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
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
- Severities 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
Normal, natural eating

- Eat in response to hunger and satiety most of the time, accepting of body shape and size.

Dieting

- Counting calories, skipping meals or food groups, eating from lists of 'good' and 'bad' foods, following a diet for a period of time.

Subclinical eating disorder (EDNOS)

- Occasionally binges, purges, takes diet pills, feels disgusted/preoccupied about body and/or behaviours, go for extended periods without eating much, feel some loss of control around food.

Clinical eating disorder

- Anorexia nervosa, bulimia nervosa, binge eating disorder.

Spectrum of Eating Disorders

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.

Canadian statistics

2008 BC Adolescent Health Survey
Dieted to lose weight in the past year

Binge eating

Vomited on purpose after eating

Males

Females

2008 BC Adolescent Health Survey

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
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

![Graph showing bone mass changes over age](image)

Bone Mineral Accrual in the Adolescent Growth Spurt

![Graph showing bone mineral accrual in adolescents](image)

Adapted from Heaney et al. 2000

Bone Mineral Accrual in the Adolescent Growth Spurt

Whiting et al. J Nutr, 2004
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

Castro-Fornieles et al., Jn of Psych Research 2009. A cross-sectional and follow-up voxel-based morphometry MRI study in adolescents anorectic versus normo-
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)

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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
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

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Risk Assessment

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

- “Do you think you may have an eating disorder?”
- **The SCOFF questions**
  S- Do you make yourself *S*ick because you feel uncomfortably *fil*?
  C- Do you worry you have lost *Con*trol over how much you eat?
  O- Have you recently lost more than *One* tenth of your body *we*ight in a 3 month period?
  F- Do you believe yourself to be *Fat* when others say you are too *th*in?
  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