

# Data Dictionary for Body Fat Raw Dataset\*

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## Density

- Type: Numeric
- Description: Measure of body density, calculated using weight and volume to estimate body fat percentage.
- Values/Range: ~0.99–1.1
- Units: g/cm<sup>3</sup>
- Remarks: Key variable used to derive body fat percentage.

## Pct.BF

- Type: Numeric
- Description: Body fat percentage estimated from body density.
- Values/Range: 0–47.5
- Units: Percentage (%)
- Remarks: Outcome variable. Reflects overall fat composition.

## Age

- Type: Numeric
- Description: Age of the individual in years.
- Values/Range: 22–81
- Units: Years
- Remarks: Reflects life stage, which influences body composition.

## Weight

- Type: Numeric
- Description: Total body mass in pounds.
- Values/Range: 118.5–262.75
- Units: Pounds (lbs)

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\*Code and data are available at: <https://github.com/kiwindyy/Body-Fat>

- Remarks: Reflects combined weight of bones, muscles, fat, and other tissues.

## **Height**

- Type: Numeric
- Description: Standing height of the individual.
- Values/Range: 64–77.75
- Units: Inches
- Remarks: Used with weight for proportions like BMI.

## **Neck**

- Type: Numeric
- Description: Circumference of the neck.
- Values/Range: 31.1–43.9
- Units: Centimeters (cm)
- Remarks: Highlights fat and muscle distribution in the upper body.

## **Chest**

- Type: Numeric
- Description: Circumference of the chest.
- Values/Range: 79.3–128.3
- Units: Centimeters (cm)
- Remarks: Reflects size and structure of the upper torso, including fat and muscle.

## **Abdomen**

- Type: Numeric
- Description: Circumference around the abdomen.
- Values/Range: 69.4–126.2
- Units: Centimeters (cm)
- Remarks: Strongest predictor of body fat percentage, indicates central fat.

## **Waist**

- Type: Numeric
- Description: Measurement around the waist.
- Values/Range: 27.3–49.6
- Units: Inches (in)
- Remarks: Assesses fat distribution, often paired with hip circumference.

## **Hip**

- Type: Numeric
- Description: Circumference of the hips.

- Values/Range: 85.0–125.6
- Units: Centimeters (cm)
- Remarks: Indicates lower-body proportions, often paired with waist for ratios.

### **Thigh**

- Type: Numeric
- Description: Circumference of the thigh.
- Values/Range: 47.2–74.4
- Units: Centimeters (cm)
- Remarks: Highlights fat and muscle distribution in the upper leg.

### **Knee**

- Type: Numeric
- Description: Circumference of the knee.
- Values/Range: 33.0–46.0
- Units: Centimeters (cm)
- Remarks: Provides detail about lower-body structure and proportions.

### **Ankle**

- Type: Numeric
- Description: Circumference around the ankle.
- Values/Range: 19.1–33.9
- Units: Centimeters (cm)
- Remarks: Reflects skeletal and soft tissue composition in the lower leg.

### **Bicep**

- Type: Numeric
- Description: Circumference of the bicep (arm flexed).
- Values/Range: 24.8–39.1
- Units: Centimeters (cm)
- Remarks: Highlights upper-arm muscle and fat distribution.

### **Forearm**

- Type: Numeric
- Description: Circumference of the forearm.
- Values/Range: 21.0–34.9
- Units: Centimeters (cm)
- Remarks: Provides information about lower-arm composition.

### **Wrist**

- Type: Numeric
- Description: Circumference of the wrist.
- Values/Range: 15.8–21.4
- Units: Centimeters (cm)
- Remarks: Proxy for skeletal size and overall body frame.