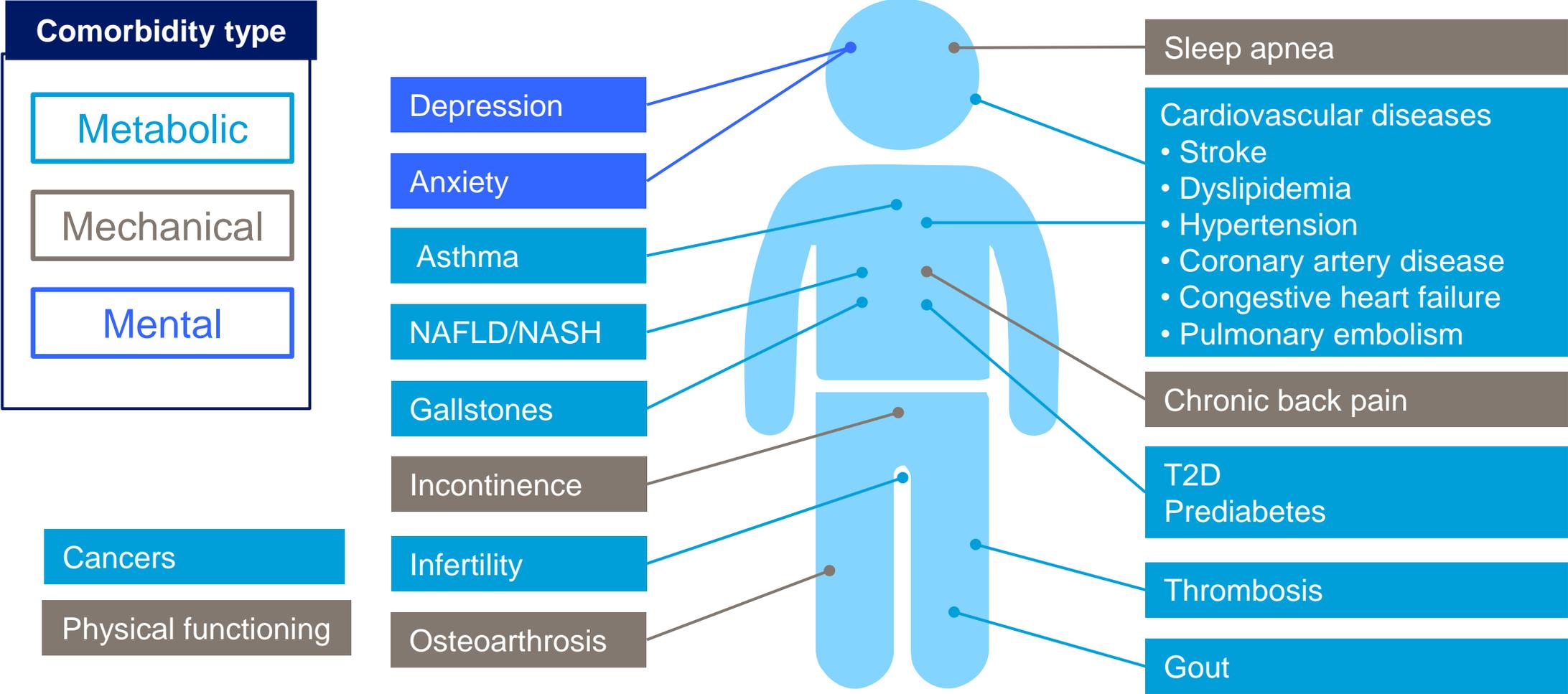
5

ASSIST WITH DRIVERS & BARRIERS



- The personalized action plan should be designed to address the patient's drivers of weight gain

Assessment of Comorbidities: Using the 4Ms Approach



1. Colditz GA, Peterson LL. *Clin Chem* 2018;64:154-162; 2. Durrer Schutz D et al. *Obes Facts* 2019;12:40-66; 3. Garvey WT et al. *Endocrine Practice* 2016;22:1-203; 4. Guh DP et al. *BMC Public Health* 2009;9:88; 5. Heymsfield SB, Wadden TA. *N Engl J Med* 2017;376:254-66.

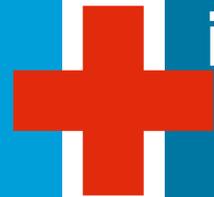
Obesity Can be Associated with a number of Mental Health Issues Which Can Affect Management Efforts

~50%
PwO have
depression

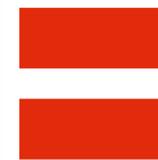
~30%
PwO have
anxiety

10-15%
adults with BMI
>50 exhibiting
intellectual
disability

Can affect
**food
choices**



Can Affect
**impulse control
& eating
patterns**



**Managing
mental health**
is a key aspect of
body weight
regulation

1. Stahel P et al. *Diabetes* 2019;68:2235-46; 2. Boeka AG et al. *Arch Clin Neuropsychol* 2008;23:467-74; 3. Rutledge T. *Obes Surg* 2011;21:1570-1579; 4. Pitzul, KB et al. *Obes Surg* 2014;24:134-40; 5. Shakory S et al. *Appetite* 2015;91:69-74.

Edmonton Obesity Staging System (EOSS)

STAGE 0

- **NO** signs of obesity-related factors
- **NO** physical symptoms
- **NO** psychological symptoms
- **NO** functional limitations

STAGE 1

- Patient has obesity-related subclinical factors **-OR-**
- **MILD** physical symptoms - patient currently not requiring medical treatment for comorbidities **-OR-**
- **MILD** obesity-related psychology and/or mild impairment of well-being

STAGE 2

- Patient has an **ESTABLISHED** obesity-related comorbidity requiring medical intervention **-OR-**
- **MODERATE** obesity-related psychological symptoms **-OR-**
- **MODERATE** functional limitations in daily activities

STAGE 3

- Patient has significant obesity-related end-organ damage **-OR-**
- **SIGNIFICANT** obesity-related psychological symptoms **-OR-**
- **SIGNIFICANT** functional limitations **-OR-**
- **SIGNIFICANT** impairment of well-being

STAGE 4

- **SEVERE** (potential end stage) from obesity-related chronic disease **-OR-**
- **SEVERE** disabling psychological symptoms **-OR-**
- **SEVERE** functional limitations

Assessment and Diagnosis of People Living with Obesity

RECOMMENDATIONS:

1. ... Use the 5As framework to initiate the discussion by asking for their permission and assessing their readiness to initiate treatment
2. Healthcare providers can measure height, weight and calculate BMI in all adults, and measure waist circumference in individuals with a **BMI of 25–35 kg/m²**
3. We suggest a **comprehensive history** to identify root causes of weight gain as well as complications of obesity and potential barriers to treatment be included in the assessment
4. We recommend BP **measurement** in both arms, fasting glucose or A1C and lipid profile to determine cardiometabolic risk and, where appropriate, ALT to screen for nonalcoholic fatty liver disease in PwO
5. We suggest providers consider using the Edmonton Obesity Staging System to determine the severity of obesity and to guide clinical decision making

Susan's Key Concerns

2020 annual
physical



Susan
Age: 42
years

What can Susan's family practitioner do to individualize her ***treatment*** approach so she can reach her individualized goal of not wearing a CPAP for OSA?

What Treatment Tools are Available?

Treatment	BMI category (kg/m ²)				
	≥25	≥27	≥30	≥35	≥40
Behavioural modification Includes nutrition, physical activity, and cognitive-behavioural therapy	With comorbidities	With comorbidities	✓	✓	✓
Pharmacotherapy Adjunct to behavioural modifications; consider if patient has not lost 0.5 kg per week by 3–6 months after behavioural changes		With comorbidities	✓	✓	✓
Bariatric surgery (>18 y.o) Consider if other weight loss attempts have failed. Requires lifelong medical monitoring			Refractory to nonsurgical treatment with comorbidities	With comorbidities	✓



Rx Pillar #1:

Medical Nutrition Therapy in Obesity Management

Previous Guidelines: Optimal “dietary plan” should be developed with an experienced professional—recommending a high-protein or a low-fat diet as a reasonable short-term treatment option (reduce energy intake by 500–1000 kcal/day)

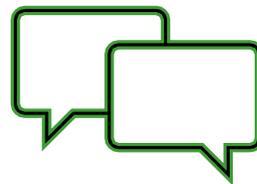


Medical Nutrition Therapy

Evidence-based approach used in the nutrition care process of treating and/or managing chronic diseases that focuses on:



Nutrition Assessment



Therapy and Counselling

AND



Implemented and
monitored by a
Registered Dietitian

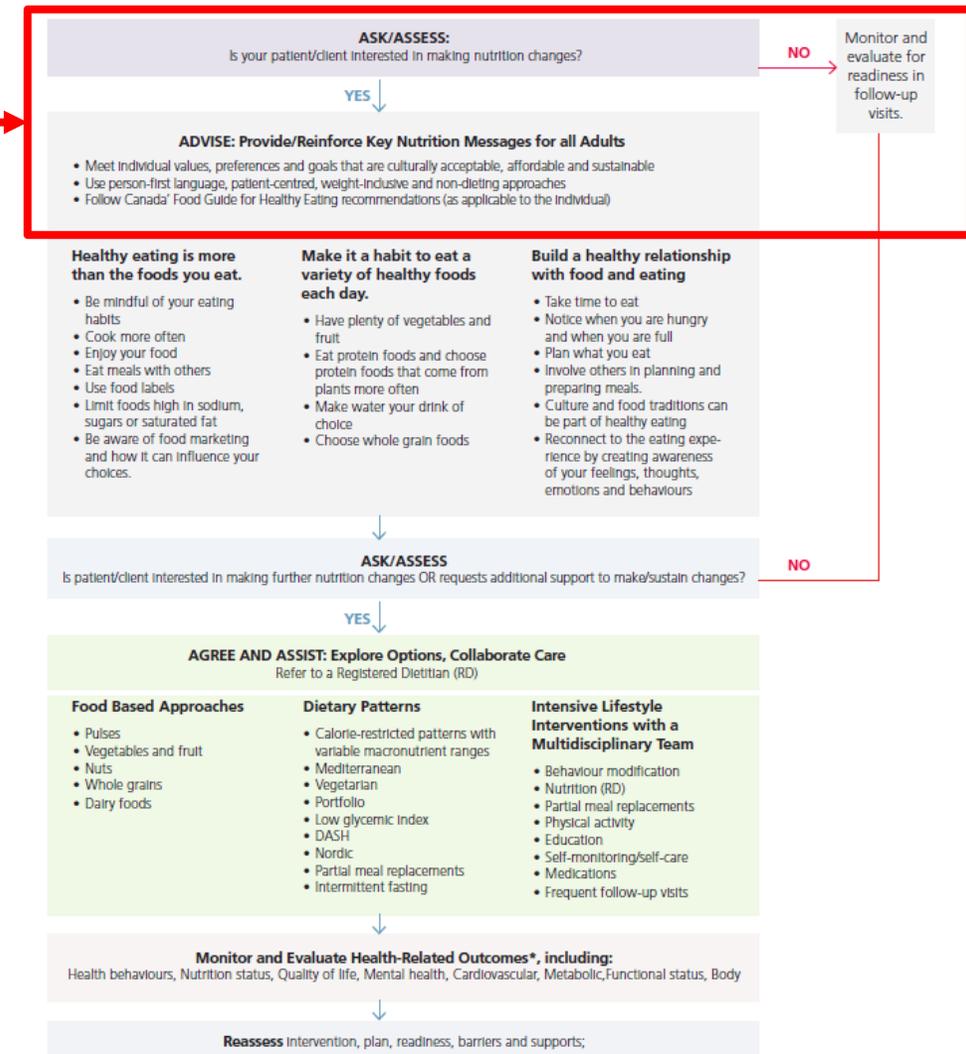


Medical Nutrition Therapy in Obesity Management

- **Nutrition interventions** is now used instead of “diet” to refer to evidence-based, nutrition-related approaches
- It is important to assess if patients are ready for nutrition interventions and ensure that they align with their values, and preferences



Nutrition interventions in obesity management should focus on achieving **health outcomes** for chronic disease risk reduction and emphasize **individualized eating patterns, food quality** and a healthy relationship with food



Medical Nutrition Therapy in Obesity Management

1. We suggest that nutrition recommendations for adults of all body sizes should be personalized to meet individual values, preferences and treatment goals to support a dietary approach that is safe, effective, nutritionally adequate, culturally acceptable and affordable for long-term adherence
2. PwO should receive individualized medical nutrition therapy provided by a registered dietitian (when available) to improve weight outcomes (body weight, BMI), waist circumference, glycemic control, established lipid, and blood pressure targets
3. PwO and impaired glucose tolerance (prediabetes) or type 2 diabetes may receive medical nutrition therapy provided by a registered dietitian (when available) to reduce body weight and waist circumference and improve glycemic control and blood pressure
4. PwO can consider any of the multiple medical nutrition therapies to improve health-related outcomes, choosing the dietary patterns and food-based approaches that support their best long-term adherence
5. PwO and impaired glucose tolerance (prediabetes) should consider intensive behavioural interventions that target a 5–7% weight loss to improve glycemic control, blood pressure and blood lipid targets reduce the incidence of type 2 diabetes, microvascular complications (retinopathy, nephropathy, and neuropathy) and cardiovascular and all-cause mortality
6. PwO and type 2 diabetes should consider intensive lifestyle interventions that target a 7–15% weight loss to increase the remission of type 2 diabetes and reduce the incidence of nephropathy obstructive sleep apnea and depression
7. We recommend a non-dieting approach to improve quality of life, psychological outcomes (general well-being, body image perceptions), cardiovascular outcomes, body weight, physical activity, cognitive restraint and eating behaviour

Medical Nutrition Therapy in Obesity Management

RECOMMENDATIONS:

1. PwO can consider any of the multiple medical nutrition therapies to improve health-related outcomes, choosing the dietary patterns and food-based approaches that support their best long-term adherence
1. PwO and impaired glucose tolerance (**prediabetes**) should consider intensive behavioural interventions that target a **5–7% weight loss** to improve glycemic control, blood pressure and blood lipid targets reduce the incidence of type 2 diabetes, microvascular complications (retinopathy, nephropathy, and neuropathy) and cardiovascular and all-cause mortality
2. **PwO and type 2 diabetes** should consider intensive lifestyle interventions that target a **7–15% weight loss** to increase the remission of type 2 diabetes
1. We recommend a non-dieting approach to improve quality of life...

Pillar #1: Psychological & Behavioural Interventions in Obesity Management

2020

RECOMMENDATIONS:

1. Multicomponent psychological interventions (combining behavioural modifications [**goal-setting, self-monitoring, problem solving i.e. Awareness of "wanting"**], cognitive therapy [**reframing**] and values-based strategies to alter diet and activity) should be incorporated into care plans for weight loss, and improved health status and quality of life in a manner that promotes adherence, confidence and **intrinsic motivation** (level 1b, Grade A)
2. Provide longitudinal care with consistent messaging to support the development of confidence in overcoming barriers (**self-efficacy**) and intrinsic motivation (personal, meaningful reasons to change). To self-monitor behaviour and to analyze setbacks using problem solving and adaptive thinking (**cognitive reframing**)...
3. Health care providers should provide follow-up sessions consistent with repetition and relevance to support the development of self-efficacy and intrinsic motivation. **Explore Cognitive Resilience & Restraint Development**



Rx Pillar #1 Continued: Physical Activity in Obesity Management



- Physical activity is an important part of obesity management
- Regular physical activity induces a wide range of health benefits in adults across all BMI categories:



- **Weight loss should not be used as the only outcome to measure the success of physical activity therapy**

Physical Activity in Obesity Management

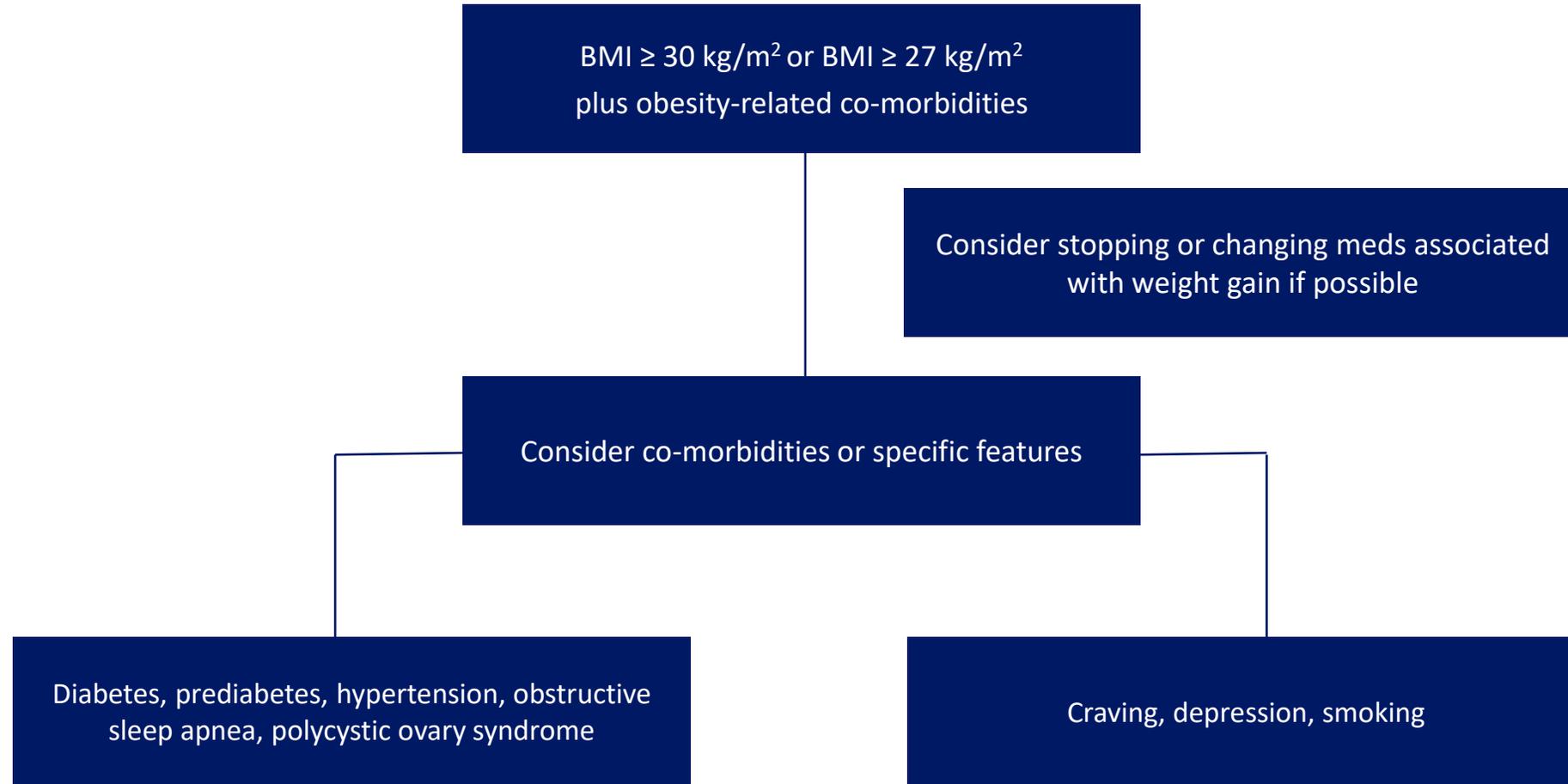


RECOMMENDATIONS:

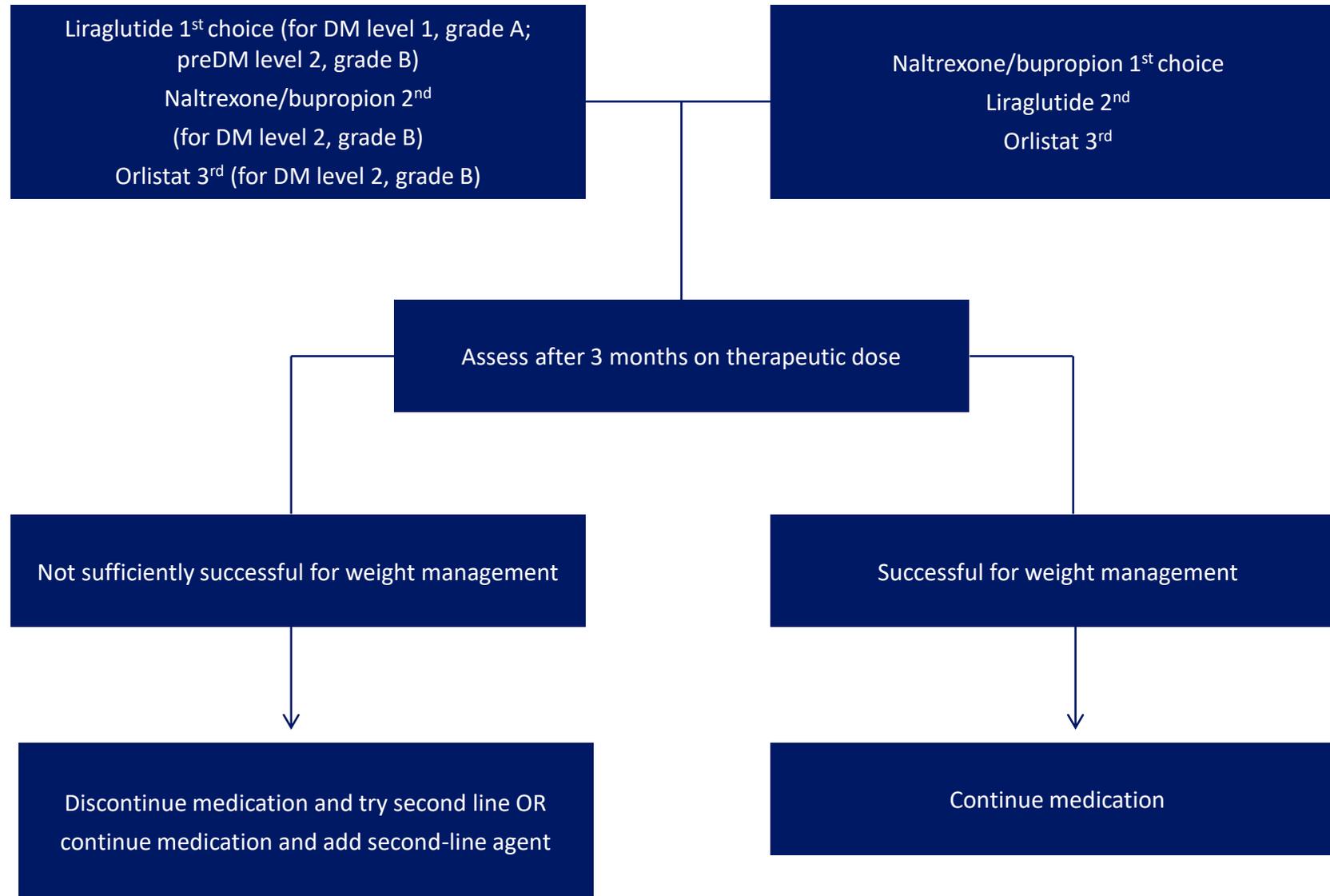
1. **Aerobic physical activity** (30–60 minutes of moderate to vigorous intensity most days of the week) can be considered for adults who want to:
 - a) Achieve small amounts of body weight and fat loss
 - b) Achieve reductions in abdominal visceral fat and ectopic fat such as liver and heart fat even in the absence of weight loss;
 - c) Favour weight maintenance after weight loss
 - d) Favour the maintenance of fat-free mass during weight loss and;
 - e) Increase cardiorespiratory fitness and mobility
2. For adults living with overweight or obesity, **resistance training** may promote weight maintenance or modest increases in muscle mass or fat-free mass and mobility
3. **Increasing exercise intensity**, including high-intensity interval training, can achieve greater increases in cardiorespiratory fitness and reduce the amount of time required to achieve similar benefits as from moderate-intensity aerobic activity
4. **Regular physical activity, with and without weight loss, can improve many cardiometabolic risk factors** in adults who have overweight or obesity, including:
 - Hyperglycemia and insulin sensitivity
 - High blood pressure
 - Dyslipidemia
5. Regular physical activity can improve **health-related QoL, mood disorders** (i.e., depression, anxiety) and body image in adults with overweight or obesity

Pillar #2: Pharmacotherapy

Algorithm: Choice of Obesity Pharmacotherapy



Algorithm: Choice of Obesity Pharmacotherapy



Pharmacotherapy in Obesity Management

- **Efficacy evaluated by:**

- Weight loss at 1 year (i.e., % of patients achieving $\geq 5\%$ and $\geq 10\%$ weight loss), weight loss over longer term, and weight maintenance of previous weight loss

AND

- Their effect on other health parameters such as prediabetes, type 2 diabetes, NASH, PCOS, OSA, etc.

- **Other considerations:**

- Cost
- Safety

	Orlistat	Liraglutide	Naltrexone/Bupropion
Mode of administration	Oral	Subcutaneous	Oral
Dose/frequency	120 mg TID	3.0 mg daily	16/180 mg BID
Effect on % weight loss at 1 year, placebo subtracted	-2.9% ⁵	-5.4% ¹	-4.8% ⁴
Effect on weight over longer term, placebo subtracted	-2.8kg at 4 years ¹⁰	-4.2% at 3 years ⁷	Not studied
% of patients achieving $\geq 5\%$ weight loss at 1 year	54% (vs 33% in placebo) ⁵	63.2% (vs 27.1% in placebo) ⁷	48% (vs 16% in placebo) ⁴
% of patients achieving $\geq 10\%$ weight loss at 1 year	26% (vs 14% in placebo) ⁵	33.1% (vs 10.6% in placebo) ⁷	25% (vs 7% in placebo) ⁴
Effect on maintenance of previous weight loss	2.4kg less weight regain vs placebo ¹⁰	-6.0% additional placebo-subtracted ⁷	Not studied
Effect on prediabetes	37.3% reduction in risk of developing T2DM over 4 years ¹⁰	79% reduction in risk of developing T2DM over 3 years ⁷	Not studied
Effect on BP at 1 year, placebo subtracted	-1.9 mmHg SBP -1.5 mmHg DBP ¹⁰	-2.8mmHg SBP -0.9mmHg DBP ⁷	+1.8mmHg sBP +0.9mm Hg dBp ⁴
Effect on lipids at 1 year, placebo subtracted	-0.27 mmol/L total chol -0.21 mmol/L LDL -0.02 mmol/L HDL -0.00 mmol/L TG ¹⁰	-2.3% total chol -2.4% LDL +1.9% HDL -3.9% nonHDL -9.3% TG ⁷	-1.5 % LDL +7.2% HDL -9.6 % TG ⁴
Effect on HR at 1 year, placebo subtracted	No change	+2.4 BPM ⁷	+1.1 BPM ⁴
Effect on A1C in patients with diabetes at 1 year, placebo subtracted	-0.4% ⁶	-1.0% ⁷	-0.5% ⁸
Effect on NASH	No improvement	Improvement ¹¹	Not studied
Effect on PCOS	Not studied	-5.2 kg placebo subtracted weight loss at 6mo; no data on menstrual cyclicity ¹²	Not studied
Effect on OA	Not studied	Not studied	Not studied
Effect on OSA	Not studied	Reduces AHI by 6/hr ¹³	Not studied
Cost	\$\$	\$\$\$\$	\$\$\$
Contraindications	<ul style="list-style-type: none"> • Cholestasis • Chronic malabsorption syndrome¹⁴ • Pregnancy 	<ul style="list-style-type: none"> • Past history of pancreatitis • Personal or family history of medullary thyroid cancer • Personal history of MEN2 syndrome • Pregnancy 	<ul style="list-style-type: none"> • Uncontrolled hypertension • Any opioid use • History of, or risk factors for, seizure • Abrupt discontinuation of alcohol • Concurrent administration of monoamine oxidase inhibitors (MAOI) • Severe hepatic impairment • End-stage renal failure • Pregnancy
Common side effects	Loose, oily stools, flatus	Nausea, constipation, diarrhea, vomiting	Nausea, constipation, headache, dry mouth, dizziness, diarrhea
Rare side effects	<ul style="list-style-type: none"> • Liver failure • Nephrolithiasis • Acute kidney injury 	Pancreatitis Cholelithiasis	<ul style="list-style-type: none"> • Seizure • Worsening of depression
Drug interactions	<ul style="list-style-type: none"> • Fat-soluble vitamins • Levothyroxine • Cyclosporine • Oral anticoagulants/anticonvulsants¹⁵ 	May affect absorption of medications due to slowing of gastric emptying	Yes: See chapter text



Pharmacotherapy in Obesity Management

From Orlistat to now 3 pharmacotherapy options for obesity management:

	 Orlistat (Xenical®)	 Liraglutide 3.0 mg (Saxenda®)	 naltrexone/bupropion (Contrave®)
NOC	1999	2015	2018 (sustained release formulation)
MoA	<ul style="list-style-type: none">• Gastric and pancreatic lipase inhibitor• Inhibits the breakdown of dietary triglycerides into absorbable free fatty acids• Reduces fat absorption• Does not specifically target appetite or satiety mechanisms	<ul style="list-style-type: none">• Human GLP-1 analog• Acts on POMC/CART neurons to improve satiation and satiety and reduce hunger• Transient effect to decrease gastric emptying• Increases insulin release and suppresses glucagon. Acts independently of glucose	<ul style="list-style-type: none">• Opioid receptor antagonist/norepinephrine-dopamine reuptake inhibitor (NDRI)• Induces satiety by acting on the POMC cells in the hypothalamus• Influences the mesolimbic reward system to reduce cravings
Recommended dose	<ul style="list-style-type: none">• 120 mg TID (during or up to 1 hour after meals)	<ul style="list-style-type: none">• 3.0 mg daily• Titration by 0.6 mg daily each week until the 3.0 mg target dose achieved	<ul style="list-style-type: none">• 2 tablets BID (total daily dose 32 mg/360 mg)• 1 tablet daily (first week), increase by 1 tablet each week until maintenance dose achieved

CART, cocaine- and amphetamine-regulated transcript; GLP-1, glucagon-like peptide 1; MoA, mechanism of action; MSH, melanocyte stimulating hormone; NOC, notice of compliance; POMC, pro-opiomelanocortin; TID, three times daily.

Pedersen SD, et al. Canadian Adult Obesity Clinical Practice Guidelines: Pharmacotherapy in Obesity Management. Available from: <https://obesitycanada.ca/guidelines/pharmacotherapy>.

Contraindications & Precautions

	Orlistat (Xenical®)	Liraglutide 3.0 mg (Saxenda®)	Naltrexone/bupropion (Contrave®)
Contra- indications and precautions	<ul style="list-style-type: none"> • Chronic malabsorption syndrome • Cholestasis • Pregnancy • Rare side effects: nephrolithiasis, AKI • Reduced absorption: fat soluble vitamins, levothyroxine, coumadin, anticonvulsants 	<ul style="list-style-type: none"> • Multiple Endocrine Neoplasia syndrome (MEN2) • Personal or family history of medullary thyroid cancer (MTC) • Pancreatitis • Pregnancy/breastfeeding • Rare side effect: cholelithiasis 	<ul style="list-style-type: none"> • Uncontrolled hypertension • Seizure disorders, anorexia nervosa or bulimia • Any opioid use • Abrupt discontinuation of alcohol • During or within 14 days of taking MAOI • Severe hepatic impairment • ESRD • Pregnancy • Side Effects: N/V, constipation, headache, dry mouth, dizziness, diarrhea • Many drug interactions: i.e. citalopram, tamoxifen, etc.

Pharmacotherapy in Obesity Management



Pharmacotherapy: Effects on weight loss and weight maintenance

% Weight loss (1 year) <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat Naltrexone/bupropion 	Weight over longer term <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat
% of patients achieving ≥5% weight loss (1 year) <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat Naltrexone/bupropion 	% of Patients achieving ≥10% weight loss (1 year) <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat Naltrexone/bupropion
Effect on maintenance of previous weight loss <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat 	

Pharmacotherapy: Effects on other health parameters

Prediabetes <ul style="list-style-type: none"> Liraglutide 3.0 mg *79% ↓ in 3 years Orlistat 	Type 2 diabetes <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat Naltrexone/bupropion
Other CV risk factors <ul style="list-style-type: none"> Liraglutide 3.0 mg 	NASH <ul style="list-style-type: none"> Liraglutide 3.0 mg Orlistat
PCOS <ul style="list-style-type: none"> Liraglutide 3.0 mg 	OSA <ul style="list-style-type: none"> Liraglutide 3.0 mg
Mental Health & QoL <ul style="list-style-type: none"> Liraglutide 3.0 mg Naltrexone/bupropion 	

Pharmacotherapy in Obesity Management



RECOMMENDATIONS:

1. Pharmacotherapy for weight loss can be used for individuals with BMI ≥ 30 kg/m² or BMI ≥ 27 kg/m² with adiposity-related complications, in conjunction with medical nutrition therapy, physical activity and psychological interventions (liraglutide 3.0 mg, naltrexone/bupropion combination, orlistat)
2. Pharmacotherapy may be used to **maintain weight loss** that has been achieved by health behaviour changes, and to prevent weight regain (liraglutide 3.0 mg or orlistat)
3. For people living **with type 2 diabetes and a BMI ≥ 27 kg/m²**, pharmacotherapy can be used in conjunction with health behaviour changes for weight loss and improvement in glycemic control (**liraglutide 3.0 mg, naltrexone/bupropion combination, orlistat**)
4. We recommend pharmacotherapy in conjunction with health behaviour changes for people living with prediabetes and overweight or obesity (BMI > 27 kg/m²) to **delay or prevent type 2 diabetes** (Liraglutide 3.0 mg, orlistat)
5. **We do not suggest the use of prescription or OTC medications** other than those approved for weight management
6. For people living with overweight or obesity who require pharmacotherapy for other health conditions, we suggest **choosing drugs that are not associated with weight gain**

Your next follow-up visit with Susan

18 month follow-up



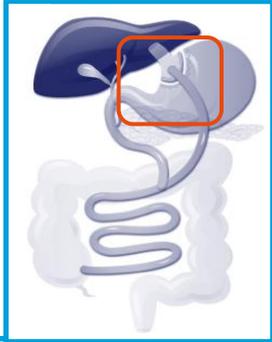
Susan
Age: 43
years

After 1.5 years, Susan's weight has plateaued and she finds it difficult to adhere to daily injections ...

When would you consider bariatric surgery?

Pillar #3: Bariatric Surgery

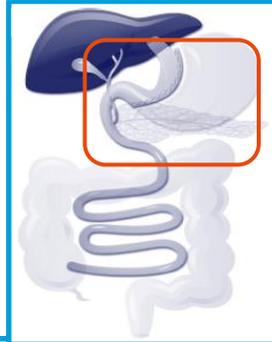
Roux-en-Y gastric bypass



Creates a smaller stomach and bypasses part of the intestine; results in ↑ GLP-1 (satiety hormone)

- 1-year weight loss: **23–43%**
- **18%** of total procedures in US³
- **45%** of total procedures in UK⁴

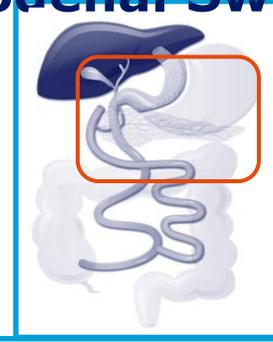
Sleeve gastrectomy



Permanently removes most of the stomach, leaving a sleeve-shaped pouch; results in ↓ ghrelin (hunger hormone)

- 1-year weight loss: **20–28%**
- **59%** of total procedures in US³
- **36%** of total procedures in UK⁴

Biliopancreatic diversion "Duodenal Switch"



Similar to Roux-en-Y. A variant called a duodenal switch retains the pyloric valve

- 1-year weight loss: **38–52%**
- **1%** of total procedures in US³
- **0.2%** of total procedures in UK⁵

Refer to the Obesity Canada guidelines on post-operative surgical care and long-term management strategies for more information

ASMBS, American Society for Metabolic Bariatric Surgery; GLP-1, glucagon-like peptide-1.

1. Piche ME et al. *Can J Cardio* 2015;31:153–66; 2. ASMBS Bariatric Surgery Procedures 2014. Available at: <http://asmbs.org/patients/bariatric-surgery-procedures>; 3. ASMBS Estimate of Bariatric Surgery Numbers 2017. Available at: <https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers>;

4. British Obesity & Metabolic Surgery Society. Third NBSR Report preview 2018. Available at: <https://www.bomss.org.uk/third-nbsr-report-preview/>;

5. Angrisani L et al. *Obes Surg* 2017;27:2279–2289.

Bariatric surgery is associated with a number of potential short-term and long-term complications

Short-term complications (discharge to 30 days)^{3,4,5}

30-day morbidity

- Rate of any occurrence: 3.5–5.8%
- Superficial surgical site infection
- Pneumonia
- Urinary tract infection
- Post-operative sepsis
- Post-operative septic shock

Risk factors for complications

- Type of surgery
 - Increased risk with open procedures
- High ASA class (III, IV, V)
- Functionally dependent patient
- Hypertension as a comorbidity

30-day mortality: Low ($\leq 0.3\%$)

Long-term complications (≥ 30 after surgery)

Vitamin and mineral deficiencies^{1,2}

Psychological – ↑ risk of suicide + alcohol abuse¹

Food intolerances, vomiting, regurgitation¹

Weight regain¹

Increased risk of fractures⁶

Post-prandial hypoglycemia

ASA, American Society of Anaesthesiologists physical status classification system; LAGB, laparoscopic adjustable gastric banding; LRYGB, laparoscopic Roux-en-Y gastric bypass.

1. Busetto L et al. *Obes Facts* 2017;10:597–632; 2. Lupoli R et al. *World J Diabetes* 2017;8:464–74; 3. Guerrier JB et al. *Obes Surg* 2018;28:3567–72; 4. Böckelman C et al. *Obes Surg* 2017;27:2444–51; 5. Hutter MM et al. *Ann Surg* 2006;243:657–62; 6. Axelsson KF et al. *J Bone Miner Res* 2018;33:2122–31; 7. Shiao J and Biertho L. Canadian Adult Obesity Clinical Practice Guidelines: Bariatric Surgery: Postoperative Management. Available from: <https://obesitycanada.ca/guidelines/postop>.

London Health Sciences

London Health Sciences (LHSC) is a Bariatric Centre of Excellence (BCoE), with a team of bariatric experts promoting the collaboration and use of best practices around the care of people suffering with obesity and obesity related diseases. Our London BCoE currently offers only a Surgical Program.

Surgical Program

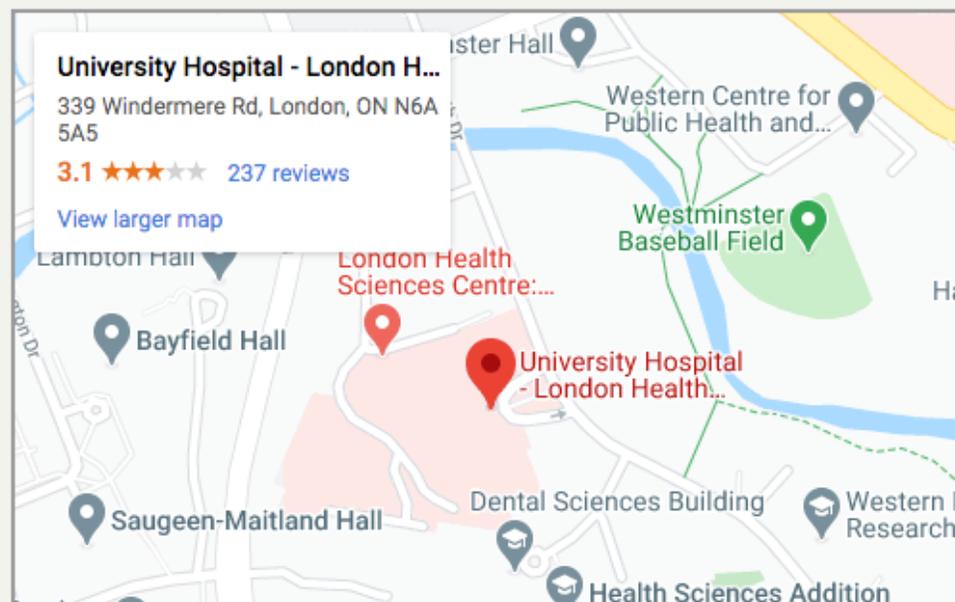
The interdisciplinary bariatric team at LHSC, which includes 2 bariatric surgeons, provides comprehensive pre-operative, peri-operative, and post-operative care for their Surgical Program patients. Patients receive thorough assessments and education prior to bariatric surgery, and are closely followed post-operatively for a period of up to 5 years.

More Information

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Summary



- The prevalence of obesity in adults is rising; PwO often face bias and stigma, which contributes to increased morbidity and mortality, independent of weight
- The new guidelines were a long time coming! They now re-define obesity not just as a measure of “size”, but as a “prevalent, complex, progressive and relapsing chronic disease, characterized by abnormal or excessive body fat (adiposity), that impairs health”
- Obesity care is now ***patient-centric*** to address the root drivers of obesity
- The guidelines were developed for Primary Care Practitioners. Offer long-term support & follow-up. Be positive. Don’t “give up”!
- 5-10% weight loss can matter to health
- The guidelines are also a “call to action”. Lack of access for evidence-informed interventions continues...

Thank-you & Questions?

