

Fit & Well

Session IV

Body Composition and Weight Management (Chapter 6 & 9)

1. Body Composition

a. Fat-Free mass (Lean body mass)

- i. The sum of the weight of your bones, muscles and organs. Basically the sum of everything other than fat in your body.

b. Body Fat

- i. Essential fat – lipids incorporated into the nerves, brain, heart, lungs, liver and mammary glands. These are crucial for normal body functioning.
 1. In Men it is about 3 – 5% of total body weight.
 2. In Women it is about 8 – 12% of total body weight.
- ii. Nonessential fat – (stored fat) in fat cells or adipose tissue, often located just below the skin and around major organs. Excess storage fat is usually the result of consuming more energy (food) than is expended (metabolism/physical activity).

c. Percent body fat

The percentage of total body weight that is composed of fat. The most important consideration when a person is looking at body composition is the proportion of the body's total weight that is fat. Too much body fat has a negative effect on health and well-being.

- i. Americans are getting fatter, 8% increase over the past two decades, over 50% of American adults are now overweight.
- ii. Obese people have an overall mortality rate almost twice that of nonobese people. Even moderate overweight people are associated with a substantial increase in the risk of premature death.
 1. Heart disease
 2. Impaired heart function
 3. Hypertension
 4. Cancer
 5. Impaired immune function
 6. Gallbladder & Kidney disease
 7. Skin problems
 8. Sleep & breathing disorders
 9. Impotence
 10. Pregnancy complications
 11. Back pain
 12. Arthritis & other bone disorders.
 13. Diabetes (3X higher than non obese)

d. **Assessing Body Composition**

- i. **BMI – Body mass index.** A rough measure of body composition that is useful for classifying the health risks of body weight. The body mass index is based on the concept that a person's weight should be proportional to height. BMI is calculated by dividing body weight (in kilograms) by the square of your height (in meters). See lab 6.1 to find your BMI.
- ii. **Skinfold Measurements** – measuring the thickness of skinfolds at various sites on your body to calculate percentile body fat. Skinfolds are measured with a caliper. The caliper are spring-loaded calibrated jaws that measure the thickness of the skinfolds.
- iii. **Underwater Weighting** – Hydrostatic (underwater) weighing is considered the most accurate indirect way to measure body composition. An individual is submerged and weighted under water. This procedure is based on the theory that fat people tend to float and weigh less underwater.
- iv. **The Bod Pod** – a small chamber containing computerized sensors that measure body composition by air displacement rather than water displacement. It calculates how much air is displaced by the person who is sitting inside a chamber.
- v. **Bioelectrical Impedance Analysis (BIA).** Small electrical currents are sent throughout the body and measure the body's resistance to the electrical current. Fat-free tissues are good conductors of electrical current, fat is not. The amount of resistance to electrical current is related to the amount of fat-free tissue in the body (the lower the resistance, the greater the fat-free mass) and can be used to estimate percent body fat.
- vi. **Body Fat Distribution**
 1. Waist circumference measurement.
 - a. Men – 40 inches or higher is bad.
 - b. Women – 35 inches or higher is bad.
 2. Waist to hip ratio calculation.
 - a. Young men – 0.94 or higher = significant increase risk.
 - b. Young women – 0.82 or higher = significant increase risk.

2. **Weight Management**

Controlling body weight is really a matter of controlling body fat. The “secret” to managing body weight is to balance calories consumed with calories expended in daily activities – in other words, eating a moderate diet and getting regular physical activity.

- a. **Overweight** – A body weight that falls above the range associated with minimum mortality, weighting 10% or more over the recommended weight or having a BMI over 25.
- b. **Over Fat** – A body that is carrying excessive fat measured by body composition.
- c. **Obesity** – Severely overweight, with an excess amount of body fat, weighting 20% or more over the recommended weight or having a BMI over 30.

See figure 6.2 (p. 158)

Factors contributing to excess body fat

1. Genetic factors. It is estimated that genetic contribution to obesity varies widely from 5% to 40%. More than 20 genes have been linked to obesity.
2. Genes influence body size and shape, body fat distribution, and metabolic rate.
3. If both parents are overweight, their children are twice as likely to be overweight as children who have only one overweight parent.
4. However, genes are not destiny. An increase in exercise and attention to diet can help a person maintain a healthy body weight, regardless of genetic factors.
5. Lifestyle choices remain the cornerstone of successful weight management.

Physiological Factors

1. Metabolism is a key physiological factor in regulation of body fat and body weight.
2. Resting metabolic rate (RMR) accounts for 55% - 75% of daily energy expenditure.
3. Both heredity and behavior affect metabolic rate.
4. Men have a higher RMR than women because of the higher proportion of muscle mass.
5. Exercise has a positive effect on metabolism.
6. Hormones play a role in the accumulation of body fat, especially for females.
 - a. Hormonal changes at puberty, during pregnancy, and at menopause contribute to the amount and location of fat accumulation.
 - b. Leptin – a hormone secreted by the body's fat cells, is carried to the brain to let the brain know how big or small the body's fat store are. The brain then regulates the appetite and metabolic rate accordingly to the information received from leptin.

Weight Cycling

Repeatedly losing and regaining weight is known as weight cycling or yo-yo dieting. Studies have not yet conclusively shown weight cycling to be harmful to the health of an obese person. Losing even a few pounds brings substantial health benefits.

Lifestyle Factors

How you conduct your lifestyle will have a great influence your body weight.

1. Eating habits.

- ✓ Poor eating habits
- ✓ Over eating
- ✓ High fat, high sugar, high calorie foods

2. Physical activity

- ✓ Decline in physical activity
- ✓ Leisure time is spent on TV, surfing internet, video games.
- ✓ 60% of inactivity can be linked to excessive TV viewing.
- ✓ On average Americans exercise 15 minutes per day and watch 150 minutes of TV.
- ✓ Remote controls, elevators, and power mowers, have reduced daily physical activity.

3. Psychosocial Factors

Using food as a means of coping with stress and negative emotions.

- ✓ Eating provides a powerful distraction from difficult feelings of loneliness, anger, boredom, anxiety, shame, sadness, inadequacy.
- ✓ Combats low moods, low energy levels, and low self-esteem.
- ✓ **Binge eating** – a pattern of eating in which normal food consumption is interrupted by episodes of high consumption.
- ✓ Obesity is strongly associated with socioeconomic status. More women are obese at lower income levels than men, but men are somewhat more obese at higher levels.
- ✓ Families and cultures have a strong influence on your eating habits and psychosocial feeling about food.
 - Symbol of love and caring
 - Integral part of social gathering and celebrations.

Adopting a Healthy Lifestyle for Successful Weight Management

✓ **Diet and Eating Habits**

Diet - The daily food choices that you select.

- Total Calories
 - 1600 for sedentary women and some older adults
 - 2200 for most children, teenager girls, active women, and many sedentary men.
 - 2800 for teenage boys, many active men, and some very active women.
- Energy balance may be more important consideration for weight management than counting calories consumed.

✓ **Portion Sizes**

- Portion sizes of packaged foods and of foods served at restaurants have increased in size
- We underestimate the amount of food we eat.
- Limiting portion sizes is critical for weight management.
- See Chapter 8 for more information and hints on portion sizes.

✓ **Energy (Calorie) Density**

The number of calories per ounce or gram of weight in a food

- The certain weight of food can reduce hunger and leads to the feeling of fullness and satisfaction.
- Some foods are relatively heavy but have fewer calories.
 - Fruit with breakfast and for dessert.
 - Extra vegetable to sandwiches, casseroles, stir-fry dishes, pizza, pasta dishes, and fajitas.
 - Start meals with a bowl of broth-based soup; include a green salad or fruit salad.
 - Snack on fresh fruits and vegetables rather than crackers, chips, or other energy-dense snack foods.
 - Limit serving sizes of energy –dense foods such as butter, mayonnaise, cheese, chocolate, fatty meats, croissants, and snack foods that are fried or high in added sugars.

✓ **Fat Calories**

- Avoid overeating fatty foods.
- Fat calories are more easily converted to body fat than calories from protein or carbohydrates.
- Limiting fat in the diet can also help you limit your total calories.
- No more than 66 grams of fat in a 2000 calorie daily diet.
- Foods rich in fat
 - Oils
 - Margarine
 - Butter
 - Cream
 - Lard
 - Meat processed foods
 - Fast foods
 - Nuts
 - Seeds
 - Avocados

✓ **Complex Carbohydrates**

Help to provide a feeling of fullness that can keep you from overeating.
Carbohydrates should make up about 55 – 65% of your total daily calories.

- Breads
- Pasta
- Vegetables
- Whole grains

✓ **Simple Sugars and Refined Carbohydrates**

- Foods that are high in added simple sugars provide calories but few nutrients.
- These foods may trigger overeating in some people by affecting the rate of glucose absorption and the levels of hormones that influence appetite.

✓ **Protein**

- Protein intake should be 10 – 15% of total daily calories.
- Protein not needed by the body for growth and tissue repair will be stored as fat.
- Foods high in protein are also high in fat.
- High protein low carbohydrate diet does not conform to the Dietary Guidelines for Americans and is difficult to maintain.

✓ **Eating Habits**

- Eating small, frequent meals, three or more a day plus snacks, on a dependable, regular schedule, will help with weight management.
- Skipping meals leads to excessive hunger, increase vulnerability to binge eating or snacking on high calorie, high fat, or sugary foods.
- Eat everything in moderation, making healthier choices, on a regular schedule.

Approaches to Overcoming a Weight problem

✓ **Doing It Yourself**

- You do not need a special formal program to lose weight. (Weight Watcher, Jenny Craig, etc...)
- Choosing to exercise with a good diet, leads to a successful weight loss.
- Change in lifestyle will help with long-term weight loss.
- Don't try to lose more than 0.5 to 2 pounds per week.

✓ **Diet Books**

- Most diet books make empty promises
- Tips for choosing a good diet book
 - Reject books that take an unbalanced approach to weight loss.
 - Reject books that are based on "scientific break-through" or have the "secret" to success
 - Reject books that use gimmicks.
 - Reject books that promise quick weight loss or limit food selection.
 - Accept books that advocate a balanced approach, plus exercise, with sound nutritional advice.

✓ **Dietary Supplements and Diet Aids**

- New fad in our society.
- Typically promise a quick and easy path to weight loss.
- Most are marketed as dietary supplements, which are subject to fewer regulations than over the counter medications.
- Use critical thinking before buying these type of products.

Body Image

The collective picture of the body as seen through your mind's eye, perceptions, images, thoughts, attitudes, and emotions. It can be positive or negative.

✓ **Sever Body Image Problems**

- Some people become preoccupied by a perceived defect in appearance, thereby damaging self-esteem and interfering with relationships.
- A negative body image can lead to restrictive diets, eating compulsively, or developing some form of eating disorders.
- Body dysmorphic disorder (BDD) are people who have extreme dissatisfaction with their body image.
- BDD is related to obsessive-compulsive disorder.
- BDD can lead to depression, social phobia, and suicide.
- People with an eating disorder typically have severely distorted body image.
- Muscle dysmorphia, a disorder experienced by some body builders.

✓ **Acceptance and Change**

- Changes should be made to lifestyle to be successful.
- By a change in lifestyle, the body weight and shape can develop naturally and appropriately for your genetic makeup.
- Knowing the limits to healthy change and learning to accept those limits is crucial for overall wellness.
- Weight management with obesity needs to take place in a positive and realistic atmosphere. Losing as few as 10 pounds can reduce blood pressure and improve mood.

Eating Disorders

Sever disturbances in eating patters and eating-related behavior.

- ✓ **Anorexia Nervosa** – A refusal to maintain body weight at a minimally healthy level and an intense fear of gaining weight or becoming fat. Basically self-starvation.
 - 1-3 million Americans suffer from this disorder
 - 95% are female.
 - Typically develops between ages 12 and 18.
 - They have distorted body image.
 - Compulsive behaviors or rituals to keep them from eating.
 - Typically introverted, emotionally reserved, and socially insecure.
- ✓ **Bulimia Nervosa** - Recurrent episodes of binge eating and purging: overeating and then using compensatory behaviors such as vomiting and excessive exercise to prevent weight gain.
 - Usually begins in adolescence or young adulthood. Recently increasingly younger 11-12 year olds and older 40-60 year olds.
 - During a binge, a person may consume anywhere from 1000 to 60,000 calories within a few hours, followed by an attempt to get rid of the food by purging, usually vomiting or using laxatives or diuretics.
 - They have the feeling of loss of control and they cannot stop.
 - Some binge and purge occasionally, others many times per day.
 - Triggers are major changes in life or other stressful events.
- ✓ **Binge-Eating Disorder**
Uncontrollable eating without any compensatory purging behaviors.
 - Common eating patters are eating more rapidly than normal, eating until uncomfortably full, eating when not hungry, and preferring to eat alone.
 - This uncontrolled eating is followed by weight gain and feelings of guilt, shame and depression.
 - They hen begin a rigid dieting program, followed by a return to overeating.
 - They use food to cope with stress, conflict, and other difficult emotions or to provide solace or entertainment.
 - Most binge eaters are obese.
 - Higher than average depression and anxiety.
 - 2-5% of all adults have this problem.

Creating an Individual Weight-Management Plan

- ✓ Assess your motivation and commitment
- ✓ Set Reasonable goals
- ✓ Assess your current energy balance
- ✓ Increase your level of Physical Activity.
- ✓ Make Changes in Your Diet and Eating Habits.
- ✓ Put Your Plan into Action