

YOUR BODY-FAT PERCENTAGE

From PROFESSIONAL WEIGHT CONTROL for WOMEN – U.S. Edition
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Many health care professionals contend that overweight or obesity should not be defined by body weight but on the amount of body fat compared to total body weight.

Body fat exists in two storage sites. The first, consists of the intestines, muscles, and the tissues in the central nervous system. This is referred to as Essential Fat and is needed to maintain health. The average man has approximately 3% essential fat, and a typical woman about 10%. The higher percentage of essential fat in women includes about 7% of sex-specific fat, believed to be important for child-bearing and hormone-related functions.

The other major fat type is called storage fat and consists of fat that accumulates in adipose tissue. The main function of adipose tissue is to store energy in the form of fat which can be used to meet the energy needs of the body. Adipose tissue also cushions and insulates the body and serves as an important endocrine organ by producing needed hormones. The formation of adipose tissue appears to be controlled by an adipose gene. Adipose tissue is found in specific locations, which are referred to as "adipose depots," located beneath the skin, around internal organs, in bone marrow and in breast tissue. Female sex hormones cause fat to be stored in the buttocks, thighs, and hips in women; whereas, men are more likely to have fat stored in their belly. When women reach menopause and the estrogen produced by ovaries declines, fat migrates from their buttocks, hips and thighs to their waists.

Percent Body Fat

Lean body weight consists of all of the non-fat tissue such as muscle, bone, organs and connective tissue. The weight remaining is the fat component and is most often expressed as

a percentage of total body weight, represented as "body-fat percentage." An age-adjusted weight profile for women versus body-fat percentage is as follows:

Age (years)	Underweight	Healthy Range	Overweight	Obese
20 - 40	Less than 21	21 - 33 %	33 - 39 %	Over 39 %
41 - 60	Less than 23	23 - 35 %	35 - 40 %	Over 40 %
61 - 80	Less than 24	24 - 36 %	36 - 42 %	Over 42 %

Table 1. Age-Adjusted Body-Fat Percentage for Women*

* Gallagher et al., Am J Clin Nut 2000; 72:694-701

Exercise physiologists consider body-fat percentage a critical measure of fitness and much more important than a person's actual weight. A reasonably accurate body-fat percentage formula for women has been devised that only requires three body girth measurements: neck, waist and hip circumference. Body-Fat Percentage formula for Women has been put in tabular form and is shown in Table 2, on the next page.

Example: Determine the body-fat percentage of a 45 year-old, 5'-6" woman (66 inches tall) whose body girth was measured as follows:

Neck circumference = 14 inches
 Waist circumference = 32 inches
 Hip circumference = 40 inches

The first step is to calculate her Female Parameter (FP):

$$\text{FP} = \text{Waist} + \text{Hip} - \text{Neck} \quad (\text{all in inches})$$

$$\text{FP} = 32 + 40 - 14 = 59$$

Now enter the left column of Table 2 with FP = 59. From this number run your finger horizontally (to the right) until it intersects the vertical column headed by her 66 inch height. The number at the intersection is her Body-Fat Percentage, which is found to be 32.9 %. According to Table 1, a healthy body-fat percentage range for women ages 41 to 60 is 23 % to 35 %. Thus at 32.9 % this 45 year-old woman's body fat percentage is in the healthy range.

FP	HEIGHT (inches)									
	58	60	62	64	66	68	70	72	74	76
46	20.9	19.3								
47	22.3	20.8	19.4							
48	23.8	22.3	20.9	19.6						
49	25.2	23.8	22.4	21.0	19.7					
50	26.6	25.2	23.8	22.5	21.2	19.9	18.7			
51	28.1	26.6	25.2	23.9	22.6	21.3	20.1	18.9		
52	29.4	28.0	26.6	25.3	23.9	22.7	21.4	20.3	19.1	
53	30.8	29.3	27.9	26.6	25.3	24.0	22.8	21.6	20.4	19.3
54	32.1	30.7	29.3	27.9	26.6	25.4	24.1	22.9	21.8	20.6
55	33.4	32.0	30.6	29.2	27.9	26.7	25.4	24.2	23.1	21.9
56	34.7	33.2	31.9	30.5	29.2	27.9	26.7	25.5	24.3	23.2
57	35.9	34.5	33.1	31.8	30.5	29.2	28.0	26.8	25.6	24.5
58	37.2	35.7	34.3	33.0	31.7	30.4	29.2	28.0	26.8	25.7
59	38.4	36.9	35.5	34.2	32.9	31.6	30.4	29.2	28.0	26.9
60	39.6	38.1	36.7	35.4	34.1	32.8	31.6	30.4	29.2	28.1
61	40.7	39.3	37.9	36.6	35.3	34.0	32.8	31.6	30.4	29.3
62	41.9	40.5	39.1	37.7	36.4	35.1	33.9	32.7	31.6	30.4
63	43.0	41.6	40.	38.9	37.5	36.3	35.1	33.9	32.7	31.6
64	44.1	42.7	41.3	40.0	38.7	37.4	36.2	35.0	33.8	32.7
65	45.2	43.8	42.4	41.1	39.8	38.5	37.3	36.1	34.9	33.8
66	46.3	44.9	43.5	42.2	40.8	39.6	38.3	37.2	36.0	34.9
67		46.0	44.6	43.2	41.9	40.6	39.4	38.2	37.1	35.9
68		47.0	45.6	44.3	43.0	41.7	40.5	39.3	38.1	37.0
69			46.6	45.3	44.0	42.7	41.5	40.3	39.1	38.0
70				46.3	45.0	43.7	42.5	41.3	40.2	39.0
71					46.0	44.8	43.5	42.3	41.2	40.0
72					47.1	45.7	44.5	43.3	42.2	41.0
73						46.7	45.5	44.3	43.1	42.0
74							46.5	45.3	44.1	43.0
75								46.2	45.1	43.9

FP = Waist Circumference + Hip Circumference – Neck Circumference (in inches)

Table 2. Approximate Body-Fat Percentage for Women

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