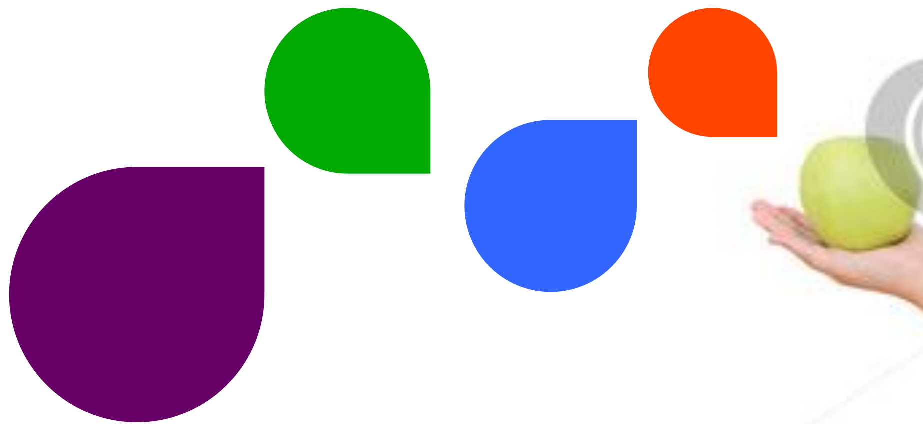
Putting Evidence Into Practice:

Management and Prevention of Pediatric Obesity in Canada



A guide to the Pediatric components of the "Canadian Clinical Practice Guidelines (CPG) on the Management and Prevention of Obesity in Adults & Children" (CMAJ 2007)

Developed: Spring 2010

Purpose

The purpose of these slides is to create a tool for health care practitioners that:

1. Identifies the Canadian recommendations for obesity management and prevention that are *specific to the pediatric population* and;
2. Provides information on how to implement each recommendation
   - This includes material directly from the Canadian Clinical Practice Guidelines (CPG) as well as supplementary information provided by the contributors based on their professional expertise.

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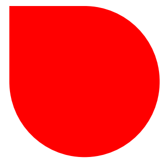

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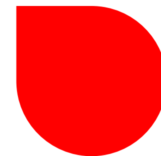

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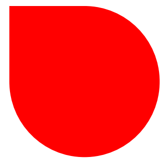

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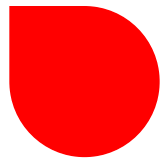
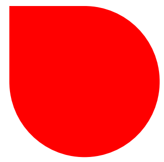
Table of Contents



1. Pediatric Obesity in Canada: Epidemiology, Etiology and Risks
2. Role of Health Professionals: Evaluating and Managing Obesity
3. A Systematic Approach to Managing and Preventing Childhood Obesity
4. Recommendations for Managing Childhood Obesity
5. Case Study: Michael
6. Recommendations for the Prevention of Childhood Obesity
7. Summary and Conclusion

Index of Recommendations



1. Role of health professionals
2. Classification of overweight and obesity in children and adolescents
3. Clinical evaluation of obese children and adolescents
4. Assessment of Readiness to Change
5. Lifestyle Modification
    1. Behaviour Therapy
    2. Dietary Interventions
    3. Physical Activity Interventions
    4. Combined Dietary and Physical Activity Interventions
    5. Pharmacotherapy
    6. Surgery
    7. Alternative Interventions
6. Prevention: Childhood nutrition
7. Prevention: Physical Activity/Reduced Sedentary Behaviour
8. Higher level prevention strategies

1

Pediatric Obesity in Canada: Epidemiology, Etiology and Risks

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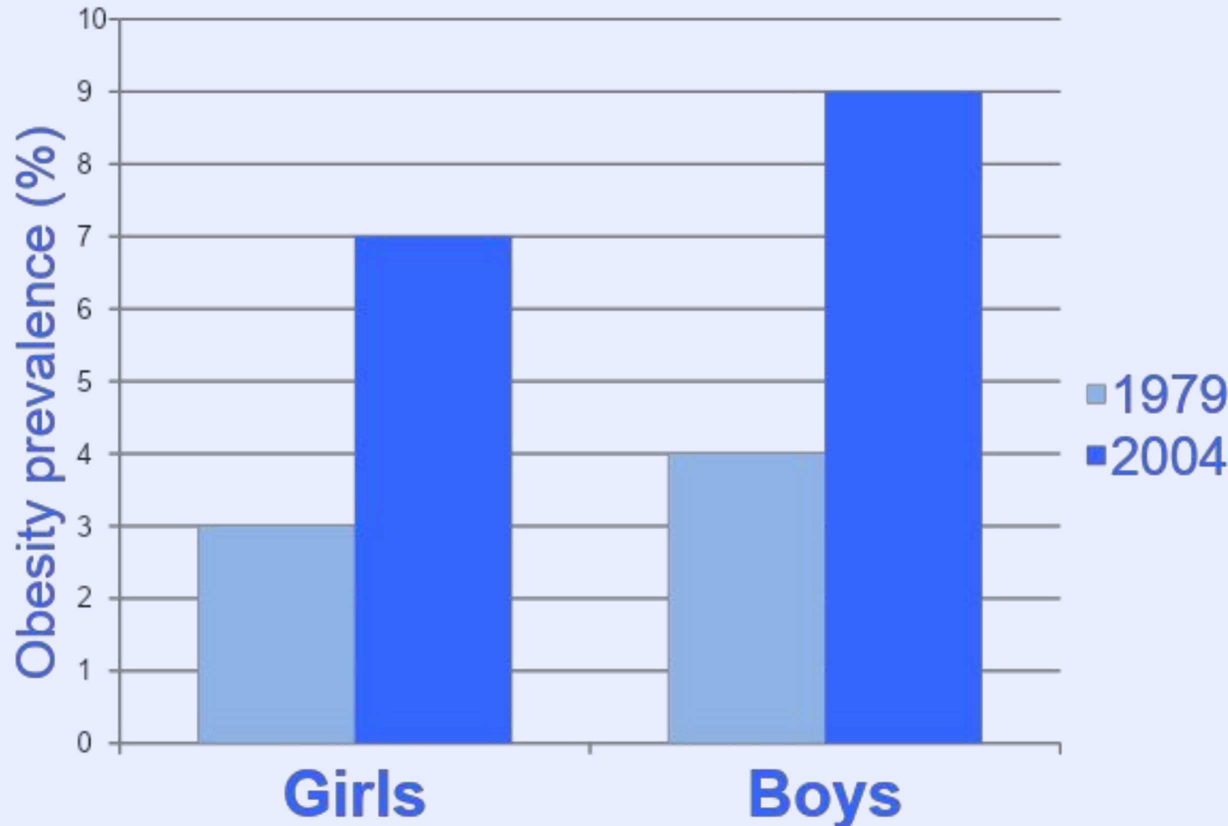
Childhood Obesity in Canadian Children



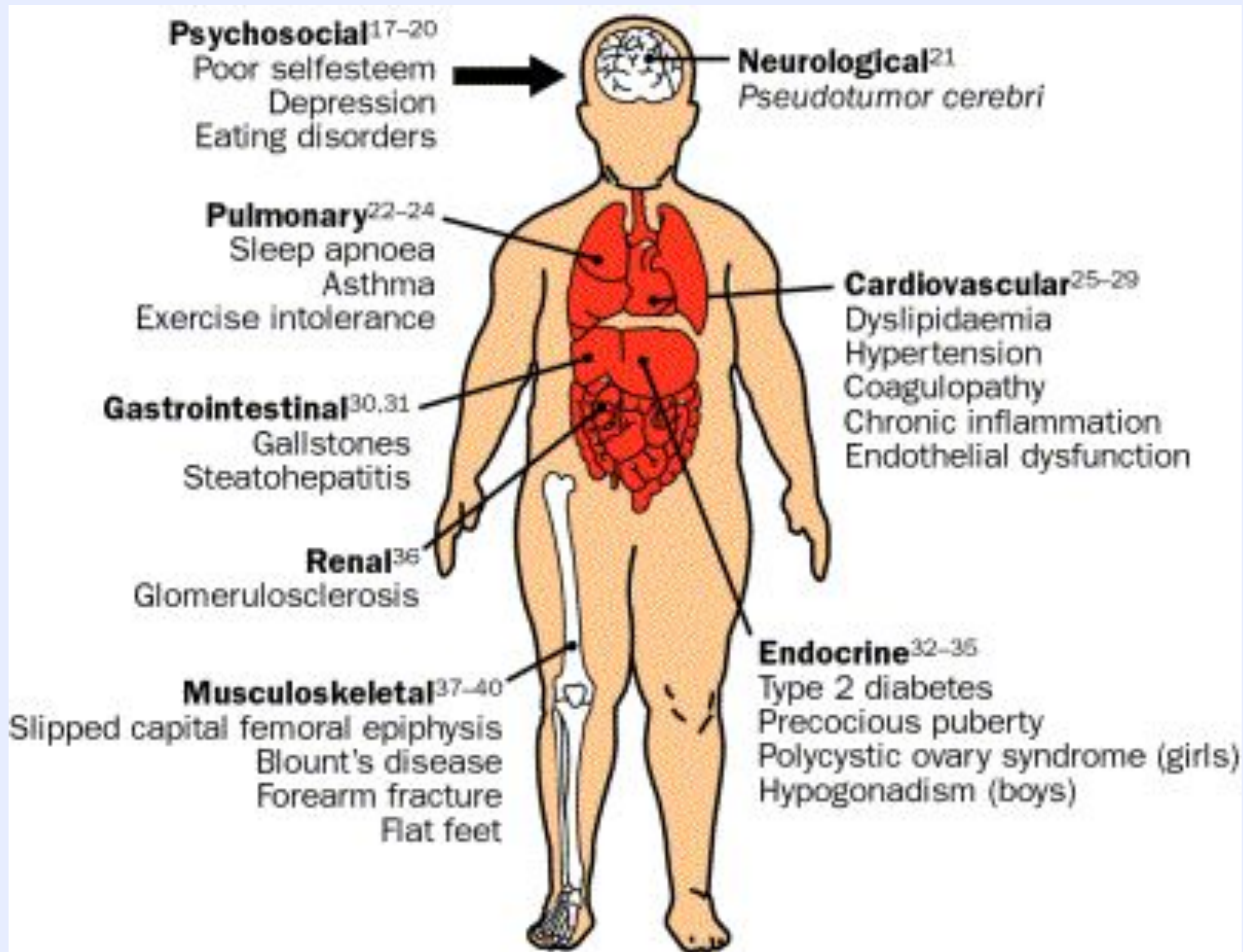
- 3-fold increase in obesity in Canadian children
- Based on measured heights and weights in representative Canadian sample
- Classified by BMI ≥ 95th percentile

Shields, 2005

Etiology

- Etiology for the development of obesity in childhood is complex and multifactorial
- Balance of input (through nutrient intake) and output (through physical activity) is fundamental – but understanding the underpinnings of these is most important
- Recognized determinants for the development of obesity occur across the lifespan – and both genetics and environment are critical

Obesity and Children's Health



Ebbeling et al., 2002

2

Role of Health Professionals: Evaluating and Managing Obesity

Recommendation: Role of Health Professionals

R

R: Role of Health Professionals

Health care professionals are encouraged to:

- Work with other health care team members to develop a comprehensive program for the patient
- Create a non-judgmental atmosphere
- Consider barriers people might have

[grade C, levels 3 & 4]

Complete Guidelines

Multidisciplinary Health Care Teams

- Can be used with individuals or with groups
- Include:
  - » Medical practitioner (Nurse, family physician or specialist)
  - » Psychologist
  - » Dietician
  - » Exercise Professional
  - » Others

Attitudes toward overweight and obesity

- Many overweight and obese people experience negative bias and discrimination
- They may be reluctant to seek health care because of fear of scolding or humiliation
- Stereotypes and prejudices held by health care professionals can compromise care

Creating a non-judgmental atmosphere

- Limit medical jargon
- Use neutral body language
- Speak with both the child and parent
- Avoid blaming

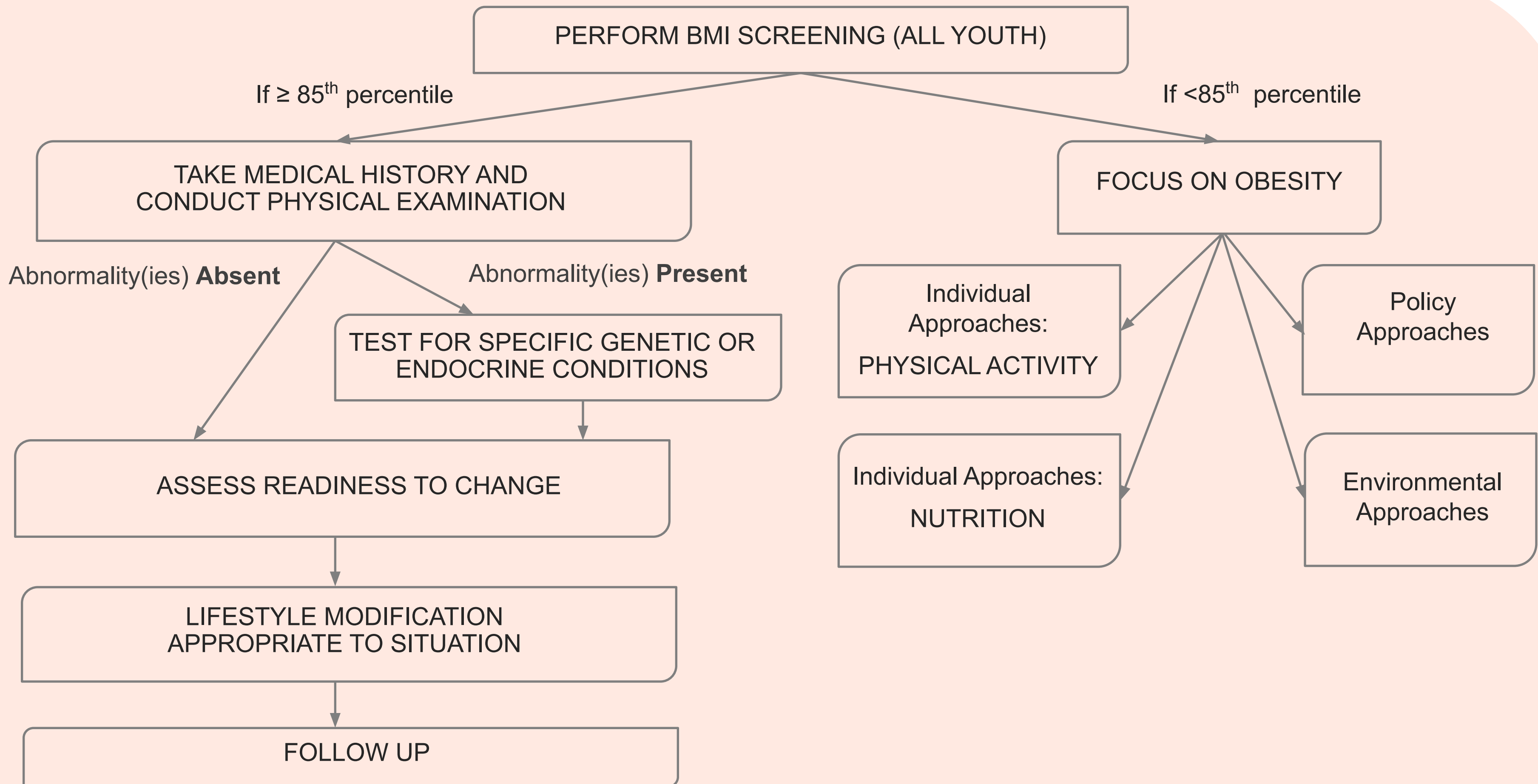
Considering Barriers

- Focus on the family's agenda, not your own
- Seek out experienced colleagues to provide honest feedback
- Increase knowledge and clinical skills through continuing education in therapeutic techniques, including motivational interviewing and cognitive behavioural therapy

3

A Systematic Approach to Managing and Preventing Childhood Obesity

A Systematic Approach to Managing and Preventing Childhood Obesity



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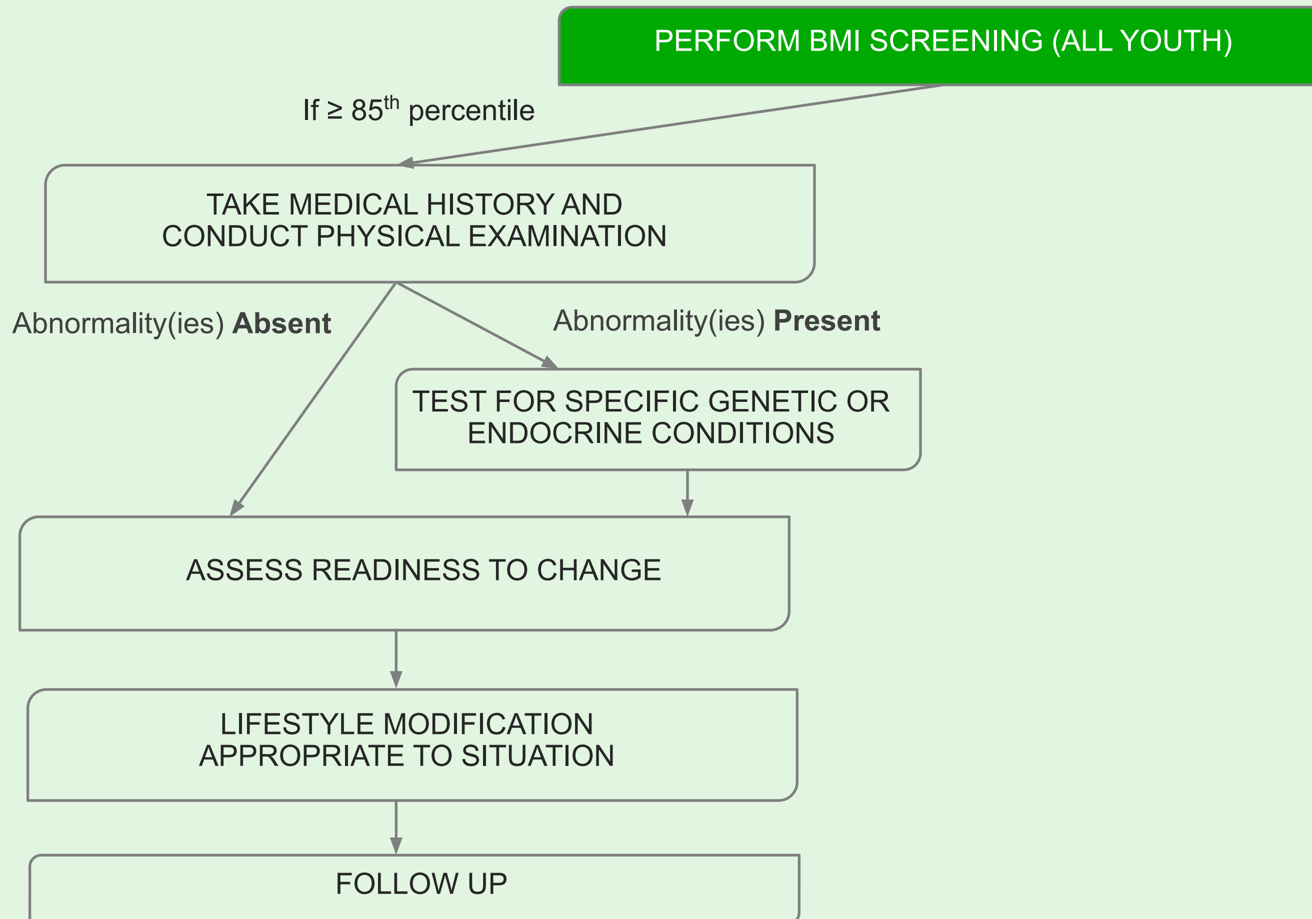
4

Recommendations for Managing Childhood Obesity

Classification of Overweight and Obesity in Children and Adolescents



Recommendation: BMI Screening

R

R: BMI Screening

We recommend:

- measuring BMI in all children and adolescents (aged 2 years and older).
- using the growth charts of the US Centers for Disease Control and Prevention to screen for overweight and obesity
  - **Overweight:** Age and sex-specific BMI ≥ 85th and <95th percentile
  - **Obesity:** Age and sex-specific BMI ≥ 95th percentile

[grade A, levels 3]

Complete Guidelines

Measuring Height and Weight in Children

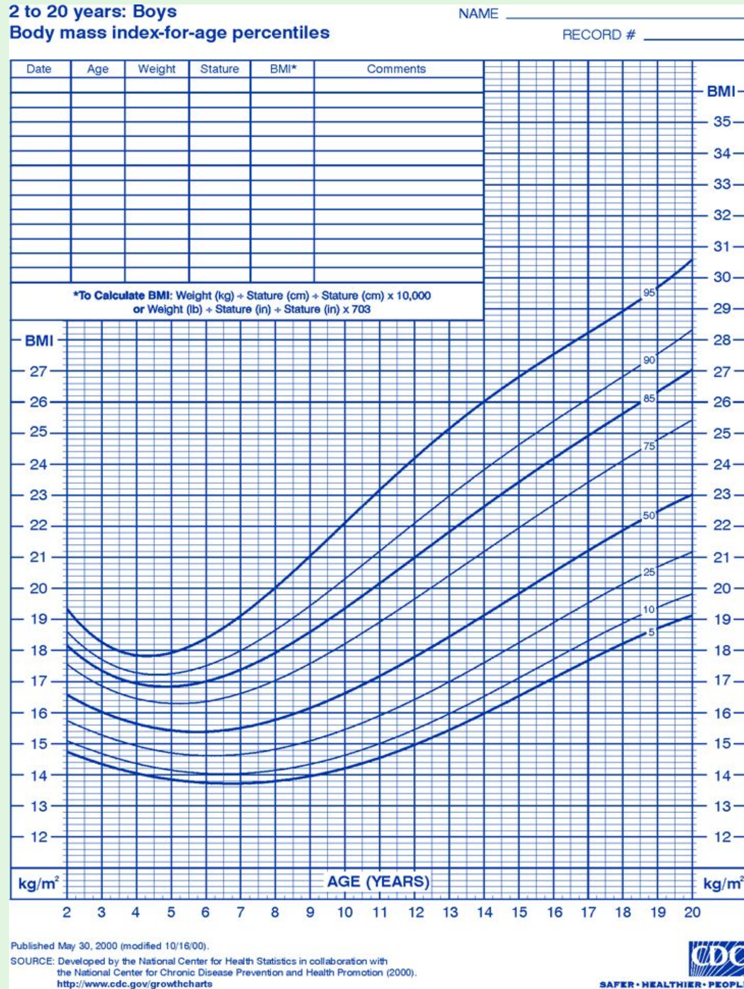
Height

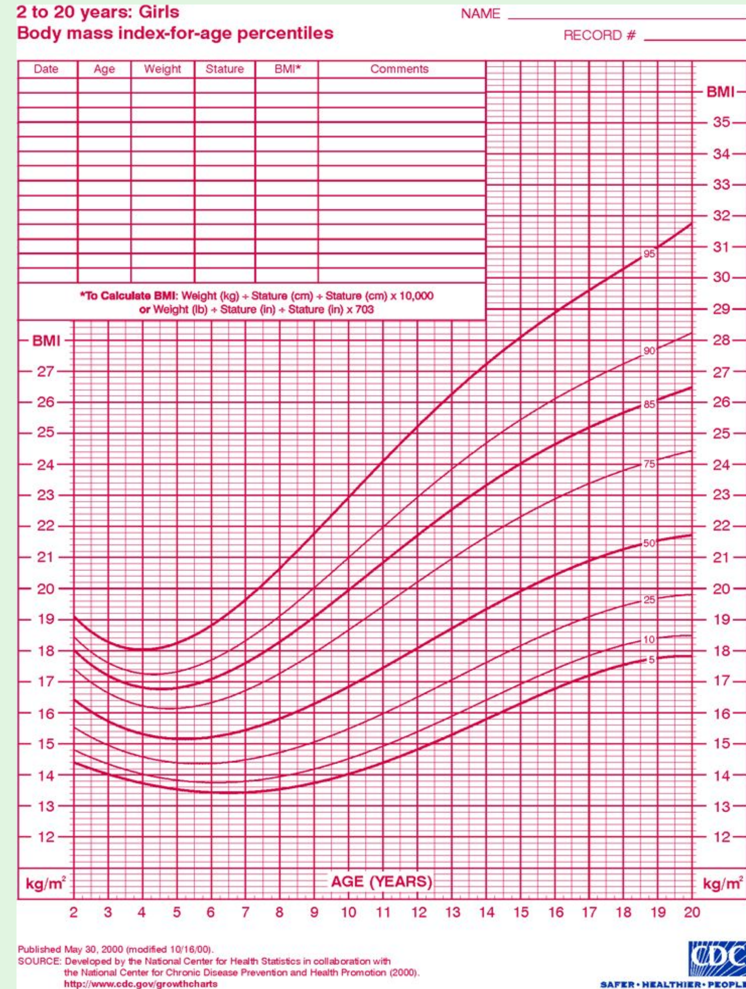
- Should be measured to the nearest centimetre using a stadiometer.
- The patient should look straight ahead, stand as tall as possible and take a deep breath while the measurement is taken.

Weight

- Should be measured to the nearest 0.1 kg with an accurate, well-maintained physician's scale.
- The patient should be weighed in light clothing, without footwear.

BMI Charts for Children
(US Center for Disease Control & Prevention, CDC)



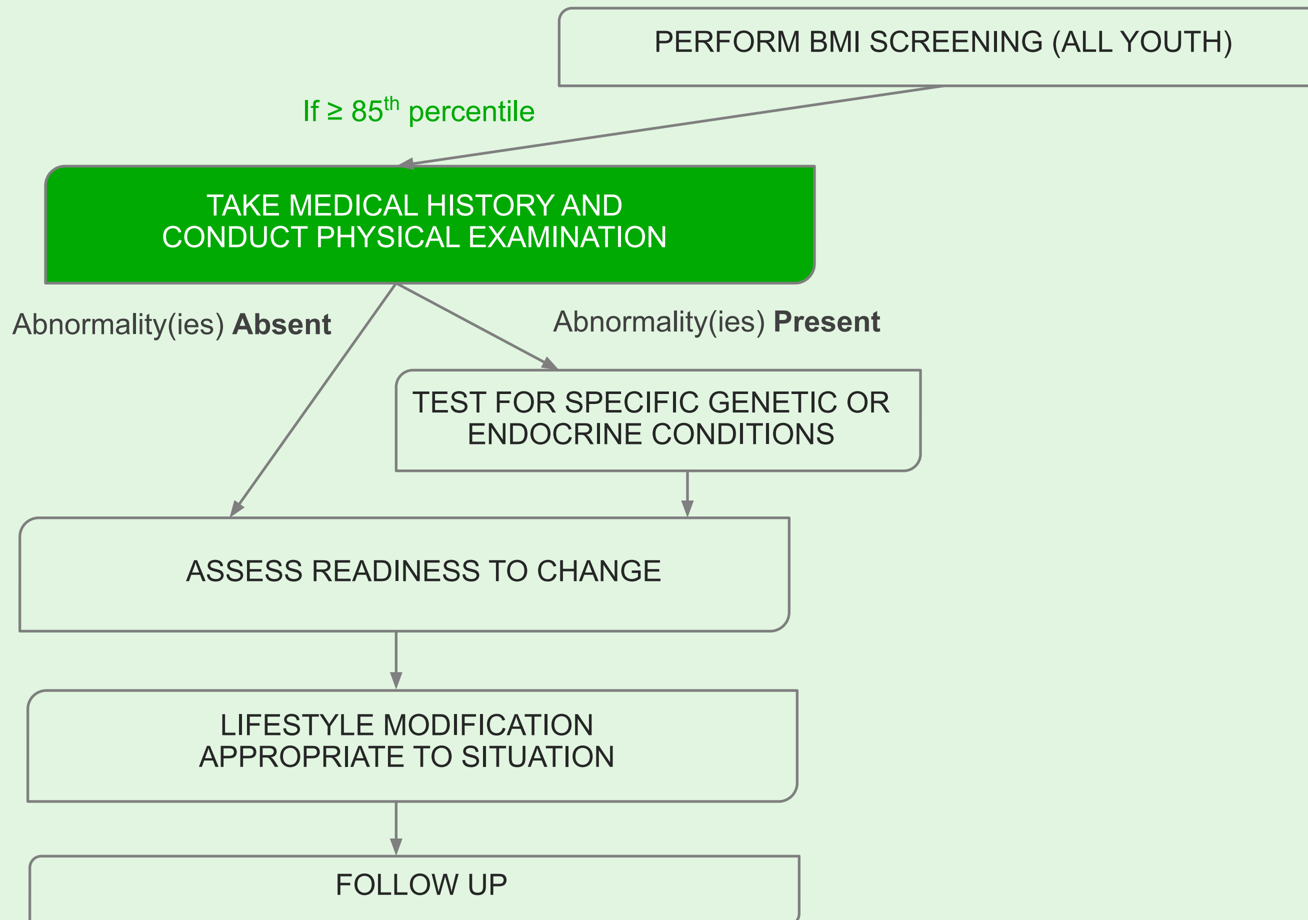


Available online at: www.cdc.gov/growthcharts

Other Classification Systems

- Other resources are available for categorizing children and youth into different BMI groups.
  - International Obesity Task Force (Cole et al., 2000)
  - WHO Growth Curves (http://www.who.int/childgrowth/en/)
- Waist Circumference
  - Among children and adolescents, waist circumference is a good predictor of other measures of adiposity and risk level for heart disease.
  - Further research is required to determine the clinical utility of waist circumference and its association with health risks independent of BMI.

Clinical Evaluation of Obese Children and Adolescents



Recommendation: Clinical Evaluation

R

R: Clinical Evaluation

We recommend that:

- The clinical evaluation of overweight and obese children include a history and a general physical examination to exclude:
  - Secondary causes (endocrine-or syndrome-related)
  - Obesity-related health risks and complications

[grade A, levels 3]

- In overweight or obese children, a fasting plasma glucose and lipid profile should be performed in those ≥ 10 years of age

Complete Guidelines

[grade B, levels 3]

Recommendation: Clinical Evaluation

R

1. Identification of risk factors for the development of obesity

Medical History

- Does past Family History include obesity and obesity related disorders?
- Does pregnancy history include maternal diabetes, pregnancy exposures or low birthweight
- What was infant feeding history?

Additional Medical History Considerations

- What is the child's developmental history?
- Does medical history include growth delay, asthma, or treatment for previous childhood cancer?
- What is the pattern of weight gain?
- Psychosocial history
  - Screen for depression and eating disorders
  - Assess quality of life
- Past or current medications

Physical Activity and Nutrition

- Patterns of Physical Activity
  - Time spent watching television, using the computer and playing video games
  - Low participation in physical activities
- Nutritional Intake
  - High sugared drink intake
  - Low fruit and vegetable intake
  - Disordered eating patterns

Physical Activity Considerations

Physical Activities

- Frequency (minutes per day)
- Weekdays vs. weekends
- Seasonal variation
- Type of activities (level of moderate to vigorous physical activity)
- With whom (friends, family, alone)

Sedentary Activities

- Total screen time
  - » Television
    - Average per day
    - Is there a TV in the bedroom?
  - » Leisure time computer and video games
    - Average per day
    - Active video games (Wii, Dance Dance Revolution)

Nutritional Intake Considerations

- Can be assessed using a 24 hour recall (or typical day recall) and/or a food frequency questionnaire
- Nutritional Patterns – what is the frequency of:
  - Eating meals together as a family?
  - Eating fast food/eating out?
  - Eating in front of the TV?
  - Eating breakfast?

Other Considerations

- Sleeping patterns
- Mental health of all family members
- Psychosocial family dynamics
- Socioeconomics
- Environment factors (home / school / community)

Recommendation: Clinical Evaluation

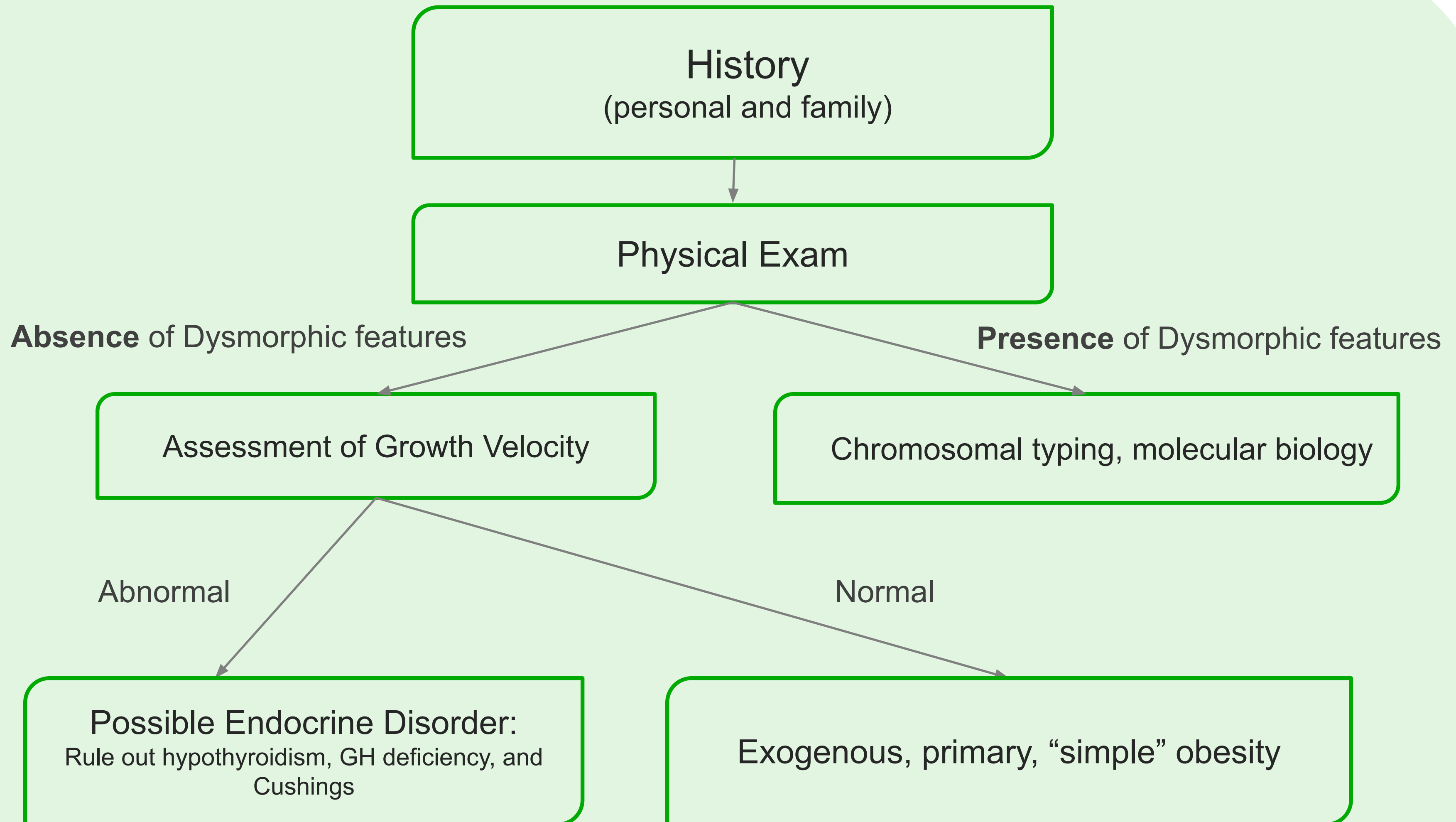
R

2. Exclusion of Secondary Causes of Obesity

Secondary Causes of Obesity

- Endocrine causes
  - associated with attenuated linear growth or a history of central nervous system injury
- Genetic syndromes
  - usually early onset
  - often associated with neurodevelopmental delay
  - may be associated with dysmorphic features

Overview of History and Physical Exam for an Overweight or Obese Child: evaluation of genetic or endocrine causes



Recommendation: Clinical Evaluation

R

3. Physical Exam and Identification of Obesity Related Co-morbities

Aspects of the Physical Exam

In addition to measuring height and weight and calculating BMI, the physical exam may investigate:

- Blood pressure
- Presence of acanthosisnigricans
- Hirsutism and excessive acne (females)
- Orthopedic concerns

Recommended Laboratory Investigations

For children 10 years old and older:

- Fasting plasma glucose
- Total cholesterol
- LDL cholesterol
- HDL cholesterol
- HDL: total cholesterol

Suggested Laboratory Investigations

- Oral Glucose Tolerance Test
- ALT and AST
- Alkaline phosphatase
- Albumin
- Creatinine
- Free testosterone, luteinizing hormone, and follicle stimulating hormone (females)

Obesity Related Co-Morbities

Many of the obesity-related comorbidities recognized in adulthood begin to develop in childhood:

- **Cardiovascular** (hypertension)
- **Metabolic** (dyslipidemia, dysglycemia, type 2 diabetes)
- **Respiratory** (obstructive sleep apnea)
- **Gastrointestinal** (nonalcoholic fatty liver disease, cholelithiasis, gastroesophageal reflux)
- **Orthopedic** (slipped capital femoral epiphysis, tibia vara [Blount disease], musculoskeletal discomfort)
- **Reproductive** (polycystic ovary syndrome)
- **Psychosocial** (poor self-esteem, depression)
- **Renal** (focal segmental glomerulosclerosis)

Determination of Obesity Related Co-morbities

Obesity related health consequence	Recommended assessment
Hypertension	Serial blood pressure measurements
Obstructive sleep apnea	Hx: snoring, am headache, excess daytime fatigue, Consider sleep study
Nonalcoholic fatty liver disease (NAFLD)	History, physical exam, ALT & AST levels
Gastroesophageal reflux	History
Gallstones	History, laboratory

Determination of Obesity Related Co-morbities

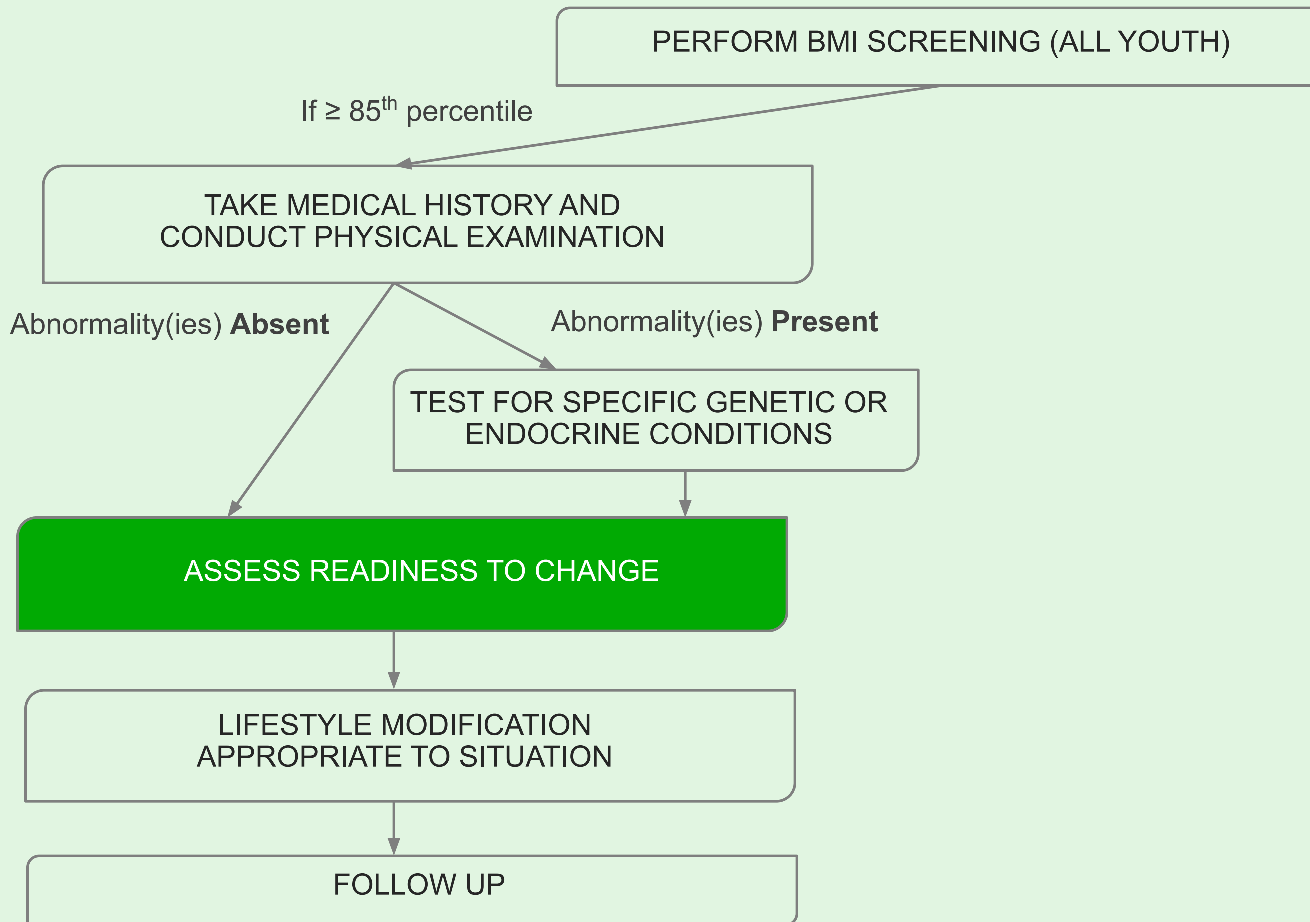
Obesity related health consequence	Recommended assessment
Slipped capital femoral epiphysis	History, Physical
Tibia vara (Blount's disease)	History, Physical
Spondylolisthesis	History, physical exam
Axial arthritis	History
Polycystic ovary syndrome	History(menstrual irregularity, 2º amenorrhea) Physical (hirsutism, acne) Laboratory (LH, FSH, free testosterone, pelvic ultrasound)
Depression	History
Low self-esteem	History
Binge-eating disorder	History

Determination of Obesity Related Co-morbities

Diabetes screening:

- For children ≥10 years if they have 2 of the following risk factors:
  - member of a high-risk ethnic group
  - family history of type 2 diabetes (especially if the child was exposed to diabetes in utero)
  - acanthosisnigricans
  - polycystic ovarian syndrome
  - hypertension
  - dyslipidemia
- Should be done every 2 years using a fasting plasma glucose test.
  - An oral glucose tolerance test may also be considered as a screening test.

Assessment of Readiness to Change



Recommendation: Readiness to Change

R

R: Readiness to Change

- Assess readiness and barriers to change before implementing a healthy lifestyle plan for weight control or management

[grade B, levels 3]

Complete Guidelines

Readiness to Change

- Specific to individual behaviours
- Can be influenced by temporal, environmental and social factors.
- Represented by the stages of change categories:
  - Precontemplation
  - Contemplation
  - Preparation
  - Action
  - Maintenance

Pre-action stages: Precontemplation, Contemplation, Preparation

Action stages: Action, Maintenance

Other Factors Influencing Change

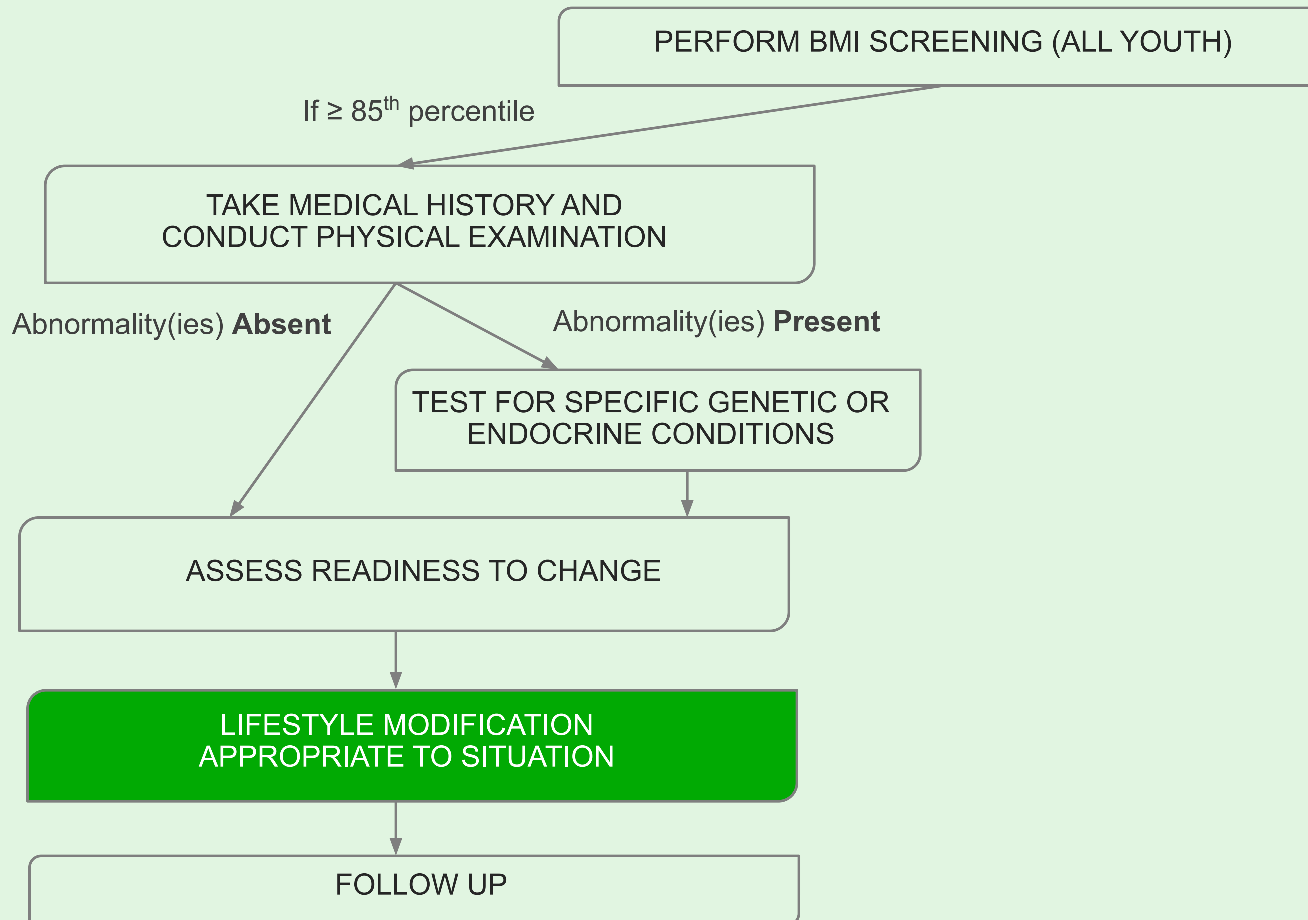
- Decisional balance: the pros and cons of performing a healthy behaviour
- Specific barriers to performing the healthy behaviour
- Temptations to not perform the healthy behaviour

Barriers to Change

Include but are not limited to:

- Reluctance to seek medical attention
- Depression or other psychosocial barriers
- Low or lacking self-efficacy

Clinical Evaluation of Obese Children and Adolescents



Recommendation: Lifestyle Modification

R

R: Lifestyle Modification

- We recommend a comprehensive healthy lifestyle intervention for overweight and obese people [grade A, levels 1]
- We suggest that members of the health care team discuss with those willing to participate in weight management programs appropriate education, support and therapy as adjuncts to lifestyle intervention [grade B, levels 2]

Complete Guidelines

Recommendation: Behaviour Therapy

R

R: Behaviour Therapy

- We suggest that individuals willing to participate in weight management programs be provided with education and support in behaviour modification techniques as an adjunct to other interventions

[grade B, levels 2]

- When treating obesity in children, we suggest using family-oriented behaviour therapy

[grade B, levels 1]

Complete Guidelines

Motivational Interviewing

- The goal of MI is NOT to get the patient to change but to facilitate motivation
- Key principles (from Miller and Rollnick):
  - Express empathy
  - Develop discrepancy
  - Roll with resistance
  - Support self-efficacy/confidence

Motivational Interviewing

Guided by the 6 mediators of change (FRAMES mnemonic):

1. **F**eedback of personal risk or impairment
2. Emphasis on personal **R**esponsiblity for change
3. Clear **A**dvice to change
4. A **M**enu of alternative change options
5. Therapist **E**mpathy
6. Facilitation of client **S**elf-efficacy or optimism

Behaviour Modification Techniques

- Self monitoring and goal setting
  - » Tracking and analyzing precipitants, consequences and moderating factors to set goals for change
- Stimulus control
  - » Identifying stimuli (situations, times, people, emotions) that elicit unhealthy behaviour
- Reinforcement management
  - » Rewarding specific behaviour change

Behaviour Change Principles

- Use a long term approach
- Work towards changes that are *achievable* and *sustainable*
- Focus on the priorities of the family
- Avoid scare tactics
- Identify potential barriers and enablers to behaviour change

Goal Setting

- Goal-setting with family should be centered around change in behaviour – not weight
- A modest weight loss of 5–10% body weight is beneficial
- In growing child, weight maintenance equivalent to weight loss
- Weight maintenance and prevention of weight regain should be considered long-term goals

SMART Goal Setting

- SMART goals are:
  - **S**pecific: You can answer when, where, what, and how
  - **M**easureable: You know if it’s done
  - **A**ttainable: It’s possible for you to do
  - **R**elevant: The goal is important to you
  - **T**ime-specific: Set a time limit for achieving you goals

Role of Families in Behaviour Change

- Recognize that parents play a fundamental role in weight management
- Use a family-centred approach – talk with both the child and the family
- Focus on helping the whole family to become healthier, not ‘fixing’ the individual child