Energy Balance and Body Composition

Chapter 8
Energy Balance

- Excess energy is stored as fat
  - Fat is used for energy between meals
- **Energy balance: energy in = energy out**
  - A shift in balance causes weight changes
  - 1 pound of fat = 3500 kcalories
  - The composition of weight gained or lost is normally about 75% fat and 25% lean.
  - In starvation, losses of fat and lean are about equal
Energy Balance

**Energy in = Energy out**

Energy in = food
beverages
alcohol

Energy out = basal metabolism
physical activity
food digestion
A bomb calorimeter is an instrument that measures the heat energy released when foods are burned. Heat energy is measured in kcalories.
Food Intake

**Appetite:**
- The response to the sight, smell, thought, or taste that initiates or delays eating

**Hunger:**
- Physiological drive for food
  - Irritating feeling that motivates you to eat
  - Physiological response to nerve signals and chemical messengers
    - Originates in Hypothalamus
Food Intake

- Hunger
- Influenced by:
  - Nutrients in bloodstream
  - Size and composition of preceding meal
  - Customary eating patterns
  - Climate
  - Exercise
  - Hormones
  - Illness
- Eat in periodic “batches”; about 4 hour intervals
Food Intake

**Satiation:**
- Feeling of satisfaction and fullness during a meal
- Signals us to stop eating

**Satiety:**
- Feeling of satisfaction after a meal and inhibits eating
- Maintains the signal NOT to eat
Hunger, Satiation, and Satiety

1. **Physiological influences**
   - Empty stomach
   - Gastric contractions
   - Absence of nutrients in small intestine
   - GI hormones
   - Endorphins (the brain's pleasure chemicals) are triggered by the smell, sight, or taste of foods, enhancing the desire for them

2. **Sensory influences**
   - Thought, sight, smell, sound, taste of food

3. **Cognitive influences**
   - Presence of others, social stimulation
   - Perception of hunger, awareness of fullness
   - Favorite foods, foods with special meanings
   - Time of day
   - Abundance of available food

4. **Postingestive influences**
   - (after food enters the digestive tract)
   - Food in stomach triggers stretch receptors
   - Nutrients in small intestine elicit hormones (for example, fat elicits cholecystokinin, which slows gastric emptying)

5. **Postabsorptive influences**
   - (after nutrients enter the blood)
   - Nutrients in the blood signal the brain (via nerves and hormones) about their availability, use, and storage
   - As nutrients dwindle, satiety diminishes
   - Hunger develops

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Food Intake

Overriding Hunger and Satiety Signals:

- Signals that may trigger eating:
  - stress, anxiety
- External cues
  - sight, smell, time of day, availability, boredom, favorite food, portion size
- Signals trigger satiety:
  - anorexia, stress, excitement
Food Intake

Sustaining Satiation and Satiety:

- **Protein:** is most satiating
- **High fiber:** fills the stomach and delays absorption; also satiating
- **Fat:**
  - entices us to eat more
  - as a weak satiating effect in the stomach
  - stronger satiating effect in small intestine
How Fat Influences Portion Sizes

For the same size portion, peanuts deliver more than 15 times the kcalories and 20 times the fat of popcorn.

For the same number of kcalories, a person can have a few high-fat peanuts or almost 2 cups of high-fiber popcorn. (This comparison used oil-based popcorn; using air-popped popcorn would double the amount of popcorn in this example.)
Food Intake

Hypothalamus - Message Central:

- Control center for eating
- Integrates messages
  - Energy intake, expenditure, storage
  - Receives messages from brain, mouth, GI tract, liver
  - Neuropeptide Y - a gastrointestinal hormone
    - Stimulates appetite
    - Decreases energy expenditure
    - Increases fat storage
Energy Out: The kCalories the Body Expends

- Energy expenditure includes:
  - basal metabolic activities
  - physical activity
  - thermic effect of food

- These energy requirements differ from person to person and are affected by age, gender, weight, and height.

- The intensity and duration of physical activity also make a difference.
Components of Energy Expenditure

The amount of energy expended in voluntary physical activities has the greatest variability, depending on a person’s activity patterns. For a sedentary person, physical activities may account for less than half as much energy as basal metabolism, whereas an extremely active person may expend as much on activity as for basal metabolism.

- 30–50% Physical activities
- 10% Thermic effect of food
- 50–65% Basal metabolism

The amount of energy expended in a day differs for each individual, but in general, basal metabolism is the largest component of energy expenditure and thermic effect of food is the smallest.
Energy Out: Basal Metabolism

- Energy the body spends for maintenance activities

- Metabolic activities
  - All basic processes of life
  - Exp: maintaining body temperature
    - making new RBC’s
    - heart beating
    - breathing (inhaling and exhaling)

- 2/3 of energy spent per day supports basal metabolism

- Rate varies between people
Factors that Affect Basal Metabolism

<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect on BMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Lean body mass diminishes with age, slowing the BMR.</td>
</tr>
<tr>
<td>Height</td>
<td>In tall, thin people, the BMR is higher.</td>
</tr>
<tr>
<td>Growth</td>
<td>In children, adolescents, and pregnant women, the BMR is higher.</td>
</tr>
<tr>
<td>Body composition (gender)</td>
<td>The more lean tissue, the higher the BMR (which is why males usually have a higher BMR than females). The more fat tissue, the lower the BMR.</td>
</tr>
<tr>
<td>Fever</td>
<td>Fever raises the BMR.</td>
</tr>
<tr>
<td>Stresses</td>
<td>Stresses (including many diseases and certain drugs) raise the BMR.</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>Both heat and cold raise the BMR.</td>
</tr>
<tr>
<td>Fasting/starvation</td>
<td>Fasting/starvation lowers the BMR.</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>Malnutrition lowers the BMR.</td>
</tr>
<tr>
<td>Hormones (gender)</td>
<td>The thyroid hormone thyroxin, for example, can speed up or slow down the BMR.</td>
</tr>
<tr>
<td>Smoking</td>
<td>Nicotine increases energy expenditure.</td>
</tr>
<tr>
<td>Caffeine</td>
<td>Caffeine increases energy expenditure.</td>
</tr>
<tr>
<td>Sleep</td>
<td>BMR is lowest when sleeping.</td>
</tr>
</tbody>
</table>

*The BMR begins to decrease in early adulthood (after growth and development cease) at a rate of about 2 percent/decade. A reduction in voluntary activity as well brings the total decline in energy expenditure to about 5 percent/decade.*
*If two people weigh the same, the taller, thinner person will have the faster metabolic rate, reflecting the greater skin surface, through which heat is lost by radiation, in proportion to the body’s volume (see Figure 8-5, p. 239).*
*Fever raises the BMR by 7 percent for each degree Fahrenheit.*
*Prolonged starvation reduces the total amount of metabolically active lean tissue in the body, although the decline occurs sooner and to a greater extent than body losses alone can explain. More likely, the neural and hormonal changes that accompany fasting are responsible for changes in the BMR.*
*The thyroid gland releases hormones that travel to the cells and influence cellular metabolism. Thyroid hormone activity can speed up or slow down the rate of metabolism by as much as 50 percent.*
Each of these structures is made of 8 blocks. They weigh the same, but they are arranged differently. The short, wide structure has 24 sides and the tall, thin one has 34. Because the tall, thin structure has a greater surface area, it will lose more heat (expend more energy) than the short, wide one. Similarly, two people of different heights might weigh the same, but the taller, thin one will have a higher BMR (expend more energy) because of the greater skin surface.
Energy out: Physical Activity

Physical Activity:
- Most variable and changeable component
- Energy needed depends on:
  - muscle mass
  - body weight
  - the activity
- The larger the muscle mass and heavier the weight, the more energy is expended
- The activity’s duration, frequency, intensity
### Table 8-2 Energy Expended on Various Activities

The values listed in this table reflect both the energy expended in physical activity and the amount used for BMR. To calculate kcalories spent per minute of activity for your own body weight, multiply kcal/lb/min (or kcal/kg/min) by your exact weight and then multiply that number by the number of minutes spent in the activity. For example, if you weigh 142 pounds, and you want to know how many kcalories you spent doing 30 minutes of vigorous aerobic dance: 0.062 x 142 = 8.8 kcalories per minute; 8.8 x 30 minutes = 264 total kcalories spent.

<table>
<thead>
<tr>
<th>Activity</th>
<th>kcal/lb min</th>
<th>kcal/kg min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic dance (vigorous)</td>
<td>.062</td>
<td>.136</td>
</tr>
<tr>
<td>Basketball (vigorous, full court)</td>
<td>.097</td>
<td>.213</td>
</tr>
<tr>
<td>Bicycling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 mph</td>
<td>.045</td>
<td>.099</td>
</tr>
<tr>
<td>15 mph</td>
<td>.049</td>
<td>.108</td>
</tr>
<tr>
<td>17 mph</td>
<td>.057</td>
<td>.125</td>
</tr>
<tr>
<td>19 mph</td>
<td>.076</td>
<td>.167</td>
</tr>
<tr>
<td>21 mph</td>
<td>.090</td>
<td>.198</td>
</tr>
<tr>
<td>23 mph</td>
<td>.109</td>
<td>.240</td>
</tr>
<tr>
<td>25 mph</td>
<td>.139</td>
<td>.306</td>
</tr>
<tr>
<td>Canoeing, flat water, moderate pace</td>
<td>.045</td>
<td>.099</td>
</tr>
<tr>
<td>Cross-country skiing 8 mph</td>
<td>.104</td>
<td>.229</td>
</tr>
<tr>
<td>Gardening</td>
<td>.045</td>
<td>.099</td>
</tr>
<tr>
<td>Golf (carrying clubs)</td>
<td>.045</td>
<td>.099</td>
</tr>
<tr>
<td>Handball</td>
<td>.078</td>
<td>.172</td>
</tr>
<tr>
<td>Horseback riding (trot)</td>
<td>.052</td>
<td>.114</td>
</tr>
<tr>
<td>Rowing (vigorous)</td>
<td>.097</td>
<td>.213</td>
</tr>
<tr>
<td>Running</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mph</td>
<td>.061</td>
<td>.134</td>
</tr>
<tr>
<td>6 mph</td>
<td>.074</td>
<td>.163</td>
</tr>
<tr>
<td>7.5 mph</td>
<td>.094</td>
<td>.207</td>
</tr>
<tr>
<td>9 mph</td>
<td>.103</td>
<td>.227</td>
</tr>
<tr>
<td>10 mph</td>
<td>.114</td>
<td>.251</td>
</tr>
<tr>
<td>11 mph</td>
<td>.131</td>
<td>.288</td>
</tr>
<tr>
<td>Soccer (vigorous)</td>
<td>.097</td>
<td>.213</td>
</tr>
<tr>
<td>Studying</td>
<td>.011</td>
<td>.024</td>
</tr>
<tr>
<td>Swimming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 yd/min</td>
<td>.032</td>
<td>.070</td>
</tr>
<tr>
<td>45 yd/min</td>
<td>.058</td>
<td>.128</td>
</tr>
<tr>
<td>50 yd/min</td>
<td>.070</td>
<td>.154</td>
</tr>
<tr>
<td>Table tennis (skilled)</td>
<td>.045</td>
<td>.099</td>
</tr>
<tr>
<td>Tennis (beginner)</td>
<td>.032</td>
<td>.070</td>
</tr>
<tr>
<td>Vacuuming and other household tasks</td>
<td>.030</td>
<td>.066</td>
</tr>
<tr>
<td>Walking (brisk pace)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5 mph</td>
<td>.035</td>
<td>.077</td>
</tr>
<tr>
<td>4.5 mph</td>
<td>.048</td>
<td>.106</td>
</tr>
<tr>
<td>Weight lifting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>light-to-moderate</td>
<td>.024</td>
<td>.053</td>
</tr>
<tr>
<td>vigorous</td>
<td>.048</td>
<td>.106</td>
</tr>
<tr>
<td>Wheelchair basketball</td>
<td>.084</td>
<td>.185</td>
</tr>
<tr>
<td>Wheeling self in wheelchair</td>
<td>.030</td>
<td>.066</td>
</tr>
<tr>
<td>Wii games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bowling</td>
<td>.021</td>
<td>.046</td>
</tr>
<tr>
<td>boxing</td>
<td>.021</td>
<td>.047</td>
</tr>
<tr>
<td>tennis</td>
<td>.022</td>
<td>.048</td>
</tr>
</tbody>
</table>
Energy Expenditure

Thermic Effect of Foods:
- The energy required to process food
- Estimated at 10% of energy intake

Adaptive Thermogenesis:
- Adjustment in energy expenditure related to dramatically changed circumstances
- Variable and specific to individuals; not used in calculating energy needs
Estimating Energy Requirements

- Gender - women have a lower BMR than men
- Growth - active growth raises your BMR
- Age - reduction in energy expenditure is about 5% per decade
- Physical Activity
- Body Composition and body size
  - BMR is higher in tall people
  - The more a person weighs, the more energy is spent on BMR
Estimating Energy Expenditure  
(Using weight in kilograms and height in meters)

- Men 19 years and older:
  
  $$\text{EER} = \{662 - (9.53 \times \text{age})\} + \text{PA} \times \{(15.91 \times \text{wt}) + (539.6 \times \text{ht})\}$$

- Women 19 years and older:
  
  $$\text{EER} = \{354 - (6.91 \times \text{age})\} + \text{PA} \times \{(9.36 \times \text{wt}) + (726 \times \text{ht})\}$$

### Physical Activity (PA) Factors for EER Equations

<table>
<thead>
<tr>
<th>Physical Activity</th>
<th>Men</th>
<th>Women</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>1.0</td>
<td>1.0</td>
<td>Typical daily living activities</td>
</tr>
<tr>
<td>Low active</td>
<td>1.11</td>
<td>1.12</td>
<td>plus 30–60 min moderate activity</td>
</tr>
<tr>
<td>Active</td>
<td>1.25</td>
<td>1.27</td>
<td>plus ≥ 60 min moderate activity</td>
</tr>
<tr>
<td>Very active</td>
<td>1.48</td>
<td>1.45</td>
<td>plus ≥ 60 min moderate activity and 60 min vigorous or 120 min moderate activity</td>
</tr>
</tbody>
</table>

**NOTE:** Moderate activity is equivalent to walking at 3 to 4½ mph.
Body Weight and Body Composition

- Defining Healthy Body Weight
- The Criterion of Fashion
  - What is “Ideal”?—
    - Movies, magazines and television
  - Perceived body images vs actual
- Half of preteen girls and one third of preteen boys are unsatisfied with their weight and body shape
Dangerously Thin
# Tips for Accepting a Healthy Body Weight

**TABLE 8-3 Tips for Accepting a Healthy Body Weight**

- Value yourself and others for human attributes other than body weight. Realize that prejudging people by weight is as harmful as prejudging them by race, religion, or gender.
- Use positive, nonjudgmental descriptions of your body.
- Accept positive comments from others.
- Focus on your whole self including your intelligence, social grace, and professional and scholastic achievements.
- Accept that no magic diet exists.
- Stop dieting to lose weight. Adopt a lifestyle of healthy eating and physical activity permanently.
- Follow the USDA Food Patterns. Never restrict food intake below the minimum levels that meet nutrient needs.
- Become physically active, not because it will help you get thin but because it will make you feel good and improve your health.
- Seek support from loved ones. Tell them of your plan for a healthy life in the body you have been given.
- Seek professional counseling, not from a weight-loss counselor, but from someone who can help you make gains in self-esteem without weight as the primary focus.
- Appreciate body weight for its influence on health, not appearance.
Defining Healthy Body Weight

How much should I weigh?

- The Criterion of Health-
  Good health and longevity supersedes appearance
- Ideally, a person needs enough fat to meet basic needs, but not so much as to incur health risks
Defining Healthy Body Weight

Body Mass Index (BMI): Relative weight for height

\[ \text{BMI} = \frac{\text{weight (kg)}}{\text{height (m)}^2} \quad \text{or} \quad \frac{\text{weight (lbs)} \times 703}{\text{height (in)}^2} \]

- BMI <18.5 = underweight
- BMI 18.5 to 24.9 = normal
- BMI 25 to 29.9 = overweight
- BMI >30 = obese.

Not a measure of body composition
BMI and Body Shapes

Body Composition

At 6 feet 3 inches tall and 245 pounds, Mike O’Hearn would be considered overweight by most height-weight standards. Yet he is clearly not overfat.

6 feet, 4 inches tall
250 pounds
Distribution of Body Weights in US Adults

- Overweight (BMI 25–29.9)
- Healthy weight (BMI 18.5–24.9)
- Obesity (BMI 30–39.9)
- Underweight (BMI <18.5)
- Extreme obesity (BMI ≥40)
Body Fat and Its Distribution

- Important information for disease risk
  - How much of weight is fat?
  - Where is fat located?
- Ideal amount of body fat depends on person
- General disease risk levels
  - Young men: 22%; Men over 40: 25%
  - Young women: 32%; Women over 40: 35%
Body Fat and Its Distribution

**Athletes:**
- **Men:** 7-16%
- **Women:** 15-22%

**Table 8-5 Percent Body Fat**

<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>Ideal (Healthy weight, average fitness)</th>
<th>Actual (US average)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–39</td>
<td>18–21</td>
<td>26</td>
</tr>
<tr>
<td>40–59</td>
<td>22–25</td>
<td>29</td>
</tr>
<tr>
<td>60+</td>
<td>24–27</td>
<td>31</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–39</td>
<td>23–26</td>
<td>33</td>
</tr>
<tr>
<td>40–59</td>
<td>28–32</td>
<td>41</td>
</tr>
<tr>
<td>60+</td>
<td>31–34</td>
<td>42</td>
</tr>
</tbody>
</table>

Body Fat Distribution
Central Obesity

- Intra-abdominal fat, (visceral fat), independent of BMI, is associated with increased risk of:
  - Heart disease
  - Stroke
  - Diabetes
  - Hypertension
  - Gallstones
In healthy weight people, some fat is stored around the organs of the abdomen.

In overweight people, excess abdominal fat increases the risks of diseases.
“Apple” and “Pear” Body Shapes Compared

Upper-body fat is more common in men than in women and may be more closely associated with chronic diseases.

Lower-body fat is more common in women than in men and is not usually associated with chronic diseases.

Waist Circumference

- Practical indicator of fat distribution and abdominal fat
- High risk of central obesity related health problems:
  - Men: waist circumference > 40
  - Women: waist circumference > 35
Common Methods Used to Assess Body Fat

Skinfold measures estimate body fat by using a caliper to gauge the thickness of a fold of skin on the back of the arm (over the triceps), below the shoulder blade (subscapular), and in other places (including lower-body sites), and then comparing these measurements with standards.

Hydrodensitometry measures body density by weighing the person first on land and then again while submerged in water. The difference between the person's actual weight and underwater weight provides a measure of the body's volume. A mathematical equation using the two measurements (volume and actual weight) determines body density, from which the percentage of body fat can be estimated.

Bioelectrical impedance measures body fat by using a low-intensity electrical current. Because electrolyte-containing fluids, which readily conduct an electrical current, are found primarily in lean body tissues, the leaner the person, the less resistance to the current. The measurement of electrical resistance is then used in a mathematical equation to estimate the percentage of body fat.

Air displacement plethysmography estimates body composition by having a person sit inside a chamber while computerized sensors determine the amount of air displaced by the person's body.

Dual energy X-ray absorptiometry (DEXA) uses two low-dose X-rays that differentiate among fat-free soft tissue (lean body mass), fat tissue, and bone tissue, providing a precise measurement of total fat and its distribution in all but extremely obese subjects.

Waist circumference measures central obesity by placing a nonstretchable measuring tape around the waist just above the bony crest of the hip. The tape runs parallel to the floor and is snug, but does not compress the skin.
Health Risks Associated With Body Weight and Fat

**Underweight:**
- Unable to preserve lean tissue against wasting diseases
- Menstrual irregularities and infertility
- Osteoporosis and bone fractures
BMI and Mortality

Risk increases as BMI declines

Risk increases as BMI rises
Health Risks of Overweight

**Overweight:**
- Risks include:
  - Diabetes
  - Hypertension
  - Cardiovascular Disease
  - Sleep Apnea
  - Osteoarthritis
  - Respiratory problems
  - Gallbladder Disease
  - Infertility
  - Complications in Pregnancy and surgery
Health Risks

- 300,000 people die annually from obesity related illnesses
- $147 billion spent annually on obesity related illness
- Mortality increases as excess weight increases
- People with BMI greater than 35 are twice as likely to die from heart disease
- Weight gain of more than 20# between early and middle adulthood increases risk
Health Risks of Overweight

**Cardiovascular Disease:**
- Central obesity may increase the risk of stroke and heart attacks

**Diabetes:**
- Type II Diabetes 3X more likely in obese people
- Type II Diabetes often has central obesity

**Cancer:**
- Relationship is unclear between cancer risk and increased body weight or weight gain
Health Effects

**Metabolic Syndrome:** a cluster of at least 3 of the following risk factors

- High Blood Pressure
- High Glucose
- High triglycerides
- Low HDL
- High Waist Circumference

- Increases the risk for diabetes, hypertension, atherosclerosis
Being active—even if overweight—is healthier than being sedentary.
End of Chapter 8

Energy Balance
Eating Disorders

Highlight 8
Eating Disorders

- Anorexia nervosa,
- Bulimia nervosa
- Binge-eating disorders.

The causes include a combination of sociocultural, psychological, and perhaps neurochemical factors.

Athletes are among the most likely group to develop eating disorders.
The Female Athlete Triad

- Disordered eating habits can develop.
  - Desire to improve performance and excel
  - Enhance aesthetic appeal of their performance
  - Attempt to meet unsuitable weight standards
  - Unsupervised dieting
Eating Disorder
- Restrictive dieting (inadequate energy and nutrient intake)
- Overexercising
- Weight loss
- Lack of body fat

Osteoporosis
- Loss of calcium from bones

Amenorrhea
- Diminished hormones

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Preventing Eating Disorders in Athletes

- Follow USDA Food Guide for food servings.
- Eat frequently, especially healthy snacks.
- Establish a reasonable weight goal.
- Allow reasonable time to achieve the weight goal.
- Join a weight maintenance support group.
Tips for Combating Eating Disorders

**TABLE H8-1  Tips for Combating Eating Disorders**

**General Guidelines**

- Never restrict food amounts to below those suggested for adequacy by the USDA Food Patterns (see Table 2-2 on p. 44).
- Eat frequently. Include healthy snacks between meals. The person who eats frequently never gets so hungry as to allow hunger to dictate food choices.
- If not at a healthy weight, establish a reasonable weight goal based on a healthy body composition.
- Allow a reasonable time to achieve the goal. A reasonable loss of excess fat can be achieved at the rate of about 10 percent of body weight in 6 months.
- Establish a weight-maintenance support group with people who share interests.

**Specific Guidelines for Athletes and Dancers**

- Replace weight-based goals with performance-based goals.
- Restrict weight-loss activities to the off-season.
- Remember that eating disorders impair physical performance. Seek professional help in obtaining treatment if needed.
- Focus on proper nutrition as an important facet of your training, as important as proper technique.
Anorexia Nervosa

- Mostly females
- Distorted body image
- Often unresolved family conflicts
- Strong parental control
- Use food to gain control
- Strong discipline
- Extremely knowledgeable regarding kcaldories
- Extreme exercise
- Starvation/Malnutrition
Anorexia Nervosa

- Starvation
  - Metabolic rate slows
  - Heart muscle weakens
  - Bleed pressure falls
  - Mineral imbalance
  - Impaired immune system
  - Anemia
  - Deteriorated gastrointestinal tract
Anorexia Nervosa

- Treatment is multidisciplinary
  - Physician, nurse, psychiatrists, family therapists, and dietitians
  - Food and weight
  - Relationships with self and others
Bulimia Nervosa

- Weight fluctuates approximately 10 #
- Educated
- Weight is close to IBW
- Depressed and has low self esteem
- Obsessed with body weight and food
- Consumes food for emotional comfort
  - Secret binge-eating or extremely large portions, often at night, lasts for an hour or more
- Followed by purging
- May use an emetic (stimulate vomiting) or a laxative (stimulate diarrhea)
- Feelings of shame or guilt
Fig. H8-2, p. 266
Bulimia Nervosa

- Treatment of Bulimia Nervosa
  - Discontinuing purging and restrictive diet
  - Learn to eat 3 meals per day plus snacks
  - Weight maintenance is the goal
  - Regular exercise
  - Counseling
Binge-Eating Disorder

- An unspecified eating disorder sharing some of the characteristics of anorexia nervosa and bulimia nervosa yet does not meet the criteria for diagnosis.
- Lack of self-control over eating with binges
- Consuming large quantities of food, eating quickly, feeling uncomfortably full, eating alone, and feeling disgusted or guilty
- Marked distress
- Occurrence of two times per week for six months
- Typically do not purge
Eating Disorders in Society

- Known only in developed nations where food and money are plentiful
- Body dissatisfaction
- Learning to appreciate the uniqueness of oneself may be a key to prevention.
End of Chapter 8