


Eating Disorders in Children and Adolescents

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Declaration

I have no commercial affiliations or conflicts of interest

Overview

- Case presentation
- Brief outline of eating disorders and DSM V definitions
- Common medical complications
- When and who to call
- Questions

Learning Objectives:

1. To understand and recognize eating disorders in the community
2. To be aware of the complications of eating disorders
3. To know the warning signs of medical acuity and when and how to refer

15yo girl

- Well known volleyball champion, fainted on court during last weekend's game
- Secondary amenorrhea
- Cool peripheries
- Looks thin
- PR 40, BP 85/50
- Temp 35 degrees



<http://dermis.multimedica.de/pedoi/en/35852/diagnose.htm>

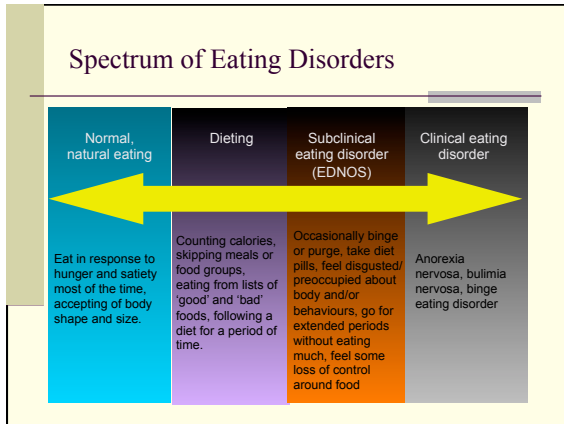
What is an eating disorder?

Core symptoms

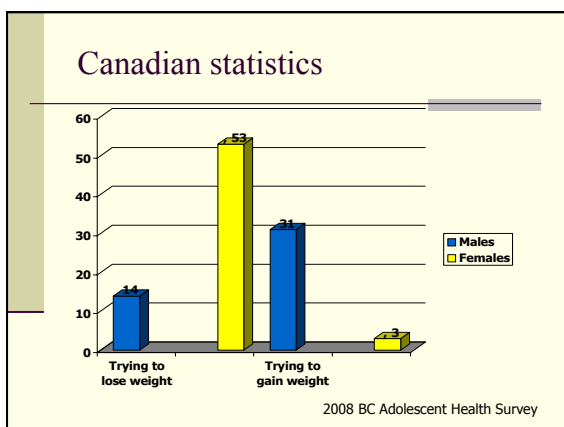
- Body image disturbance
- Attempts to manipulate shape and weight in a variety of ways, with negative impact on health
- Changes in normal patterns of nutrition and energy metabolism

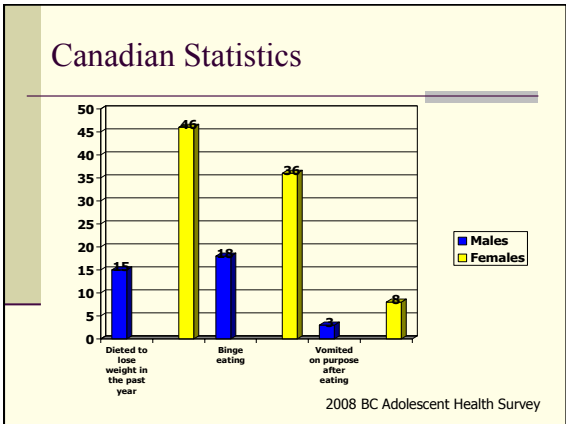
Recent DSM V changes

- Amenorrhoea no longer a criteria
- Restricting subtype
- Binge/purge subtype
- Weight criteria of <85% of body weight has been removed
- Severity ratings
 - AN is based on BMI
 - Mild >17
 - Mod 16-17
 - Severe 15-16
 - Extreme <15
 - BN based on number of episodes of compensatory activities
 - Mild 1-3 episodes of compensatory behaviors per week
 - Moderate 4-7
 - Severe 8-13
 - Extreme 14



- ### Statistics
- Major causes of mortality in eating disorders in adolescents are:
 - Suicide (the highest cause of death)
 - Cardiac arrhythmia and circulatory failure
 - Complications of substance abuse
 - Almost all would be preventable with early diagnosis and treatment





Incidence in children

- Early Childhood Restrictive ED (*Pinhas 2011*)
 - onset 5 to 12 years : 2.6 cases per 100 000 person years
 - incidence of EDs in this age range: 2-4 times greater than that of Type 2 Diabetes in children and youth across all ages up to the age of 18 years
 - Highest incidence ages 10-12:
 - Girls: 9.4 cases per 100 000 person years
 - Boys: 1.3 cases per 100 000 person-years

Males with eating disorder

- 7-15% admissions are male on the inpatient unit
- Much concern with body image, "eating healthy", exercise and muscular look
- Compulsive over exercisers
- Less concern with actual weight loss, but starting to see true male anorexics – "vamp style", "anime look", "geeky look"
- Binge Eating disorder – maybe with purging



Anorexia affects your whole body

Dash line indicates that organ is behind other main organs.

- Brain and Nerves**
can't think right, fear of gaining weight, sad, moody, irritable, bad memory, fainting, changes in brain chemistry
- Hair**
hair thins and gets brittle
- Heart**
low blood pressure, slow heart rate, fluttering of the heart (palpitations), heart failure
- Blood**
anemia and other blood problems
- Muscles and Joints**
weak muscles, swollen joints, fractures, osteoporosis
- Kidneys**
kidney stones, kidney failure
- Body Fluids**
low potassium, magnesium, and sodium
- Intestines**
constipation, bloating
- Hormones**
periods stop, bone loss, problems growing, trouble getting pregnant, if pregnant, higher risk for miscarriage, having a C-section, baby with low birthweight, and post partum depression.
- Skin**
bruise easily, dry skin, growth of fine hair all over body, get cold easily, yellow skin, nails get brittle

How bulimia affects your body

Dash line indicates that organ is behind other main organs.

- Brain**
depression, fear of gaining weight, anxiety, dizziness, shame, low self-esteem
- Cheeks**
swelling, soreness
- Mouth**
cavities, tooth enamel erosion, gum disease, teeth sensitive to hot and cold foods
- Throat & Esophagus**
sore, irritated, can tear and rupture, blood in vomit
- Muscles**
fatigue
- Stomach**
ulcers, pain, can rupture, delayed emptying
- Skin**
abrasion of knuckles, dry skin
- Blood**
anemia
- Heart**
irregular heart beat, heart muscle weakened, heart failure, low pulse and blood pressure
- Body Fluids**
dehydration, low potassium, magnesium, and sodium
- Intestines**
constipation, irregular bowel movements, BMs, bloating, diarrhea, abdominal cramping
- Hormones**
irregular or absent period

Long term complications

Brain matter

Bones

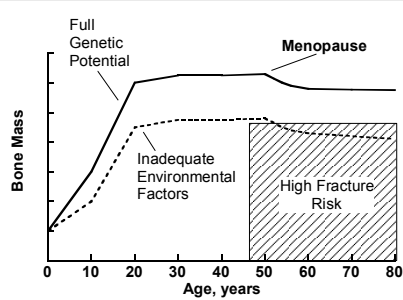
Puberty/Fertility

Growth/Height

Complications

- **Failure to grow/gain weight is equivalent to weight loss (Failure to thrive)**
- Restriction of fluid intake is also common and leads to dehydration

Life Cycle Changes in Bone Mass



Bone Mineral Accrual in the Adolescent Growth Spurt

Whiting et al. J Nutr, 2004

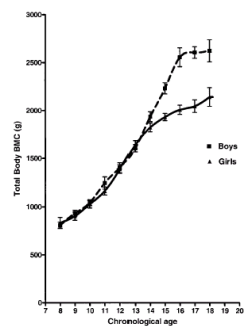


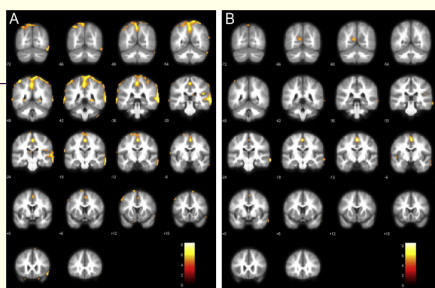
FIGURE 1 Total body bone mineral content (g) of the BMAS subjects at yearly age increments. Values are mean \pm SEM. Subject numbers vary at each age point but were derived from 66 boys and 65 girls.

Impact on height

- Final height vs potential height
 - Mid parental height
 - Height centile charts
- Failure to lay down bone and risk of osteopaenia and osteoporosis
 - Bone age
 - Bone density
 - **Bone damage in adolescence is more often a LACK of normal progression rather than a deterioration**

Impact on the brain

- Reduction in basal blood flow to the brain and cerebral blood flow increases after weight gain
- Refeeding (even short term) reverses these changes
- Sex hormones are crucial for maturation of the limbic system and therefore restoration of hypothalamic-pituitary axis may prevent dysregulation of mood and cognition

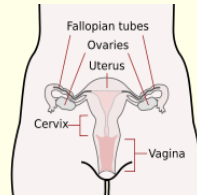


- A = low weight
- B = follow up weight restored
- Yellow = superimposed structural deficit compared to normal brain

Castro-Fornieles et al., *Int J Psych Res* 2009. A cross-sectional and follow-up voxel-based morphometric MRI study in adolescent anorexia nervosa

Impact on Puberty and Fertility

- Estrogen required for development of female sex organs
- Uterine and ovarian volumes changes with age in response to Estrogen
- FSH, LH and Estradiol



Dental manifestations

- Erosions from purging or from abnormal use of caffeinated drinks (?after 6 months)



Fig 16.3 Severe enamel erosion of all tooth surfaces in a female with the purging type of AN. The loss of tooth structure has resulted in an open anterior bite, loss of vertical dimension, and caries (Reprinted with permission of Dentistry Today)



Fig. 6. Severe erosion of the lingual aspects of maxillary teeth due to purging of stomach contents by a bulimic patient. Note that the left side of the arch is more affected than the right side as a result of head tilt during purging.

Dental manifestations cont...

- Use of vinegar and lemon to reduce hunger can cause a uniform, polished erosion
- Excessive use of (chewing) gum can cause increased caries
- Bruxism – associated with anxiety



Fig 16.1 Erosion of the lingual (palatal) surfaces of teeth P's 6-12 in a 25-year-old female (at initial presentation). This person denied any habit of, however had apparently quit, regurgitating since there has been no increase in tooth deterioration for over 20 years. The surfaces are smooth and shiny (Reprinted with permission of Dentistry Today)

What a family doctor might hear/see:

- Feeling dizzy, fainting spells and unexplained collapses
- Secondary amenorrhea
- Rapid changes in weight
- Abdominal pain, nausea, vomiting with no explanation
- Concerned parents
- Concerned school

Risk Assessment framework

<p><u>Medical risks:</u></p> <ul style="list-style-type: none"> ■ Hydration Status ■ Temperature ■ Biochemical Abnormalities ■ Cardiovascular Health – ECG abnormalities ■ Body mass ■ Muscular weakness ■ Other medical concerns 	<p><u>Psychiatric risks:</u></p> <ul style="list-style-type: none"> ■ Self harm and suicide ■ Disordered eating behaviours ■ Activity and exercise ■ Engagement with management plan (YP and family) ■ Other mental health concerns
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Risk Assessment

- BMI: High risk <13
- Phys exam:
 - CVS, muscle power (SUSS test)
- Bloods: Electrolytes, LFTs, Glucose
- ECG

SIT UP-SQUAT-STAND TEST (TO DETECT MUSCLE WEAKNESS)

1. Sit up: patient lies down flat on the floor and sits up without, if possible, using their hands.
Scoring: (for sit up and knee-should-into separate)
 0: Unable
 1: Able with using hands to help
 2: Able with noticeable difficulty
 3: Able with no difficulty

2. Squat-stand: patient squats down and then stands up without, if possible, using their hands.

What to ask

- "Do you think you may have an eating disorder?"
- **The SCOFF questions***
 - S- Do you make yourself Sick because you feel uncomfortably full?
 - C- Do you worry you have lost Control over how much you eat?
 - O- Have you recently lost more than One tenth of your body weight in a 3 month period?
 - F- Do you believe yourself to be Fat when others say you are too thin?
 - F- Would you say that Food dominates your life?
- *One point for every "yes"; a score of ≥ 2 indicates a likely case of anorexia nervosa or bulimia

What to Do

- Medically acute presentations -> to the Emergency room
 - HR <45, Postural drop in BP
 - Temp <36 degrees
 - Glucose <3.0
 - Potassium <3.0
 - Any ECG abnormalities

What else to do...

- Tell the young person your diagnosis and that you will tell their parent
- Refer earlier rather than waiting
- Regional Child and Youth Mental Health teams have very skilled Eating Disorder Teams

So the patient is on a wait list...

- Weekly review
- Weight
- BP and PR lying and standing
- Temp
- Bloodwork weekly if vomiting/using laxatives
- Stop all physical activity e.g. PE and volleyball
- Encourage the parents to take charge of the meals and snacks and re-feed their child
- At the very least eat 1 meal per day with their child
- Fluids

Referral: Tertiary Resources

- Comprehensive, multidisciplinary, specialized
- Focus is on the assessment and treatment of children and youth
- Up to age 18*
- Integration of medical, psychiatric, psychosocial and other aspects of care
 - Outpatient Clinic - Assessment, Complex patients
 - 6 bed day treatment program – M-F, 10-6
 - 14 bed intensive inpatient unit

