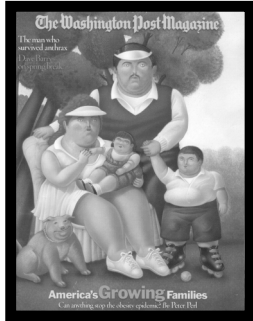


Body Composition



Typical Body Composition

Body composition = body's relative amount of fat mass AND fat-free mass (bone, water, connective and organ tissues, teeth)

Essential fat = crucial for normal body functioning.

3-5 % of total body weight in males

8-12% of total body weight in females

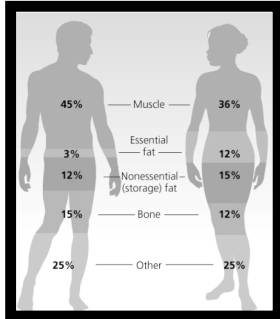
Nonessential fat = adipose tissue

Typical Body Composition

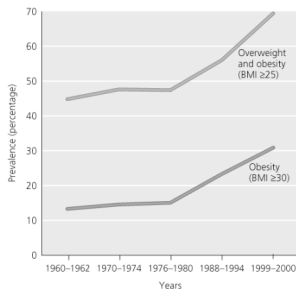
The most important consideration in evaluating body weight and composition is the proportion of total body weight that is fat (percent body fat).

Height and weight charts are no longer used.

Typical Body Composition



Prevalence of Overweight and Obesity



Prevalence of Overweight and Obesity

Overweight = total body weight above a recommended range for good health.

Obesity = severely overweight and fat – characterized by excessive accumulation of body fat.

Creeping Obesity

The primary factors associated with increase in body fat with age is a progressive decrease in the metabolism. Basal metabolic rate is highly dependent on the amount of Lean Body Mass an individual has. With age a BMR. Exercise is one way of maintaining LBM and keeping BMR elevated.

Creeping Obesity

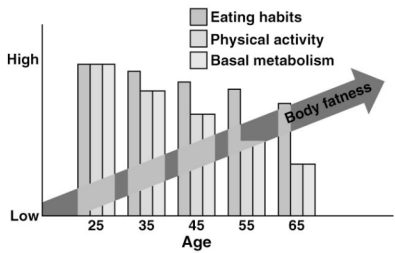
Physical Activity is also know to decrease with age. This decrease is another reason for creeping obesity.

To maintain body weight it is necessary for people to either maintain a habit of regular exercise or to progressively decrease their caloric intake as the get older.

Creeping Obesity

© The McGraw-Hill Companies, Inc. Permission required for reproduction or display.

Obesity

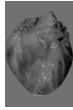


Physical activity decreases and leads to a decrease in metabolic rate.

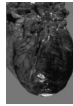
If energy expenditure drops more than energy intake, weight gain will occur.

Health Risks Associated with Being Fat

- Coronary heart disease
- Hypertension
- Hypercholesterolemia
- Cancer
- Diabetes

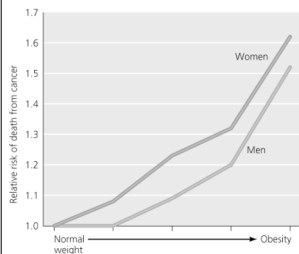


healthy heart

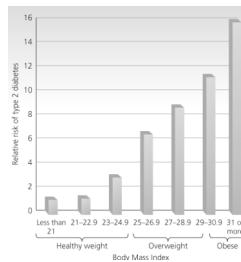


diseased heart

Body Composition and Cancer Mortality



BMI and Risk of Type II Diabetes



Body Fat Distribution and Chronic Disease

Location of fat is important to health

Out of Shape: The Fruit Test

Scientists now divide fat people into two groups, according to body shape, apple and pears. We need to be apples, because people carrying fatness in the wrong places have a greater risk to health. Women may not agree about their size, but apple fat poses the greater risk to health.

Apple

Pear

Apple-shaped people carry more risk of heart disease, stroke, diabetes, and hypertension. They have a higher risk of fatty liver disease and asthma. The likelihood of metabolic syndrome, which may lead to heart disease, high blood pressure and other problems, is also higher.

Pear-shaped people carry more risk of their fat on the outside of their body, which is associated with high levels of HDL, the "good" cholesterol. They may have a lower risk of heart disease, stroke, diabetes, and hypertension.

There is still a risk if you are an apple or a pear! Reducing your waist size, eating healthy, exercising and not smoking can help you to stay in better health. This is your waist to big talk. Check before to determine your health risk.

Health risk for men	Health risk for women
Apple-shaped men: 2x risk of heart disease, stroke, diabetes, and hypertension.	Apple-shaped women: 3x risk of heart disease, stroke, diabetes, and hypertension.
Pear-shaped men: 1.5x risk of heart disease, stroke, diabetes, and hypertension.	Pear-shaped women: 1.5x risk of heart disease, stroke, diabetes, and hypertension.

Body Fat Distribution and Chronic Disease

Abdominal body fat poses greater health risks than fat stored in other areas because this fat is more adaptable and has greater access to the circulation.

Males store more fat centrally and have increased health risks associated with body fatness.

What can excess body fat do to a person's health and wellness?



What can excess body fat do to a person's health and wellness?

Excess body fat decreases the ability to perform physical activities.

Unrealistic expectations about body composition can hurt self-image.

Skin problems

Sleeping problems.

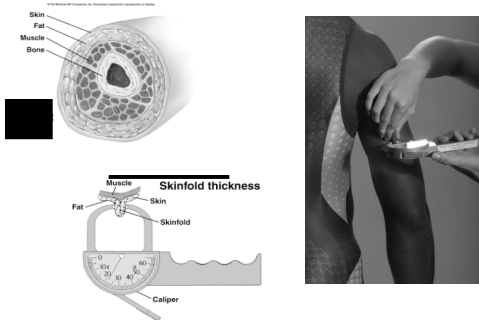
Problems Associated with Very Low Levels of Body Fat

- Reproductive, circulatory, and immune system disorders
- Too little body fat =
 - Less than 10–12% for women
 - Less than 5% for men

Body Composition Assessment



Skinfold Measurements



Skinfold Measurements

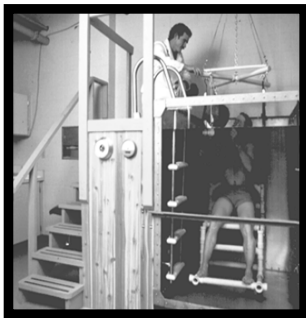
Skinfold measurement: Measurement are used in equations that link the thickness of skinfolds to percent body fat calculations made from more precise experments.

This technique is called skinfold because a fold of skin is picked up and measured. Underneath the skin the body stores subcutaneous fat so when the skin is lifted the fat layer can be measured.

Skinfold Measurements

Body fat is stored in people in different places and the measurement of fat in one place is not always an accurate measurement of total body fat. Also, the thickness must be converted into a meaningful measure.

Underwater Weighing



Underwater Weighing

Underwater weighting: An individual is submerged and weighted under water. Percentage of fat and fat-free weight are calculated from body density.

Bod Pod



Bod Pod

The Bod Pod: The amount of air displaced by a person in a small chamber is measured by computerized sensors.

DEXA



DEXA

DEXA: Based on imaging of body tissues.
Cross sectional area measures calculated at
different levels of the body.

**This is the MOST accurate way for estimating
body composition.**



