

**Body Composition**

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Body Composition

- For our purposes, body composition has two components:

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Body Composition

- For our purposes, body composition has two components:
  - Lean mass
    - Muscle, bone, organs, etc.

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### Body Composition

- For our purposes, body composition has two components:
  - Lean mass
  - Fat mass

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### Body Composition

- Fat Mass
  - Generally referred to as percent body fat

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### Methods To Determine Body Composition

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Methods To Determine  
Body Composition

- Hydrostatic Weighing

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Methods To Determine  
Body Composition

- Hydrostatic Weighing
- Skinfold Measurement

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Methods To Determine  
Body Composition

- Skinfold Measurement
- Bioelectrical Impedence

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Methods To Determine  
Body Composition

- Bioelectrical Impedence
- Girth Measurement

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Determining Ideal Body Weight

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Determining Ideal Body Weight

- Traditionally people have relied on height/weight charts to determine their ideal body weight.

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- Height/weight charts do not determine what type of body composition makes up the person's weight.

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### Determining Ideal Body Weight

- Body Mass Index
  - BMI is also based on height/weight and thus fails to differentiate between fat and lean mass.

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### Best Methods To Determine Ideal Body Weight and Disease Risk

- Body Composition Measurement
  - To determine the amount of fat one has

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Best Methods To  
Determine Ideal Body Weight  
and Disease Risk

- Body Composition Measurement
- Waist to Hip Ratio
  - To determine where fat is located

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Waist to Hip Ratio

- Excess abdominal fat is associated with higher risk of Coronary Heart Disease, Congestive Heart Failure, Hypertension, Type II Diabetes, and Strokes.

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Waist to Hip Ratio

- To determine waist to hip ratio, divide the circumference of the waist by the circumference of the hip.

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### Waist to Hip Ratio

- Example
  - If a man had a 40 inch waist and a 38 inch hip, divide 40 by 38. The ratio would be 1.05.

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### Waist/Hip Ratio Disease Risk

MEN	WOMEN	RISK
$\leq 0.95$	$\leq 0.80$	Very Low
0.96 – 0.99	0.81 – 0.84	Low
$\geq 1.00$	$\geq 0.85$	High

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### Percent Body Fat

- Percent body fat is the best way to determine how much one should weigh.

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### Determining Ideal Body Weight

- The following steps will show you how to determine ideal body weight.

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### Determining Ideal Body Weight

- Step 1
  - Find percent body fat.

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### Determining Ideal Body Weight

- Step 2
  - Multiply body weight by % fat in decimal form. This is your fat weight in pounds
  - $BW \times (\%fat)$

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### Determining Ideal Body Weight

- Step 3
  - Subtract fat weight in pounds from body weight. This is your lean weight in pounds.
  - $BW - FW$

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### Determining Ideal Body Weight

- Step 4
  - Choose a desired percent body fat based on the table in your textbook.

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### Determining Ideal Body Weight

- Step 5
  - Divide lean body weight by (1 minus desired % body fat). This is your ideal body weight.

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### Determining Ideal Body Weight

- Example
  - A 23 year old female who weighs 158 and is 32% body fat wants to know her Ideal weight at 24% body fat.

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### Determining Ideal Body Weight

- Example
  - $BW \times (\% \text{ fat})$
  - $158 \times .32 = 51$
  - She has 51 pounds of fat weight.

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### Determining Ideal Body Weight

- Example
  - $BW - FW$
  - $158 - 51 = 107$
  - She has 107 pounds of lean weight.

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Determining Ideal Body Weight

- Example
  - Desired % body fat is 24.
  - In decimal form it is .24

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Determining Ideal Body Weight

- Example
  - $LW / (1 - D\%BF)$
  - $107 / (1 - .24)$

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Determining Ideal Body Weight

- Example
  - $LW / (1 - D\%BF)$
  - $107 / (1 - .24)$
  - $107 / (.76)$

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### Determining Ideal Body Weight

- Example
  - $LW / (1 - D\%BF)$
  - $107 / (1 - .24)$
  - $107 / (.76)$
  - 141 is ideal body weight.

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### Determining Ideal Body Weight

- In our example, the subject would want to lose 17 pounds.

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### Determining Ideal Body Weight

- This leads to the question of the best way to reduce the 17 pounds. That is the subject of our next section of material.

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