EATING DISORDERS
Result of: **Anorexia Nervosa**
“self-imposed starvation”
Her diet: lettuce leaves + diet coke

5’ 9”
Weight 98 pounds
BMI 14.5
October 2006
21 year old
Ana Carolina Reston
Brazilian model
Died:
Anorexia Nervosa
February 2007
Eliana Ramos
18 year old
sister of Luisel
Model:
died of
heart attack
Related to:
“malnutrition”
Body image: way you perceive of your body

Continent

Food is not an issue

Body Ownership

Eating Disordered

Body Hate/Dissociation
Healthy weight
Healthy eating/exercise
Good body image

Weight/shape preoccupation
Yo-Yo dieting
Excessive exercising

Fasting
Compulsive overeating
Steroid use

Distorted body image
Laxative abuse
Muscle dysmorphia

Anorexia
Bulimia
Binge eating disorder
Body Image: 
Your perception
Eating Disorders

• Psychiatric disorder
• Severe disturbances: body image & eating behavior
• Impairs: psychosocial health & physical health
• 2 common types: 1) anorexia nervosa & 2) bulimia nervosa
Anorexia Nervosa

• Self-starvation
• Severe nutrient deficiencies
• May result in death
Bulimia Nervosa

• Extreme overeating
• Followed by compensation to prevent weight gain:

Self-induced vomiting, misuse of laxatives, fasting, excessive exercise
What causes eating disorders?

Many possible factors:

- Psychological
- Interpersonal
- Social
- Genetic/biological
**GENETIC**
- Inherited personality traits
- Genes that affect hunger, satiety, and body weight

**PSYCHOLOGICAL**
- Low self esteem
- Need for self control
- Unhealthy body image

**SOCIOCULTURAL**
- Thin body ideal
- Influences from media, family, and friends
- Abundant food supply
Family Environment & Eating Disorders
Family Environment

In general:

• Family “conditioning” influences eating behavior
• Childhood eating influenced by parents/guardians
• Eating together as a family vs. eating alone: making your own meals
• Choice/type of foods
Family Environment & Eating Disorders

• One child with eating disorder:
  ▲ chances- sibling eating disorder

• Child with anorexia-
  family may be:
  A) More rigid- structured
  B) Less open to discussion-
      disagreeable topics
Family Environment & Eating Disorders

Child with bulimia

Family:
A) Less stable structure
B) Less nurturing
C) More angry interactions

Physical/Sexual abuse: ↑ risk of eating disorders
Sociocultural Factors

• American/European cultures - emphasis on slenderness & self-discipline
• Associated with health, wealth, beauty
• Eating disorders - more common - white females in these cultures
• Other developing countries: excess body fat = desirable
Sociocultural Factors

• **Comments** by family, friends, teachers → affect way we look at ourselves

• **Peer teasing/pressure** about weight

↑ **Body dissatisfaction**

↑ **Eating disorders**
Christy Henrich

- Gymnast - failed to make 1988 Olympic Team
- 4’11” 98 pounds
- US judge says she was “too fat”
- Dieting/obsessive exercise
- New weight 47 pounds
- Died - anorexia 1994
Unrealistic “Media” Body Image

• Media ads “computer enhanced”

• Lean, beautiful women

• Eating disorders: white women

• Adult men & women - understand images - unrealistic
Unrealistic “Media” Body Image

- **Adolescents**: developing identity/body image
- Unfavorable comparison: their body with “perfect” female body
- Body image $\rightarrow$ influence $\rightarrow$ eating behavior
Body Image: changes over the years
FIGURE F2.3 Thinness has not always been the beauty standard in America. This timeline shows how the female body ideal has changed over the years.

- **1900**: Actress Lillian Russell is considered a beauty at about 200 pounds.
- **1920s**: The thinner flapper look becomes popular.
- **1950s**: The curvy figure of Marilyn Monroe becomes the beauty standard.
- **1960s**: Twiggy, who weighs less than 100 pounds, is the leading model.
- **1980s**: Jane Fonda’s workout book is a best seller.
- **Today**: The fashion ideal today is thin but well-muscled.
Unrealistic “Media” Body Image
Personality Traits
Anorexia- Relationships

• **↑ Obsessive-compulsive disorder** (compulsion- repeat certain behavior)
• May be inherited
• Families: one child with anorexia:
  • Another child with **OCD**
• Perfectionism
• Socially inhibited
• **↑ Emotional restraint**
Personality Traits

Bulimia - Relationships

- Impulsive behavior
- Low self-esteem
- Erratic personality
- Self-criticism, negative moods
- Overeating
- Substance abuse
- Anxiety disorders
Personality Traits

Eating disorders: person uses “food” to gain control over his/her life and increase self-esteem.
Genetic & Biological Factors

Anorexia & Bulimia

• More common among biological relatives with these disorders

• Twin studies: **bulimia**

  50% genetic 
  50% environment influences
Genetic & Biological Factors

- Twin studies: **anorexia**
- 50-75% chance one twin
- Even if raised: different families
- **Multiple genes**: may influence eating disorders
- Other biological factors: imbalances- chemicals regulating: hunger/appetite/digestion
Anorexia Nervosa
American Psychiatric Association

• Affects **0.5-1%** US females
• Anorexia: 90-95% young girls/women
• Most common **psychiatric disorder in women**
• Leading cause **deaths** females: 15-24 years old
• Lower prevalence- **males**
Anorexia Nervosa: characteristics

- Restricted eating (few calories/day): “self-starvation”
- Fear of weight gain/becoming fat
- Anxiety, stress: 1-2 pound gain
- “Disturbed perception”: own body weight/shape
Anorexia Nervosa: Behavioral signs

• Person avoids eating situations
• Weighs self often
• Monitors food intake rigidly
• Unhappy: body size
• Denial- being hungry
Physical Signs

- **↓ Body weight (< 85% normal)**
- **↓ Energy, fatigue**
- **Unsteady walk**
- **Complaints: being cold**
- **Growth of fine/soft hair on face/arms: body’s attempt-temperature regulation**
- **Thin hair/hair loss**
- **Excessive exercise**
Dear Diary,

For breakfast today I had a cup of tea. For lunch I ate some lettuce and a slice of tomato, but no dressing. I cooked dinner for my family. I love to cook, but it is hard not to taste. I tried a new chicken recipe and served it with rice and asparagus. I even made a chocolate cake for dessert but I didn't even lick the bowl from the frosting. When it came time to eat, I only took a little. I told my mom I nibbled while cooking. I pushed the food around on my plate so no one would notice that I only ate a few bites. I was good today - I kept my food intake under control. The scale says I have lost 20 pounds but I still look fat.
Anorexia: Health Risks

Skin/hair/nails:
- Hair becomes thin, dry, and brittle; hair loss occurs
- Skin is dry, easily bruised, and discolored
- Nails turn brittle

Blood and immune system:
- Anemia
- Compromised immune system increases risk of infection

Kidneys:
- Dehydration
- Electrolyte abnormalities that can be life-threatening
- Chronic renal failure

Reproductive function:
- Disruption of sex hormone production, resulting in menstrual dysfunction and amenorrhea in females
- Infertility

Brain:
- Altered levels of serotonin and other neurotransmitters
- Alteration in glucose metabolism
- Mood changes

Thyroid gland:
- Abnormal thyroid levels due to starvation

Heart:
- Low blood pressure and abnormal heart rate contribute to dizziness and fainting
- Abnormal electrocardiogram (ECG)
- Sudden death due to ventricular arrhythmias

Gastrointestinal system:
- Abdominal pain and bloating caused by slowed gastric emptying and intestinal motility
- Acute pancreatitis
- Constipation

Bone:
- Decreased bone mineral density (osteopenia)
- Decreased ability to absorb calcium due to low estrogen levels
- Decreased intake of bone-building nutrients due to starvation
- Increased loss of bone due to elevated cortisol levels

Muscle:
- Loss of muscle tissue as the body uses the muscles as an energy source
Anorexia: Health Risks

- Body uses fat & lean tissue for energy → maintain vital functions
- Shut down non-vital functions (conserve energy)
- In children/adolescents: growth slows/stops
Anorexia: Health Risks

1) Skin, hair, nails: dry, fragile, thin, brittle

2) Blood/immune system: anemia, ↑ risk infections

3) Kidneys: dehydration, electrolyte imbalances: arrhythmias → death

4) Renal failure
5) Reproductive system
   ↓ Reproductive hormones
   Amenorrhea (no menstrual periods)
   Infertility

6) Muscles: ↓ muscle tissue
   (catabolized for energy)

7) Brain: changes in neurotransmitters, mood
8) **Heart**: abnormal heart rate, ↓ blood pressure, dizziness/fainting, **arrhythmias**

9) **GI system**: pain, bloating, constipation, irritable bowel syndrome

10) **Bones**: ↓ **Bone density**
“Dying to be Thin” Globe 3/31/08

• Higher rates eating disorders: Type 1 diabetics
• 1/3 women with Type 1 diabetes may skip/skimp on insulin to lose weight
• ↑ Kidney, eye, nerve, foot damage
• ↓ Insulin ↑ blood glucose, ↑ urine glucose (loss calories), ↓ weight
Jacqueline Jean Walsh

- Felt uncomfortable with weight gain: 86 $\rightarrow$ 98 pounds
- **Insulin** under dosing: started- high school Westford
- Began **wasting** away
- Loss clumps of hair
- Died 2004: age **27**
- Mom found **diaries**
Bulimia: binging & purging

- Affects: **1-4%** of women
- Predominantly women
- Sometimes- **men** in sports that encourage low body weight:
  - horse racing, wrestling, crew, gymnastics
- **½** people-
  - anorexia: also diagnosed with bulimia
Bulimia: symptoms

- Low-self esteem/depression
- Withdrawal: family & friends
- Overly concerned: body shape and weight
- Binging: 2X or more/week
- Large amount-food/short time:
  - 12 brownies
  - + 2 quarts ice cream: 30 minutes

A typical binge consists of easy-to-eat, low-fiber, smooth-textured, high-calorie foods.
Dear Diary,

Today started well. I stuck to my diet through breakfast, lunch, and dinner, but by 8 PM I was feeling depressed and bored. I thought food would make me feel better. Before I knew it I was at the convenience store buying two pints of ice cream, a large bag of chips, a one pound package of cookies, half dozen candy bars, and a quart of milk. I told the clerk I was having a party. But it was a party of one. Alone in my dorm room I started by eating the chips, then polished off the cookies and the candy bars, washing them down with milk and finishing with the ice cream. Luckily no one was around so I was able to vomit without anyone hearing. I feel weak and guilty but also relieved that I got rid of all those calories. Tomorrow, I will start a new diet.
Bulimia: symptoms

• Guilt feelings → purging

• Vomiting
• Laxatives
• Diuretics
• Enemas
• Excessive exercise
• 1-2 days of fasting (no food)
Binge- Purge Cycle

1. Negative self-perceptions
2. Restrictive dieting
3. Purging
4. Binge eating

The cycle continues with negative self-perceptions leading to restrictive dieting, then purging, and finally binge eating, leading back to negative self-perceptions.
Bulimia: Physical Signs

• Disappearance from house: large amounts of food
• Frequent trips: bathroom
• Excessive exercise
• Swelling cheeks, swelling salivary glands
• Complaints: GI discomfort/pain
Bulimia: Health Risks

• **Electrolyte imbalances**: due to sodium + potassium + water loss: vomiting

• **Irregular heart rate**: heart failure/death

• **GI tract**: Inflammation/ulceration- rupture of esophagus/stomach, irregular bowel movements, constipation
Bulimia: Health Risks

- Tooth decay/staining/gum disease due to stomach acids- vomiting
- **Calluses**: back of hands/knuckles: self-induced vomiting
- **Broken eye blood vessels**: pressure from vomiting
The male physique depicted in popular action figures in the 1970s, like Luke Skywalker and Han Solo from *Star Wars*, was more realistic than the bulked-up versions of the late 1990s.
“Reverse Anorexia Nervosa”

? New Male Eating Disorder

• Seen in males - often overweight
• Distressed if not lean/muscular
• “Concern”: body fat or “getting fat again”
• More emphasis (vs. women) on % muscle mass instead of total body weight
• Misperception of being “small & frail”

• **Body image distortion:** strive for “idealized” body size/shape
Warning Signs

- Rigid/excessive weight training schedule
- Strict adherence: high protein, muscle-enhancing diet
- Use of anabolic steroids, protein powders, muscle-enhancing supplements
- Avoidance: social situations- where not able to follow strict diet
- Frequent: critical self-evaluation of body composition
• **Weight control**: more often excessive exercise (vs. female methods: calorie restriction, vomiting, laxatives)
Dietary supplements to lose weight

2003: Baltimore Oriole Pitcher Steve Bechler Died from using dietary supplement containing ephedra
Ephedra (ephedrine): Stimulant isolated from plants or made synthetically

- Rapid heart rate, blood pressure increase, dizziness, sweating, headache, sleep problems
- Linked to: heart attack/stroke/death
- 2004 FDA banned dietary supplements containing ephedra
Gaining weight in underweight person

- Underweight BMI <18.5
- Gaining weight often as difficult as overweight person losing weight
- Possible causes: genetics, lifestyle, chronic diseases, psychological disturbances
- Evaluation by doctor - find underlying cause(s)
To gain weight

- Gradual increase in calorie-dense foods
- ▲ Healthy fats
- Fatty fish, salmon, olives, avocados, seeds, low fat cheeses, nuts, peanut butter, bananas, granola
- Fruit juices, low fat smoothies, milk shakes vs. soft drinks
- Regular meals + snacks
- Weight lifting + ▲ calorie intake
2 other Eating Disorders

- Binge Eating Disorder
- Night Eating Disorder
Binge Eating Disorder: compulsive overeating

Stressful event "go on an eating binge"
(work, relationships, school)

• Eat large amounts food/short period

• > 2X/week
Binge Eating Disorder

- Common in men, minority groups
- People often: overweight
- Amount of food without purging
- Weight gain
Binge Eating Disorder: Symptoms

• Rapid eating
• Eating until uncomfortably full
• Eating when **not** hungry
• Eating *alone/in secret*
• Feelings: disgust, depression, guilt
• **Negative self-esteem**
• Substance abuse
• Anxiety disorders
Health Risks

• ↑ Risk: overweight/obesity
• ↑ Increased risk: heart disease/stroke, blood pressure, arthritis
• Binge foods eaten: high in fat & sugar: ↑ blood lipids
• Stress from binge eating: low self-esteem, depression, negative thoughts
Night Eating Syndrome
Night Eating Syndrome

- First reported 1955 - Dr. Albert Stunkard
- Patients: **not** hungry in **morning**
- Eat little during **day**
- **Insomnia/altered sleep patterns**
- Spend evening/night: eating
- **8 PM - 6 AM**: most energy consumed vs. day
- Eat **high calorie snacks** - **middle of night**
Night Eating Syndrome

- **No binging**
- Risk: obesity
- Occurs in people: obese, weight-loss clinics, weight-loss surgery
- May be stress related
- Changes: brain neurotransmitters, hormones
- Depression/mood disorders
- Risk: heart disease, stroke, blood pressure, diabetes, arthritis, sleep apnea
Weight Cycling: Yo-Yo Dieting

After several rounds of dieting and then regaining the weight, Oprah Winfrey has stated that she is now comfortable with her weight. Here are two extreme examples of her weight cycling. At left, Oprah in 1988, after losing 67 pounds. At right, in 1992, having regained the weight.

Oprah Winfrey after she lost 67 pounds (the amount of fat in the wagon) by consuming a very low-calorie, liquid protein diet.
Weight Cycling: Yo-Yo Dieting

- Also called: “Chronic Dieting”
- Successful weight loss then….
- **Regain** of lost weight
- Repeat of **cycle**: over/over again
- **Stress** related to dieting: \( \uparrow \text{cortisol} \)
  (Stress hormone-adrenal gland)
Symptoms

- **Preoccupation**: food/calories/weight/body size/shape
- Strict **dieting**
- Person classifies food: “good” or “bad”
- Excessive exercise
- Chronic fatigue
- Mood swings
- Loss concentration
Health Risks

• Poor nutrient/energy intake
• Loss- lean tissue
• Poor bone health
• Fatigue, decreased ability to exercise
• May develop: anorexia or bulimia
Underlying Problem:

• **Severe** restriction - calories
• **Metabolism slows**
• ↓**BMR** faster than ↓**weight loss**
• Result: need **even** greater reduction in calories to lose weight
• **Frustration**
Better approach to weight loss

• ↑ Exercise/activity
  (aerobic/weights): +300-500 burn: calories/day

• Moderate ↓ in food/drink:
  - 300-500 calories/day

Achieve: energy (calorie) deficit
Better approach to weight loss

• Nutrient dense/low calorie foods (volumetrics)

• Result: ↓ Fat tissue

• Minimal changes: lean tissue & BMR
Female Athlete Triad

• Syndrome: seen in female athletes

• 3 components:
  A) Disordered eating
  B) Menstrual dysfunction (amenorrhea)
  C) Osteoporosis
Females at risk: sports emphasizing **leaness**

- Dance
- Figure skating
- Diving
- Gymnastics
- Long distance running
- Cycling
- Cross-country skiing
- Horse racing
- Rowing
- Martial arts
- Sports requiring: **weigh-ins, weight specific categories**
Pressure to be thin/have certain body size

General: Social, Cultural

Fear: cut from team, loss athletic scholarship, elimination during competition
Result: some female athletes have disordered eating.

- Energy (calorie) deficit
- ↓ Sex hormones
- Disrupts menstrual cycle: amenorrhea
- ↓ Estrogen (needed for bone density)
- ↑ Risk: osteoporosis
- ↑ Risk: muscle/bone injuries; stress fracture
Female Athlete Triad

**Treatment**: multidisciplinary approach

Work together:

- Coach, trainer, nutritionist, exercise physiologist, psychologist, parents, friends
Eating Disorders: Treatment
Multidisciplinary Team Approach
American Psychiatric Association
5 levels depending on:

1. Severity
2. Type of Disorder
Eating Disorders: Treatment

Level 5  Inpatient hospitalization

Level 4  Residential Treatment Center

Level 3  Partial Hospitalization

Level 2  Intensive Outpatient

Level 1  Outpatient
Eating Disorders Treatment

• **Physical exam**, diagnosis, identification-underlying causes

• **Team members**: meet with patient and family & friends (ask questions about severity- patient may be in denial)

• **Severity level**: A) severe malnutrition: hospitalization, stabilize condition, **refeeding**; B) underweight but medically stable: **outpatient**
Eating Disorders Treatment

- **Key:** education (patient & family), advice, support
- Encourage **healthful eating**
- Minimize **distress** about food, body weight/shape
- **Nutritional counseling** (dietician)
- **Psychotherapy:** psychiatrist, psychologist
- **Family Therapy, Support groups**
- **Medications** (antidepressants)
- **After weight gain:** Continue treatment 1-2 years- prevent **relapse**, medications
Eating Disorders: **key**- recognizing **risk factors** → **prevention**

**Emphasis:**

- Achieve **healthy weight** for person: maintained for life
- Weight based on: **genetics, environment, exercise opportunities** vs.
- Striving for **unhealthy** body weight, constant dieting, disordered eating behaviors
Prevention

• ↓ Peer/family weight related teasing/criticism
• Help children understand “unrealistic” media body images
• Encourage physical activity/sports in children: prevent weight gain
• Establish good eating behaviors: school, home, outside (friends)
Prevention

• Teach children about **nutrition**: foods to **encourage** vs. **limit**

• Encourage children to **walk**: to/from school, at school, work, home

• Have parents be **role models**: healthy diet/exercise

• **Emphasize positive comments**: children’s body image, appearance during their development