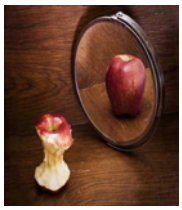


Medical Complications of Eating Disorders

And Nutritional Remedies

Therese Shumaker M.S.,R.D.,L.D.

Objectives

- Develop an awareness and understanding of medical complications associated with anorexia , bulimia and diabulimia
- Become familiarized with standard assessments of potential medical complications
- Increase knowledge of inpatient and outpatient eating disorder treatment interventions in a multidisciplinary framework

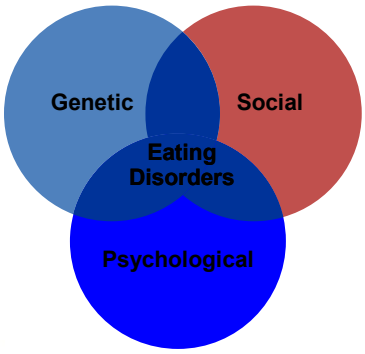
What causes eating disorders?

Genetics loads the gun……

- body type
- temperament
- linkage on chromosomes
- gender

..environment pulls the trigger.

- life events
- media influence
- family dynamics



Types

- Anorexia
  - Early adolescents
  - Morbid dread of body fat
  - Refusal to maintain body weight
  - DSM changes (2013)
  - Perfectionist/OCD
- Bulimia
  - Later adolescents
  - Failed attempt at anorexia
  - Risk takers
  - Substance abuse
  - BPD

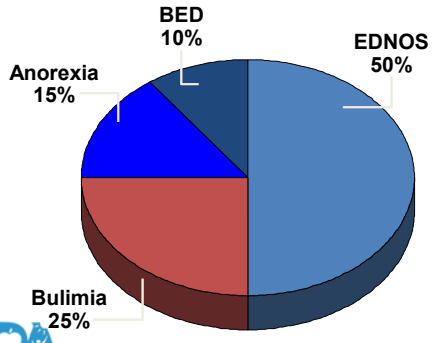
Eating Disorder
Not Otherwise Specified

- Most prevalent
- Do not meet strict criteria
- Most common is BED
- Often rejected by insurance companies
- No less serious than AN or BN

BED and Obesity

- Central feature of BED relates to increasing BMI
- Binge Eating occurs in 20-40% of people who are overweight
- Goal : body acceptance
- Proposed to be in DSM V- 2013

EDO Classification

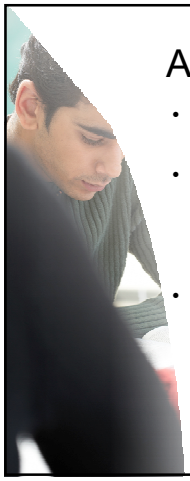


Facts about Eating Disorders

- Majority of patients are not underweight and most are not seriously physically compromised
- Girls who diet are 12 times as likely to binge as girls who don't diet
- Almost always come as a 'package deal' with one or several comorbid psychiatric diagnoses
- Serve as strategies , or pseudo solutions to deal with a variety of personal conflicts and lack of control for life situations
- Often regarded as separate disorders

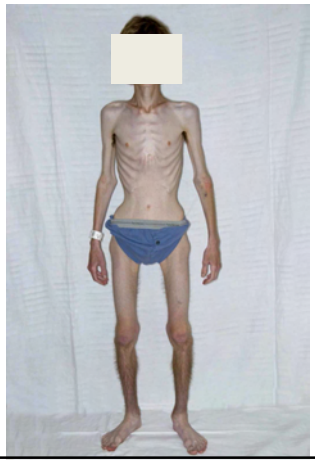
Medical Complications

- **Anorexia**
  - **Direct result of starvation and weight loss**
- **Prognosis**
  - **Long duration of the illness**
  - **Less favorable outcome**
  - **Suicide or cardiac deaths**
- **Bulimia**
  - **Direct result of mode and frequency of purging**
- **Prognosis**
- **Serious complications more likely to occur**
- **Higher risk of suicide**
- **Poor prognosis with substance abuse, personality disorders**



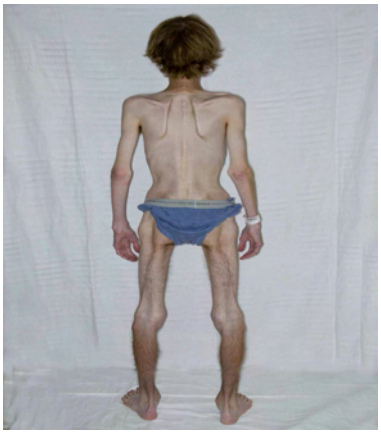
Anorexia in Males

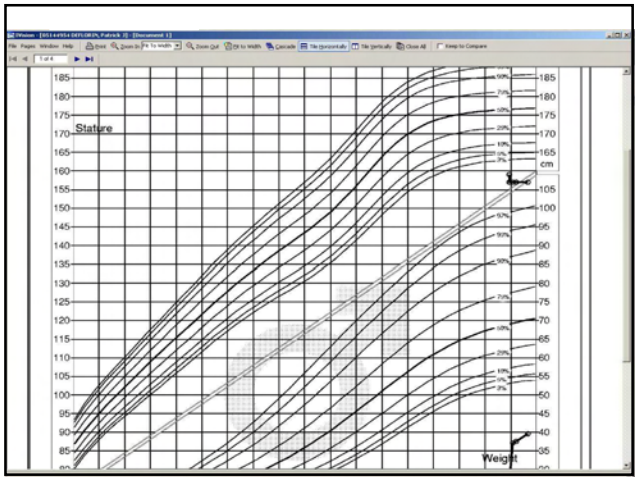
- Morbid fear of becoming fat
- Males diet for different reasons
  - Changing body shape
  - Better sports performance
- Homosexual men have a higher risk



Admission vitals

- Wt: 62 pounds (< 3% CDC growth chart)
- Ht: 157 cm (< 3% CDC growth chart)
- BMI 11.6
- Potassium 5.2
- Phosphorus 3.0
- Magnesium 2.4
- Tums 3000mg daily
- Repleting phos as needed – sodium phosphate





Refeeding Syndrome

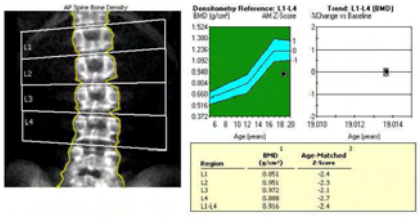
- Enteral or parenteral route – refed too quickly
- Hypophosphatemia, hypomagnesemia, hypocalcemia, and fluid retention
- Dangerous- “start low and go slow”
- 30Kcal/kg initial calories, no more that 250-300Kcal increase once per week
- Evaluate electrolytes at least three times per week

Lab trends

- Blood glucose: 73 mg/dL., Potassium: 4.5 mmol/L., Creatinine: 0.6 mg/dL., BUN: 15 mg/dL., Magnesium 2.1 mg/dl, total calcium 8.6mg/dl
- Phosphorus trends:

	Morning	Evening
Date: 7/25	2.7 mg/dL	1.7 mg/dL
7/26	3.4 mg/dL	1.2 mg/dL
7/27	2.5 mg/dL	1.1 mg/dL

Osteoporosis and Anorexia

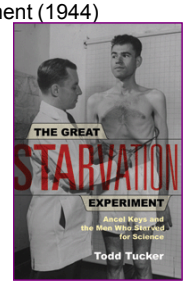


Psychological Approaches

- Individuals with eating disorders considered incapable of making choices
- Standard psychological therapies considered ineffective when brain is in a starvation state
- Initial focus on refeeding- **Food is Medicine**
- Requires help from caregivers, spouses, friends
  - Challenges
- Research suggests that use of SSRIs is not effective prior to weight restoration

Brain Effects of Starvation

- Keys' Minnesota Starvation Experiment (1944)
- Severe psychological distress
  - Depression
  - Anxiety
  - Irritability
  - Social isolation
  - Decreased concentration, comprehension, judgment
- Increased food preoccupation



Minnesota Starvation Experiment (cont.)

- Humans become more oriented toward food during starvation state (and less driven by other pursuits)
- Did not become obese after study
- Need for very high calorie intake to begin weight gain

Nutritional Interventions for Anorexia

- Focus on foods that do not promote satiety
- Food planning not calorie counting
- Vegetarian food patterns are common
- Nutrient dense foods not calories
- Small frequent feedings to reduce the sensation of bloating

Rule of 3s

- 3 meals per day
- 3 snacks per day
- 3 ounces of protein (2x per day)
- 3 servings of calcium (1500 mg)

Common GI complaints in AN

- Gastroparesis
  - Bloating , feeling overly full
  - Improves once weight restoration begins – often takes 4-6 weeks
- Interventions
  - Using liquid supplements as ½ of calories
  - Taking liquids earlier in the meal , results in less bloating

Constipation

- Reassure patients that there is nothing wrong with their bowels
- Bowel patterns vary
- Interventions
  - Adequate fluid intake
  - Fiber in low doses

Laxative abuse

- Bowel becomes dependent upon laxatives
- Cessation of use causes rebound constipation and fluid retention
- Dilated colon, incapable of passing fecal material
- Laxatives are an ineffective means of achieving weight loss
- Avoid stimulant laxatives that contain senna, cascara, or bisacodyl(Dulcolax) – potential for dependence

Sponge Analogy

Resting Energy Expenditure

- Indirect calorimetry – measures heat production
- Measures a persons oxygen consumption and carbon dioxide production
- Can provide an estimate of substrate utilization based on the ratio of carbon dioxide produced to oxygen consumed (respiratory quotient RQ)

Special Pulmonary Evaluation Laboratory
Division of Pulmonary, Critical Care and Internal Medicine
Mayo Clinic - Rochester, Minnesota

Resting Energy Expenditure (REE)
INDIRECT CALORIMETRY ASSESSMENT

Procedure Time: 09:00 Date:4/8/2011

23 y.o. Female Height: 154 cm Wt: 42.5 kg BMI: 17.92 BSA: 1.36

	Measured Value	Predicted	% Predicted
VO_2 (ml/min)	136		
Respiratory Quotient (RQ)	0.78		
REE (kcal/24 hours)	938	1235	76
Temp (C)	36.1		
Heart Rate	55		
O_2 Saturation (SpO_2)	99		
Respiratory Rate	16		

Comments
Steady state achieved.

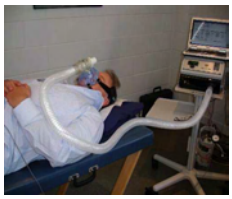
Hawai`i Dietetic Association

Interpreting RQ

- The range is from .7 -1.0
- If the value is under . 7 prolonged starvation
- If the value is over 1.0 excessive calorie consumption

Energy source/condition RQ

Prolonged ketosis <0.70
Fat 0.70
Underfeeding <0.71
Protein 0.80
Mixed energy 0.85
Carbohydrate 1.00
Fat storage >1.00



Hawai`i Dietetic Association

Weight Restoration

- Goal is to achieve 90-100% IBW
- Increase calories by 300-400 every 3-4 days until adequate rate of weight is being restored
- Rate of weight gain: 1-1.5 lbs/week (outpt) and 2-3 lbs/week (inpt)

Hawai`i Dietetic Association

Medical Complications of BN

Gastrointestinal
Dental Erosion
Parotid Gland Swelling
Esophageal Rupture
Reflux
Constipation due to laxative abuse
Mallory-Weiss tear

Cardiac
Arrhythmias
Diet Pill toxicity, hypertension
Cardiomyopathy-Ipecac induced

Dermatologic
Russell's sign

Endocrine
Irregular menses

Metabolic
Hypokalemia
Dehydration
Nephropathy

Pulmonary
Aspiration Pneumonitis

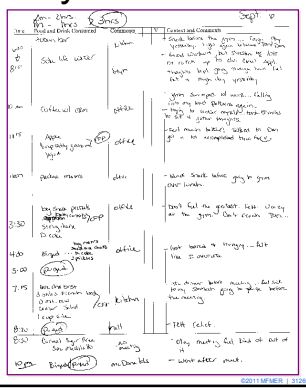
Hawai`i Dietetic Association

Hypokalemia

- Found in 1/3 of all patients with EDO in the hospital
- Result of chronic purging
- Laxatives – potassium loss in the stool
- Diuretics
  - Ammonium chloride
  - Thiazides

Food Records/Clue Sheets Help Identify

- Patterns of irregular eating
- Triggers of restricting, binges, and purges
  - Thoughts
  - Situations
  - EDO behaviors
- Set specific goals to normalize eating
- Increases self-awareness



Meal Planning for Bulimia

- Small frequent meals
- Small to provide comfortable volume
- Frequent to prevent binging every 4-6 hours
- Include protein and carbs at each meal

Meal Planning for Bulimia

- Patients feel restricting is essential to weight loss – encourage regular eating
- Wait 30 minutes after meal to purge
- Encourage a calm eating environment, any stress can result in binging/purging
- A structured meal plan can help do not include foods pt is unwilling to eat or able to keep down
- Carbonated beverages should be limited

Terry Schiavo

- Nations longest right to die case
- Desperately wanted to be thin
- Stopped menstruating and went to seek medical help
- No complete medical history taken
- Heart stopped due to a potassium imbalance – bulimia
- Malpractice lawsuit was filed – "medical negligence"

Diabulimia

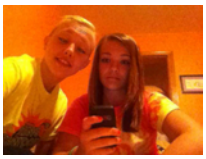
- This struggle to maintain control can become the introduction to developing an eating disorder for a diabetic
- This issue of control is of special importance for adolescent diabetics.
- Mortality rate – 3 times at high
- Nearly 7% of youth with AN or BN are diabetic

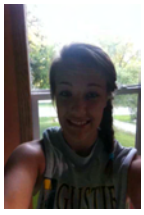
AHEAD survey

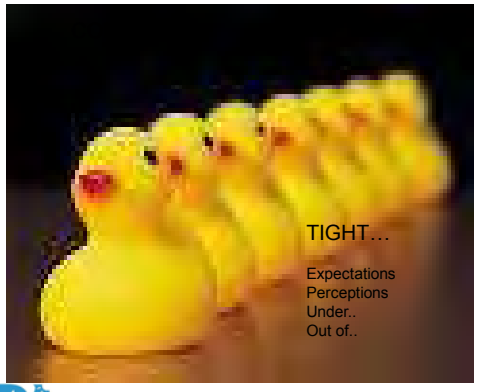
- Screens for disordered eating behaviors and Type I diabetes
  - Out of 143 adolescents with type I diabetes
    - Nearly 40 % females and 16% males engaged in unhealthy weight control practices
    - Of the females, nearly 18% skipped or reduced insulin to control weight

Mollie

- 14 year old female, Caucasian
- Diagnosed with Diabetes at age 4- insulin pump
- Family characteristics
- Presentation to Psych







"Under control"

can lead to

"Out of control"

Time line

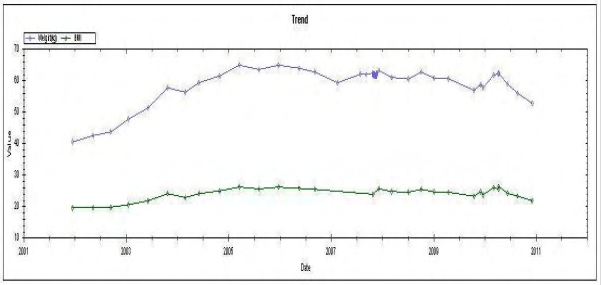
- age 17 -admitted for inpatient treatment of eating disorder symptomology
- Cutting
- Concerned with appearance, wanting to lose weight
- Binging and purging, using laxatives
- Restricting her insulin dosing
- Depressive symptoms, thoughts of suicide

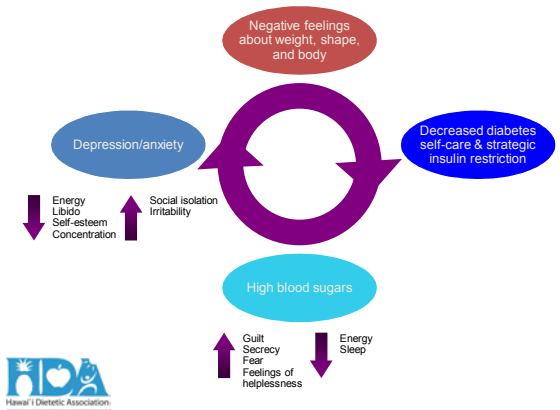
Time line

- Only one visit with the RD, not motivated to follow through on any recommendations
- Endo visit- A1c – 12%, hope that with EDO treatment she may become more motivated to control her diabetes
- Psych visit – eating disorder out of control- admitted to 2nd EDO treatment

Subsequent visits

- Quit seeing the RD – does not feel it is helpful
- Off of the insulin pump and now taking injections
- A1c – 11.8%
- Numerous ER visits for elevated BS 571
- DKA
- Left AMA





Eating Disorder?

- Fluctuating blood sugars
- Frequent Hypoglycemia
- Frequent Hyperglycemia
- High hemoglobin A1C
- Increase in insulin adjustments
- Hypokalemia
- Hyponatremia
- Decline or stall linear growth
- Preoccupation with food /weight
- Labs may be normal

What works?

- Find out what motivates the individual- social
- Physical- height
- College admission
- Muscle mass
- Pregnancy
- Empowerment

Family Therapy

"When families reject psychological treatment, recovery from diabulimia can be delayed"

- Family dynamics contribute significantly to eating disorders, the families way of perceiving and dealing with the maladaptive behavior may be counterproductive, and may reinforce it.
- Looking at individual issues without considering their relationships within the family system misses important etiologic and maintaining factors of dysfunctional behaviors

SCOFF Questionnaire

- Do you make yourself Sick because you feel uncomfortably full?
- Do you worry you have lost Control over how much you eat?
- Have you recently lost more than One stone (14 lb) in a 3-month period?
- Do you believe yourself to be Fat when others say you are too thin?
- Would you say that Food dominates your life?

MAYO CLINIC

MAYO CLINIC

- Eating disorders often lead to serious medical consequences that can be life threatening
- It is critical for patients to receive ongoing medical assessment and intervention, which should take precedent over nutritional and psychological interventions
- Due to the complexity of eating disorders, a multi-disciplinary approach is imperative, including psychologists, physicians and dietitians

Eating Disorder Resources

- Bays, J. *Mindful Eating a guide to rediscovering a healthy and joyful relationship with food*. Boston: Shambhala, 2009.
- Danowski, D, and P Lazaro. *Why Can't I Stop Eating? - Recognizing, Understanding and overcoming food addictions. Hazelden, 2000.*
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Resources

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