Calories Count

How Much Do You Know About Calories?

A calorie is the unit used to measure the energy-producing value of food. Technically, a calorie is defined as the amount of heat necessary to raise the temperature of one gram of water one degree centigrade. There are four major sources of energy in food: carbohydrate, protein, fat, and alcohol. When burned (metabolized), they provide different amounts of energy:

Carbohydrate = 4 calories per gram
**Protein = 4 calories per gram**
Alcohol = 7 calories per gram
Fat = 9 calories per gram

The calorie content of food depends on the amount of carbohydrate, protein, fat, and alcohol it contains. As you can see, fat is the most concentrated source of energy and yields more than twice as many calories per unit weight as carbohydrate and protein. Keep this in mind when eating foods rich in fat such as butter, whole fat milk and cheese, red meat, nuts, oils, mayonnaise, fried foods, and many sweets.

How Many Calories Do You Need?

Calories contained in food are transformed into different kinds of working energy by metabolic reactions in the body: electrical for conduction of nerve impulses, mechanical for muscle contraction and movement, chemical for metabolic processes, and heat for maintenance of normal body temperature. Thus, two factors determine your calorie needs: 1) basal metabolic rate (BMR), which is the energy needed to maintain your body's basic physiological functions at rest, and 2) level of physical activity. Your calorie needs per day can be estimated based on your healthy body weight (HBW) and your activity level.

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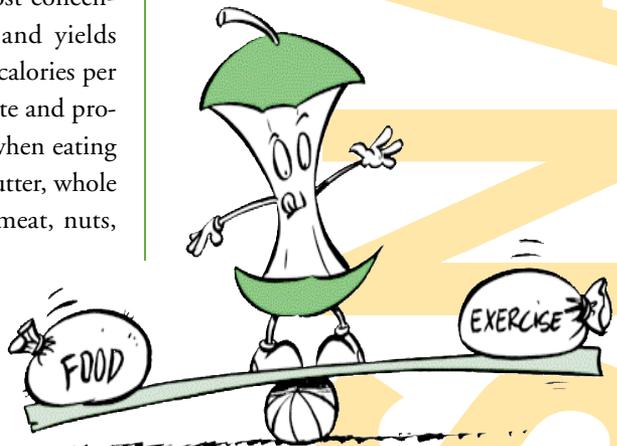
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Calorie Needs Per Day

HBW x 10 = to meet your BMR

HBW x 13 = to meet your BMR and a
sedentary lifestyle

HBW x 15 = to meet your BMR and
light activity

HBW x 17 = to meet your BMR and
moderate activity

HBW x 20 = to meet your BMR and
heavy activity

When Calculating Your Calorie Needs, Remember:

• BMR differs depending on genetics, age, sex, height, body composition, and activity level. For example: an active person with a low percentage of body fat and a high percentage of muscle will have a higher BMR than a sedentary person of the same weight who has more fat and less muscle. Muscle burns many more calories at rest than fat.

• The activity level refers only to physical work. Mental work requires an insignificant increase in energy needs. The exhaustion you experience after studying is all psychological. A light to moderate level of activity includes 20-60 minutes of exercise performed three to five times per week. Most students fall into this category.

What Is Energy Balance?

The body is in a state of energy balance when the amount of calories eaten is equal to the amount of calories expended. If energy supplied by foods exceeds that which is utilized, the excess energy is stored in the form of glycogen (carbohydrate) or fat. Glycogen is stored mainly in the liver and muscle tissue. When the glycogen storage capacity is fully utilized, any excess energy is stored as fat. The body uses these energy sources when the energy provided by food is inadequate to meet the body's needs.

To find out more about your body's calorie needs and a healthy weight for you, please visit **www.snac.ucla.edu.**

MAKING CALORIES COUNT

Energy is defined as the capacity to do work. We get energy from the food we eat. More specifically, there are four sources that provide energy: carbohydrate, protein, fat, and alcohol. When burned (metabolized) in the body, these substances supply different amounts of energy measured in calories.

Carbohydrate	4 calories per gram
Protein	4 calories per gram
Fat	9 calories per gram
Alcohol	7 calories per gram

Notice that fat is the most concentrated source of calories. Each gram of fat provides more than twice the number of calories as a gram of carbohydrate or protein. Nutrition information is often listed in grams, but you can use the values listed above to estimate the calorie value of any food. Simply multiply the grams of each source by the number of calories per gram. Then by adding these numbers together, you can determine the total calories in an item. For example, the calorie content of a piece of apple pie is:

	Grams/piece	Calories/gram	Calories	% of Calories
Carbohydrate	45	4	180	58%
Protein	3	4	12	4%
Fat	13	9	117	38%
Alcohol	0	7	0	0
Total			**309**	

As you can see, this piece of pie contains 309 calories. But, the total number of calories provides only part of a food item's calorie profile. It is also important to examine the relative proportion of fat, carbohydrate, and protein. For example, the piece of pie derives 58% of its calories from carbohydrate (the majority of these are simple carbohydrates from sugar), 38% from fat, and 4% from protein. Besides being high in sugar, this piece of pie also contains a large amount of fat. A diet high in fat is associated with health risks such as obesity, heart disease, and some types of cancer.

Recommended Calorie Distribution

To meet your body's nutritional needs and decrease your chances of developing chronic disease, experts suggest that your total daily calories be distributed as follows:

Carbohydrate	45-65%
Protein	10-35%
Fat	20-35%
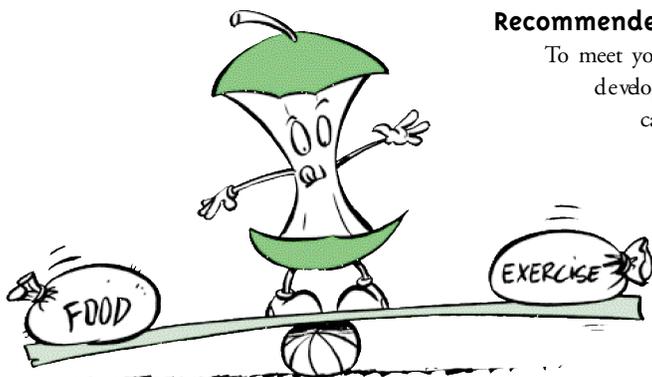
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How Many Calories Do I Need?

To maintain energy and a stable weight, the number of calories you eat must equal the number of calories you expend. The number of calories you expend depends on your Basal Metabolic Rate (BMR) and your activity level. Your BMR is affected by multiple factors such as: genetics, age, sex, and height (things you can't change), and body composition and activity level (things you can change).

There are many formulas to estimate your calorie needs. The formula below is based on the healthy body weight (HBW) for your height. Individuals who are very athletic may have higher healthy body weights and calorie needs due to their greater muscle mass.

Estimated Calorie Needs Per Day to Maintain Your Current Weight:

To just meet your BMR (Basal Metabolic Rate) = HBW x 10

To meet your BMR and:

- A sedentary lifestyle (i.e., you sit all day) = HBW x 13
- Light activity (i.e., you walk around campus) = HBW x 15
- Moderate activity (i.e., you exercise 60 min. 4-5 times per week) = HBW x 17
- Heavy activity (i.e., you are an athlete) = HBW x 20

Examples:

Height	HBW*	BMR	CALORIE NEEDS Light Activity	Moderate Activity	Heavy Activity
5'0"	97-128	970-1280	1455-1920	1649-2176	1940-2560
5'2"	104-136	1040-1360	1560-2040	1768-2312	2080-2720
5'4"	110-145	1100-1450	1650-2175	1870-2465	2200-2900
5'6"	118-155	1180-1550	1770-2325	2006-2635	2360-3100
5'8"	125-164	1250-1640	1875-2460	2125-2788	2500-3280
5'10"	132-174	1320-1740	1980-2610	2244-2958	2640-3480
6'0"	140-184	1400-1840	2100-2760	2380-3128	2800-3680
6'2"	148-194	1480-1940	2220-2910	2516-3298	2960-3880

*HBW is based on a Body Mass Index of 19-25