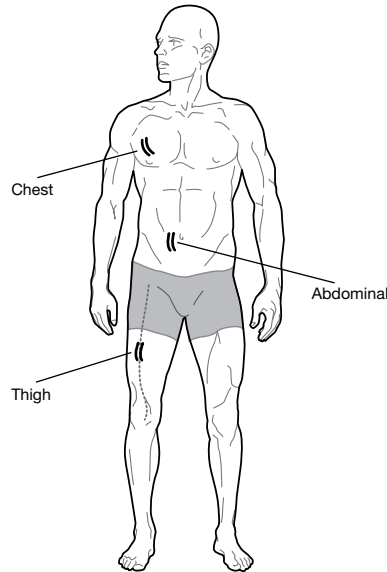


Measuring your body fat regularly (using skin-fold measuring techniques) is recommended as one of the most efficient ways to monitor your body's overall fitness. Skin-fold calipers estimate body fat percentage by measuring the thickness of a fold of skin and its underlying layer of fat at key measurement sites. Research has shown that within the range of 15-40% body fat, skin-fold caliper measurements are nearly as accurate as underwater weighing, and when body fat is less than 15%, skin-fold caliper measurements have shown to be even more accurate.

For the most accurate results, it is essential that you can correctly locate and recall the three measuring sites used by most professionals. They are described in the following two charts.

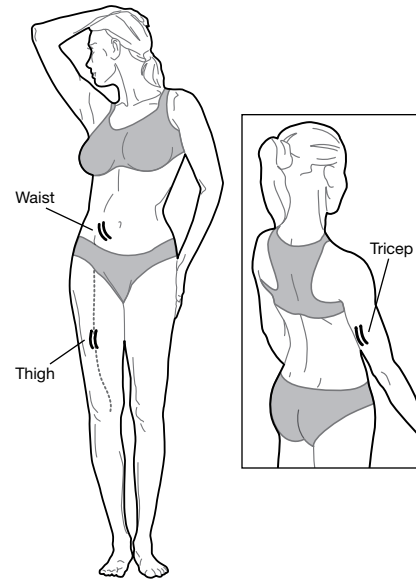
Measuring Sites for Male

Site	Direction of Fold	Measurement
Chest	Diagonal	Fold is taken $\frac{1}{2}$ the distance between the front right side of the pectoral muscle (anterior axillary line) and the nipple.
Abdominal	Vertical	Fold is taken 2 cm ($\frac{3}{4}$ of an inch) to the right side of the belly button (umbilicus).
Thigh	Vertical	Fold is taken on the front (anterior aspect) of the thigh midway between where the groin and the leg meet (the inguinal crease) and the top left side of the right kneecap (the proximal border of the patella). Body weight is shifted to left foot.



Measuring Sites for Female

Site	Direction of Fold	Measurement
Tricep	Vertical	Fold is taken midway between the shoulder and elbow joint, on the center of the back of the arm (tricep).
Waist	Diagonal	Fold is taken diagonally above the front of the right hip bone (iliac crest along the anterior axillary line).
Thigh	Vertical	Fold is taken on the front (anterior aspect) of the thigh midway between where the groin and the leg meet (the inguinal crease) and the top left side of the right kneecap (the proximal border of the patella). Body weight is shifted to left foot.



Measuring Tips

- Take all measurements on the right side of your body.
- Carefully identify your measuring sites in front of a mirror until you are familiar with the locations (be sure you can identify and recall each measuring site).
- Make sure the skin is dry and lotion-free before taking measurements.
- Lift the skin-fold by placing the thumb and index finger approximately 3 inches apart as shown in Fig. 1.
- Grasp the skin-fold firmly between your thumb and index finger roughly 1 cm away from the site to be measured. Fig. 2
- Gently grasp the caliper in your opposite hand so that the skin-fold is in between the measuring arms about 1 cm away from the thumb and index finger holding the skin-fold. Fig. 3
- Take the measurement.
- DO NOT measure immediately after exercise due to shifts in body fluids which can increase your skin-fold thickness.

Determining your ideal weight and ideal body-fat percentage

Using a weight scale as an indicator of being over or underweight is sometimes misleading. This is because each individual's body composition, frame size, muscle construction, etc. is different. The best way to determine a person's ideal weight is by measuring body fat percentage.

Step 1: Determine your desired body fat percentage. Refer to the Body Fat Percentage / Fitness Rating charts in this booklet (FatTrack uses these charts to calculate your fitness rating.)

For example, if you are male, 33 years old, and are looking for a "Good" standard, your ideal body fat percentage is around 20%.

Step 2: Measure your body fat percentage and body weight.

Example: Assume you have the following data:

Body fat percentage: 24.5

Body weight: 165 lbs

Desired body fat percentage: 20

Step 3: Calculate your ideal weight.

Ideal weight = $((100 - \text{Current Body Fat \%}) / ((100 - \text{Desired Body Fat \%})) \times (\text{Current Weight}))$

= $((100 - 24.5\%) / (100 - 20\%)) \times 165 \text{ lbs.}$

= 155.7 lbs.

Important: We recommend any fitness or weight loss program include a combination of adequate exercise and a healthy diet. Always consult your physician before undertaking fitness or weight-loss programs.

How do you know if you are replacing fat with muscle?

Monitoring your lean body weight changes will tell you whether or not you are replacing fat with muscle. You can determine Lean Body Weight by subtracting your Body Fat Weight from your Body Weight.

Your Body Fat Weight = (your Body Weight) x (your Body Fat Percentage)

For example:

Body Weight = 180 lbs, Body fat % = 17.5%

Body Fat Weight = (180 lbs) x (17.5%) = 31.5 lbs

Therefore:

The Lean Body Weight = 180 lbs (Body Weight) - 31.5 lbs (Body-Fat Weight) = 148.5 lbs

If after your fitness program, you have the following result:
Body weight = 182 lbs, Body fat% = 13%

The Lean Body Weight = (182 lbs) - (182 lbs x 13%) :
therefore 182 lbs - 23.66 lbs = 158.3 lbs

The Lean Body Weight difference = 158.3 lbs (After Fitness Program) - 148.5 lbs (Before Fitness Program) = 9.8 lbs

Then you would know that your net weight gain is the result of replacing fat with muscle (lower Body Fat % with an increase in Lean Body Weight).

Body Fat Percentage / Fitness Rating for Female

Age	1	2	3	4	5
19-24	<19	19.1~22	22.1~25	25.1~30	>30
25-29	<19	19.1~22	22.1~25	25.1~30	>30
30-34	<20	20.1~23	23.1~26	26.1~31	>31
35-39	<21	21.1~24	24.1~28	28~32	>32
40-44	<23	23.1~26	26.1~29	29~33	>33
45-49	<24	24.1~27	27.1~31	31.1~34	>34
50-54	<27	27.1~31	31.1~34	34.1~37	>37
>55	<28	28.1~31	31.1~34	34.1~38	>38

Fitness Rating:

1: EXCELLENT 2: VERY GOOD 3: GOOD 4: FAIR 5: POOR

Body Fat Percentage / Fitness Rating for Male

Age	1	2	3	4	5
19-24	<11	11.1~15	15.1~19	19.1~23	>23
25-29	<13	13.1~17	17.1~20	20.1~24	>24
30-34	<15	15.1~18	18.1~22	22.1~25	>25
35-39	<16	16.1~19	19.1~23	23.1~26	>26
40-44	<18	18.1~21	21.1~24	24.1~27	>27
45-49	<19	19.1~22	22.1~25	25.1~28	>28
50-54	<20	22.1~23	23.1~26	26.1~29	>29
>55	<20	20.1~24	24.1~27	27.1~30	>30

Fitness Rating:

1: EXCELLENT 2: VERY GOOD 3: GOOD 4: FAIR 5: POOR



Improving Your
Measuring Skill

FatTrack® II