Assess obesity-related risks and root causes of obesity

Session 4

World Health Organization
REGIONAL OFFICE FOR **Europe**

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Всемирная организация здравоохранения
Европейское региональное бюро

ASK for Permission to Discuss Weight

ASSESS obesity related risk and potential 'root causes' of weight gain

ASSIST in addressing drivers & barriers, offer education & resources, refer to provider, and arrange follow-up

ADVISE on obesity risks, discuss benefits & options

AGREE on realistic weight-loss expectations and on a SMART plan to achieve behavioural goals

STEP 1

Assess

- Assess obesity class and stage.

- Assess for obesity drivers, complications and barriers (the 4 Ms).

- Assess for root causes of weight gain.
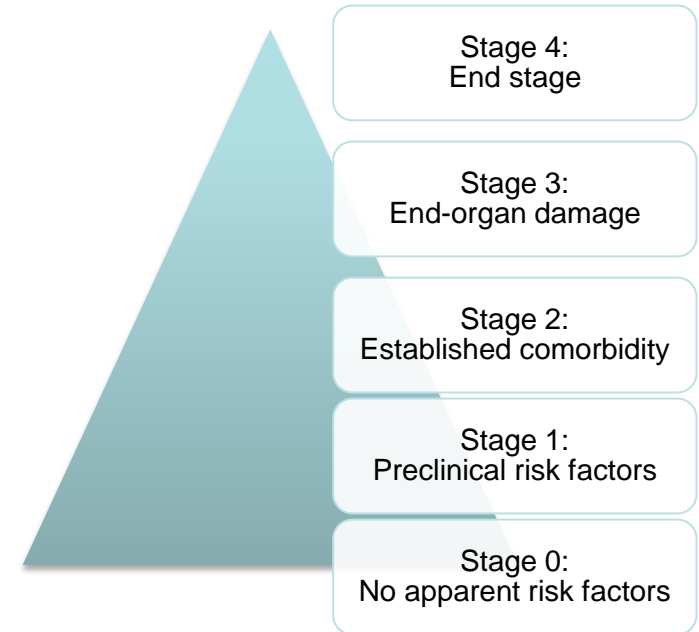
Assess

Assess obesity class and stage.

- Obesity class (I–III) is based on BMI and is a measure of how **big** the patient is.

- Obesity stage (0–4) is based on the **medical**, **mental** and **functional** impact of obesity and is a measure of how **healthy** the patient is.

- Waist circumference provides additional information regarding **cardiometabolic** risk.

Source: Obesity Canada, 5As of Obesity Management

Assess (adults)

BMI	kg/m²
Underweight	≤ 18.5
Normal weight	18.6–24.9
Overweight	25.0–29.0
Obesity class I	30.0–34.90
Obesity class II	35.0–39.9
Obesity class III	≥ 40

Stage 4:
End stage

Stage 3:
End-organ damage

Stage 2:
Established comorbidity

Stage 1:
Preclinical risk factors

Stage 0:
No apparent risk factors

Edmonton Obesity Staging System (EOSS)

Ethnicity makes a difference to risk from BMI

Black, Asian and other ethnic groups risk developing some chronic conditions, such as type 2 diabetes, at a lower BMI than Caucasians.

Risk ranges for these ethnic groups:

- adults with a BMI of 23 or more are at **increased** risk (equivalent to overweight range risk);

- adults with BMI of 27.5 or more are at **high** risk (equivalent to obese range risk).

Waist circumference can be used to assess adult cardiovascular risk

Male risk ranges
Normal <94 cm
Increased risk
94–102 cm
High risk >102 cm

Female risk ranges
Normal <80 cm
Increased risk 80–88 cm
High risk >88 cm

Table 5.1 Combined recommendations of body mass index and waist circumference cut-off points made for overweight or obesity, and association with disease risk

	Body mass index	Obesity class	Disease risk (relative to normal weight and waist circumference)	
			Men < 102 cm Women < 88 cm	Men >102 cm Women >88 cm
Underweight	<18.5			
Normal	18.5–24.9			
Overweight	25.0–29.9		Increased	High
Obesity	30.0–34.9	I	High	Very high
	35.0–39.9	II	Very high	Very high
Extreme obesity	>40.0	III	Extremely high	Extremely high

Source: NHLBI Obesity Education Initiative (2000)

Table 5.2 International Diabetes Federation criteria for ethnic or country-specific values for waist circumference

Country or ethnic group	Sex	Waist circumference (cm)
Europid	Men Women	>94 >80
South Asian	Men Women	>90 >80
Chinese	Men Women	>90 >80
Japanese	Men Women	>90 >80

Source: Adapted from Zimmet & Alberti (2006)

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Assess (pregnancy)

ASSESS

Obesity Class

Prepregnancy BMI	Mean[a] rate of weight gain in the 2nd and 3rd trimester		Recommended total weight gain[b] (for singleton pregnancies)	
	kg/week	lb/week	kg	lbs
Underweight (<18.5kg/m^2)	0.5	1.0	12.5 – 18	28 – 40
Normal weight (18.5-24.9kg/m^2)	0.4	1.0	11.5 – 16	25 – 35
Overweight (25.0-29.9kg/m^2)	0.3	0.6	7 – 11.5	15 – 25
Obese (≥30.0kg/m^2)[c]	0.2	0.5	5 – 9	11 – 20

Taken from Health Canada website: www.hc-sc.gc.ca/fn-an/nutrition/prenatal/ewba-mbsa-eng.php
a.   Rounded values
b.   Calculations for the recommended weight gain range assume a gain of 0.5 to 2 kg (1.1 to 4.4 lbs) in the first trimester (Siega-Riz et al., 1994; Abrams et al., 1995; Carmichael et al., 1997).
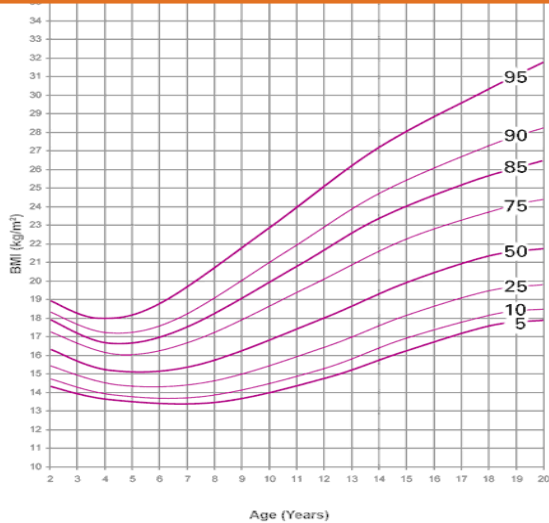c.   A lower weight gain may be advised for women with a BMI of 35 or greater, based on clinical judgement and a thorough assessment of the risks and benefits to mother and child (Crane et al., 2009; Oken et al., 2009; Hinkle et al., 2010).
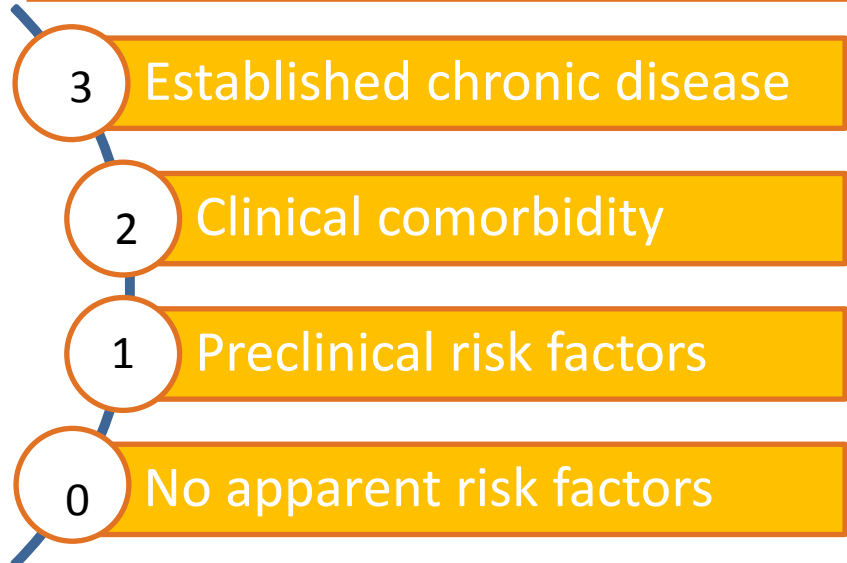
Assess (paediatrics)

- Assess obesity status and stage.

- Obesity status in children is defined using BMI growth charts specific for age and gender.

- Obesity stage is based on the 4Ms (Mental, Mechanical, Metabolic and Milieu), which quantify the impact of obesity on children's overall health.

Assess (paediatrics)

Obesity class
BMI for age percentiles

Obesity stages (EOSS-P*)

3 Established chronic disease

2 Clinical comorbidity

1 Preclinical risk factors

0 No apparent risk factors

* Edmonton Obesity Staging System - Paediatrics

Childhood growth trends shine a light on health

- Growth is the best indicator of health.

- Demonstrate normal growth by age and stage of puberty – and consider parental height.

- Identify disorders of growth.

- Assess obesity.

- Isolated readings of weight, height or BMI percentile are inadequate – assess trends; ensure they relate to the appropriate age/sex reference ranges, which change throughout childhood.

Use BMI percentile or z-score for children

- **DO NOT** use adult BMI reference ranges for children.
- Child reference ranges vary constantly, according to age, sex and pubertal growth spurt.
- BMI percentile takes account of this variation and so allows comparison at different ages.
- z-score uses standard deviation from the mean.

BMI-for-age BOYS
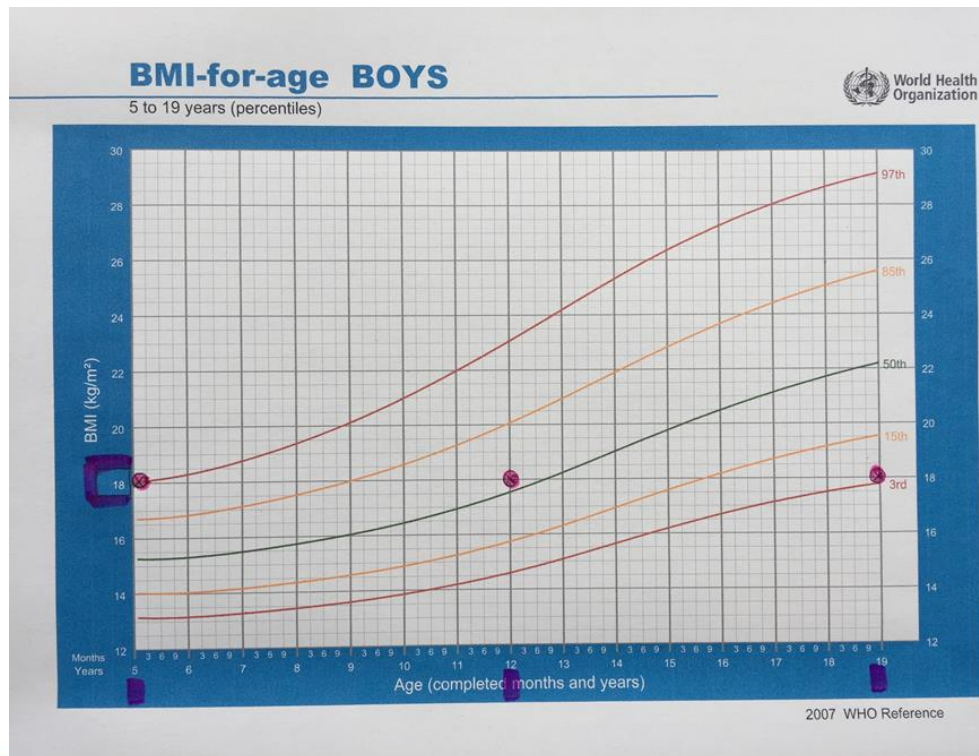5 to 19 years (z-scores)

2007 WHO Reference
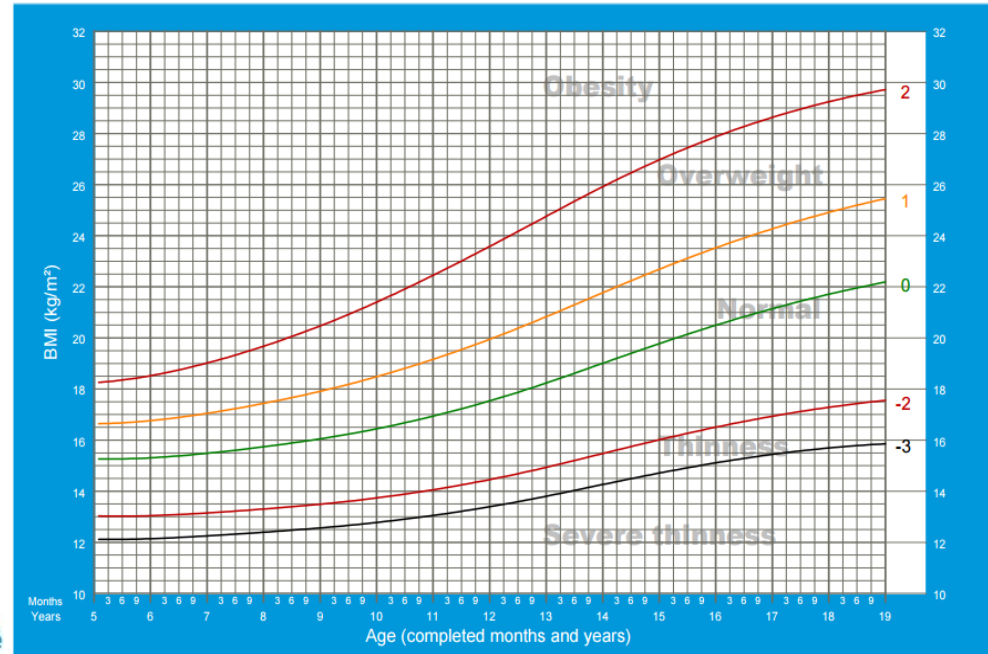
Why is BMI not helpful for children?

This example shows three boys, all with BMI 18.
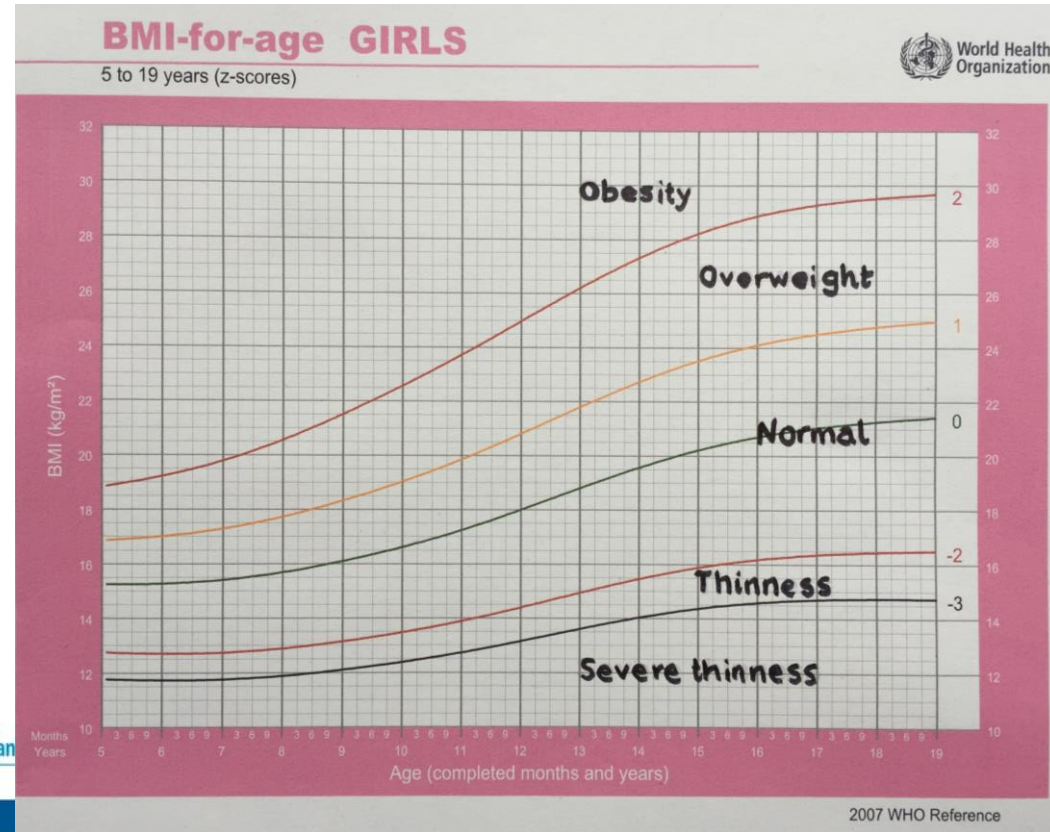
Joseph
aged 5 = obese, 97th centile

Leon
aged 12 = normal, 50th centile

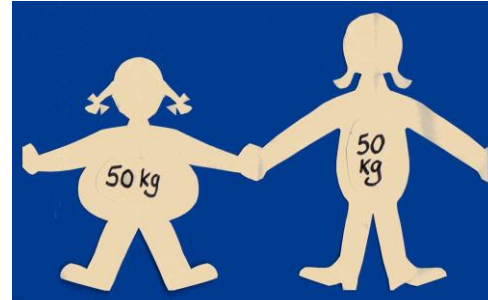*Marik*
aged 19 = approaching underweight, 3rd centile

z-score chart showing BMI for age – girls

- *Overweight range* >1 standard deviation from mean

- *Obesity* >2 standard deviations from mean

- *Thinness* >2 standard deviations from mean

Interpreting BMI for age

- A child whose weight is average for their height will have a BMI for age between the 25th and 75th percentiles.

- During childhood, children are still growing, e.g. bone and muscle mass. Caution is therefore needed with regard to restrictive dieting.

- However, growing into one's weight – the process of a child "stretching" by gaining height while the rate of weight gain slows – is only possible if adult height has not yet been reached.

- The idea of advising children about growing into their weight may be falsely reassuring for the older primary school child, as the window for growth in height is less.

- Children who have reached full height require weight loss in order to normalize BMI.

Exercises: using growth charts

Divide into pairs or small groups.

Exercise F1: Using percentile and z-score charts – Billy

Exercise F2: Interpreting a growth trend over time – Ivan

Exercise F3: Comparing different growth trends – Marie and Tia

Assess: the 4 Ms of obesity management (adults)

ASSESS

Assess for Obesity Drivers, Complications, and Barriers
- Use the 4Ms framework to assess Mental, Mechanical, Metabolic, and Monetary drivers, complications, and barriers to weight management.

The 4Ms of Obesity

Mental	Mechanical	Metabolic	Monetary
Cognition	Sleep Apnea	Type 2 Diabetes	Education
Depression	Osteoarthritis	Dyslipidemia	Employment
Attention Deficit	Chronic Pain	Hypertension	Income
Addiction	Reflux Disease	Gout	Disability
Psychosis	Incontinence	Fatty Liver	Insurance
Eating Disorder	Thrombosis	Gallstones	Benefits
Trauma	Intertrigo	PCOS	Bariatric Supplies
Insomnia	Plantar Fasciitis	Cancer	Weight-Loss Programs

5As of Obesity Management © 2012 Canadian Obesity Network

Assess: the 4 Ms tools

- Video that shows a role play between a physician and a patient using the 4 Ms of obesity management (14 minutes)
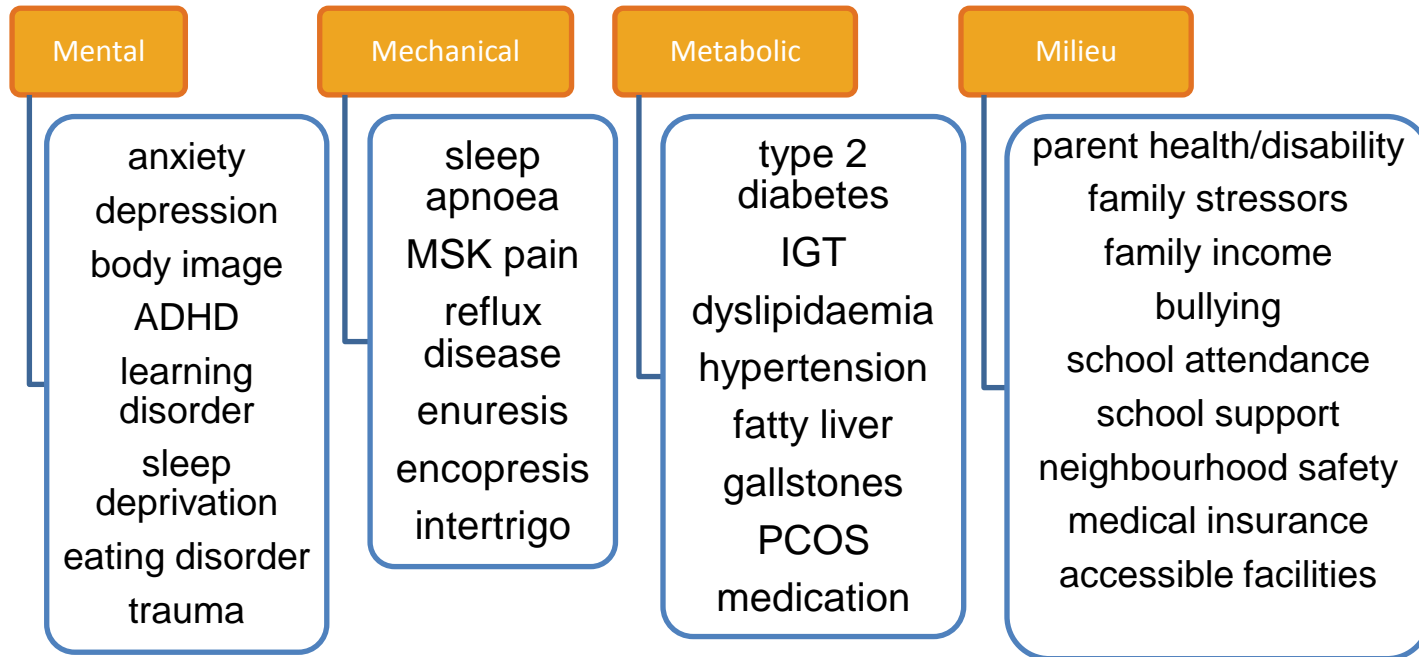
    - https://www.youtube.com/watch?v=vRtYo9sPJBI

Assessing the root causes of weight gain in adults
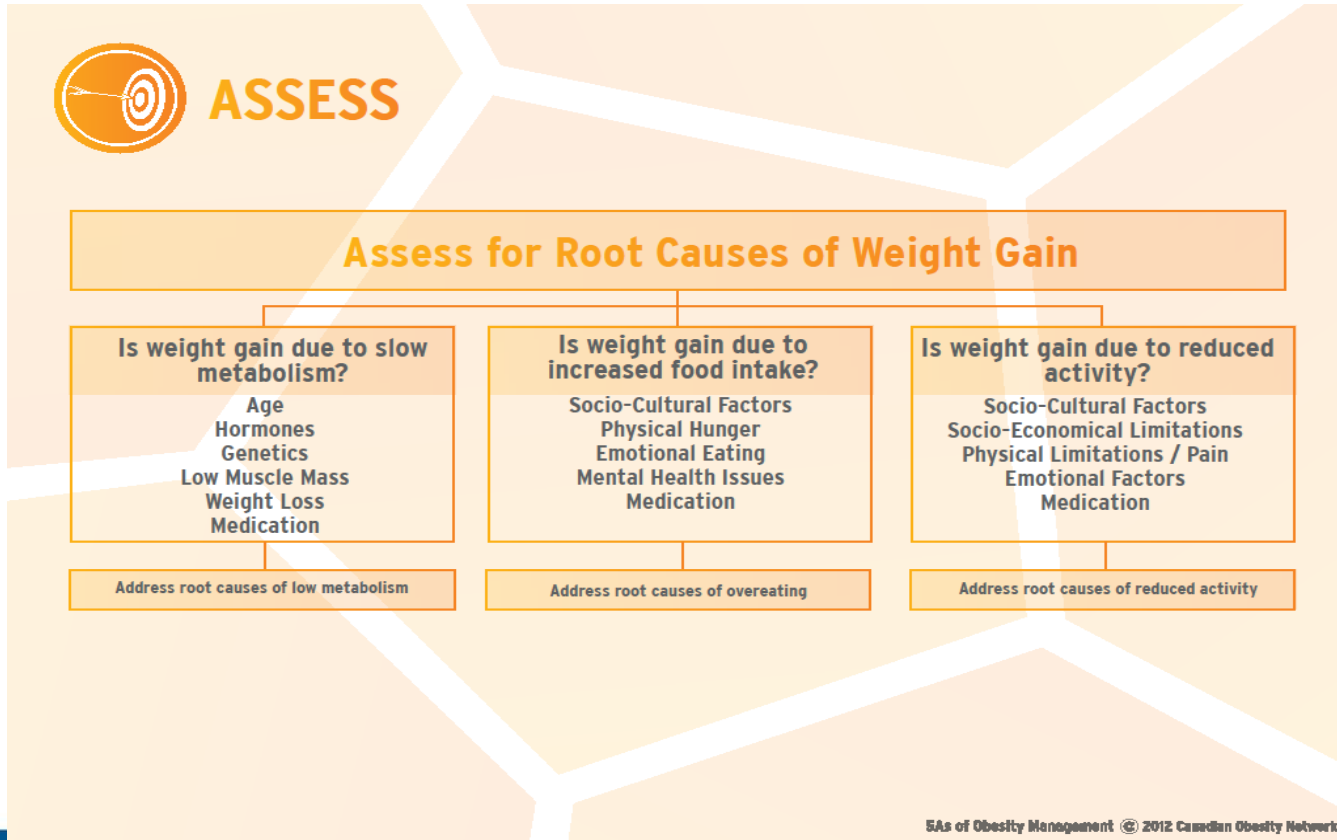
Assess: the 4 Ms of obesity in children and youth

Mental	Mechanical	Metabolic	Milieu
anxiety	sleep apnoea	type 2 diabetes	parent health/disability
depression	MSK pain	IGT	family stressors
body image	reflux disease	dyslipidaemia	family income
ADHD	enuresis	hypertension	bullying
learning disorder	encopresis	fatty liver	school attendance
sleep deprivation	intertrigo	gallstones	school support
eating disorder		PCOS	neighbourhood safety
trauma		medication	medical insurance
			accessible facilities

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Obesity Management

Assessing the root causes of paediatric and adolescent obesity

Sleep
- Quality and quantity
- Sleep and wake times – weekdays vs. weekends
- Presence of screens in bedrooms

Eating behaviours
- Eating of regular meals and snacks
- Binge-eating
- Restrictive eating

Physical activity
- Quantity and intensity
- Free play, organized activities
- Specific interests, dislikes
- Previous experiences with physical activity

Sedentary behaviour
- Total screen time per day
- Use of motorized transportation

Mental health
- Stigma and bullying
- Previous and current stressors – family stress, relationships, school, work
- Body image and self-esteem
- Anxiety and depression

Medical
- Medications
- Untreated sleep apnoea
- Sleep deprivation
- Endocrine or genetic disorder
- MSK or mobility disorder

Assess: the 4 Ms of gestational weight gain

ASSESS

The 4Ms of Gestational Weight Gain:

Mental
- Addiction
- Anxiety
- Body Image
- Depression
- Emotional eating and eating disorders
- Cravings and aversions
- Insomnia

Mechanical
- Incontinence
- Pain
- Sleep disturbance
- Disability and reduced mobility

Metabolic
- Diabetes mellitus
- Hyperemesis gravidarum and nausea
- Medications
- Multiple gestation
- Preeclampsia

Milieu
- Family structure including relationships and children
- Employment
- Ethnicity and culture
- Accessibility to healthy food
- Income
- Support at home and at work

Psychosocial assessment

- The most important information for developing a tailored and feasible weight management plan.

- Living conditions can provide information on barriers and opportunities for obesity management.

- Socioeconomic status affects obesity rates and impacts ability to purchase food/medications required for obesity management.

- Mental health issues may also affect obesity management strategies (depression, anxiety, eating disorders).

Assess for common psychosocial factors

Social and cultural

- Income, social status, marital status, living situation (family structure), cultural background, personal feelings regarding weight and obesity (weight bias), occupation, geographical location, technology.

Psychosocial

- Depression, anxiety, eating disorder (restrained eating, binge eating disorder, bulimia, night eating syndrome), substance abuse, abuse (physical, mental, sexual), internalized weight bias, work and sleep schedule, overall quality of life.

Nutritional assessment

Food intake

- Amount, timing, frequency, availability of foods at home, food preparation skills, consumption of food outside the home, hunger, rate of eating and satiety cues, macronutrient assessment.

Food behaviours

- Cravings, emotional experiences around food, cognitive stimuli, experience of lack of control, feelings before, during and after eating, triggers, emotional eating, eating when not hungry, following a very restrictive diet, previous attempts, food intake changes and weight loss (yo-yo dieting).

Nutritional assessment

- A person's eating pattern can provide information about the possible influence of nutritional intake on weight; this can inform a treatment plan.

- Dietary information tools: 24-hour recall; seven-day food records; food frequency questionnaires; structured interviews.

  - Interpret dietary data with caution (under- and over-reporting are very common).

Binge eating disorder (BED)

DSM-5 criteria for BED

1. Recurrent episodes of binge eating (same as bulimia nervosa).
2. Binge eating episodes are associated with three (or more) of the following:
   - eating much more rapidly than normal;
   - eating until feeling uncomfortably full;
   - eating large amounts of food when not feeling physically hungry;
   - eating alone because of embarrassment;
   - feeling disgusted with oneself, depressed, or very guilty after overeating.
3. Marked distress regarding binge eating is present.
4. At least once a week for three months.
5. Individuals with obesity and BED report greater concern with weight, shape, eating and disordered eating.

Physical activity (PA) assessment

Assess

- current PA level

- motivation to increase PA level

- impairments that may reduce PA level

Physical activity (PA) history

- Can the patient exercise? Mobility and equipment needs?

- PA activity, endurance and fitness status: current activity level (intensity, minutes per week doing cardiovascular and resistance activities).

- Assess where person may be able to increase PA (e.g. gym, workplace, urban versus rural setting).

- PA preferences: previous exercise experiences (successes and failures).

- Perceived barriers to PA: what activity did the person stop? Why did the person stop exercising? When did the person stop exercising?

Mobility and functional limitations

- Obesity can lead to functional limitations and disabilities with age in both men and women.

- It is important to assess patients with obesity for mobility issues prior to recommending a PA programme.

- Weight-bearing exercise increases stress on joints and could be challenging for patients with underlying arthritis in knees or hips.

- Adipose tissue can prevent a full range of motion.

- For some patients, land-based PA can be uncomfortable (tissue movement, rubbing and skin tension).

Weight bias barriers to PA

- Evidence suggests that some people with obesity avoid PA activities in public facilities for fear of shame and blame.

- Fitness centres can exclude people based on economic, social and appearance factors (McLaren et al., 2012).

- Some fitness professionals also have weight bias and endorse negative stereotypes and beliefs that people with obesity are lazy and to blame for their weight (Puhl & Wharton, 2007).

McLaren L, Rock MJ, McElgunn J. Social inequalities in body weight and physical activity: exploring the role of fitness centers. Res Q Exerc Sport. 2012;83(1):94–102.

Puhl RM, Wharton CM. Weight bias: a primer for the fitness industry. ACSMS Health Fit J. 2007;11(3):7–11.

Assessing PA in children and youth

- Determine how you define physical activity.

- Identify a basic measure of the person's PA level.

- Explore determinants of PA for each patient.

- Identify the time devoted to sedentary behaviours.

- Determine whether there are barriers to movement.

- Determine whether additional assessment and treatment will be required.

O'Malley G, Ring-Dimitriou S, Nowicka P, Vania A, Frelut ML, Farpour-Lambert N. Physical activity and physical fitness in pediatric obesity: what are the first steps for clinicians? Expert conclusion from the 2016 ECOG Workshop. Int J Exerc Sci. 2017;10(4):487–96

Drivers of obesity can be barriers to weight management

- Patients may face barriers that affect self-efficacy, confidence, emotions, thinking, and mental and physical health.

- Consider what affects a patient's ability to move forward.

- Barriers can arise in different phases of the weight management process.

- These barriers need to be addressed differently in the case of each patient.

Example: barriers to setting goals

You are talking to Cathy about increasing her physical activity, and before you even set a goal, she tells you about her situation:

> Cathy works in an industrial area where there are no pavements. She feels self-conscious about walking in her neighbourhood.

- What is the barrier?
- What do you do to set some goals with Cathy?

Example: barriers to implementing goals

Norm has set some goals to increase physical activity, but in a visit he tells you that he has not been able to follow through. Barriers that come up include:

His work schedule has changed; he now has lunch meetings to attend and can no longer go for walks.

- What is the barrier?
- How do you have this conversation? How can you help Norm with his goal-setting?

Example: medical barriers

Andrew is experiencing low levels of energy, affecting his mood and concentration. His organizational skills are also affected by his mood and he is struggling to keep up with his physical activity. Walking on a treadmill also caused plantar fasciitis and he is feeling pain when he walks for long periods of time.

- What is the barrier?

- What conversation do you have with Andrew to help him address these barriers?

- Hint: assessment of underlying medical issues may affect how a patient starts new behaviours.

What are you thinking?

- Mismatched expectations?
- What am I missing?
- Supportive environment?
- Knowledge gaps?
- Are they ready?
- What's next?

- What is going on?
- Is this important?
- Is this the right time?
- Are they confident?
- Who else could help?
- Life changes?
- Realistic goals?

Summary

- Assess obesity class and stage.

- Assess for obesity drivers, complications and barriers (the 4 Ms).

- Assess for root causes of weight gain.

- Drivers of weight gain can be barriers to weight management strategies.

- Once you know what is driving the weight gain, you can move on to <u>Advise</u>.

Resources

- WHO growth reference
  http://www.who.int/growthref/en/

- UK growth charts
  http://www.rcpch.ac.uk/growthcharts

Resources

Weight Matters for Children

A complete guide to weight, eating and fitness in children

Dr Rachel Pryke

- RCGP Nutrition webpages – search on "RCGP Nutrition" http://www.rcgp.org.uk/clinical-and-research/clinical-resources/nutrition.aspx

- RCGP Obesity and malnutrition e-learning modules http://elearning.rcgp.org.uk/course/info.php?id=147&popup=0