

## What is a Calorie?

A calorie is a unit of energy. Technically a calorie is the amount of heat energy required to raise the temperature of 1 gram of water up 1 degree Celsius (1.8 degrees Fahrenheit).

When applied to food, we are actually talking about a *kiloCalorie* (1000 calories). However the word Calorie (note capitalization) is used in most literature.

The measure of Calories gives us an indication of the potential energy that food possesses. This can easily be calculated with the following formula:

1 gram of Protein = 4 Calories  
1 gram of Carbohydrate = 4 Calories  
1 gram of Fat = 9 Calories  
1 gram of Alcohol = 7 Calories

Therefore Calories can be calculated simply by knowing the amount of these three building blocks in the food.

## Calorie Rules for Weight Loss and Weight Gain

What we've learned so far leads us to some very simple rules about calories by which weight loss and weight gain can be explained. These rules are absolutely fundamental to determining how much you weigh, and it is impossible to contravene them. They are the following:

1. If you eat more calories than you burn you will gain weight.
2. If you burn more calories than you eat you will lose weight.
3. If you eat the same amount of calories that you burn your weight will not change.

To keep itself alive your body is always burning at least some minimum amount of calories that are used to support the function of vital organs like your heart, brain, nervous system, lungs, kidneys, liver, muscles, and skin. This rate of calorie burn is called your basal metabolic rate. If you want to accomplish anything beyond simply staying alive, such as moving your body for example, you will have to burn extra calories to do it. Therefore, on any given day the total number of calories you burn is the sum of your basal metabolic rate plus all the additional calories burned from the activities you do. Once you know how many calories you burn in a day, you need to figure out how many calories you consume in a day. This is easy, all you have to do is know the calorie content of the food you eat and add it up. Once you know how many calories you burn in a day and how many calories you consume in a day it's easy to calculate if you are losing weight or gaining weight, and how quickly.

As an example, let's pretend that you've determined you burn 2,000 calories a day and eat 2,500 calories a day. Therefore, you are eating 500 calories more each day than you burn and you are gaining weight. How fast are you gaining weight? Well, since there are approximately **3,500** calories stored in one pound of fat, you are putting on fat at a rate of about 1 pound every seven days (since 3,500 calories/pound divided by 500 calories equals 7 days/pound).

For another example, let's pretend that you've calculated that you burn 2,000 calories a day and eat 1,800 calories a day. Therefore, you are burning 200 calories more each day than you eat

and you are losing weight. In this scenario, you would be losing fat at a rate of about one pound every 17.5 days (since 3,500 calories/pound divided by 200 calories equals 17.5 days/pound).

## Conclusions About Calories

If you want to gain weight, all you need to do is make sure that you consume more calories each day than you burn and you will be GUARANTEED to gain weight. Of course, that being said, you want to make sure that you gain weight in a healthy manner. Although the concept of calories explained in this article reduces weight gain and weight loss to a simple formula, it is important to apply this knowledge safely. If you're trying to lose weight, the best approach is to exercise regularly, get your calories from nutritious sources, and maintain a healthy rate of weight loss. A healthy rate of weight loss is about 1 or 2 pounds each week (depending on how much fat you have available to lose). This corresponds to burning about 500 to 1,000 calories more than you consume each day.

## Metabolism Explained

Metabolism is ultimately a collection of chemical reactions that takes place in the body's cells converting the fuel in the food we eat into the energy needed to power everything we do, from moving to thinking to growing. In fact, thousands of metabolic reactions happen at the same time - all regulated by the body - to keep our cells healthy and working.

There are two processes, or rather, two interactive channels by which metabolism runs.

- **Catabolism** refers to the breakdown of food components (such as carbohydrates, proteins and fats) into their simpler forms, which can then be used to create energy. Think of it as your "destructive metabolism" which produces the energy required for all activity in the cells. In this process, cells break down carbohydrates and fats to release energy and fuel all anabolic reactions, such as heating the body, giving the muscles power to contract and the body to move. As complex chemical units are broken down into more simple substances, the waste products released in the process of catabolism are removed from the body through the skin, kidneys, lungs, and intestines.
- **Anabolism** is your "constructive metabolism" which is all about building and storing. All anabolic processes support the growth of new cells, the maintenance of body tissues, and the storage of energy for use in the future.