

Calories

What's the magical formula to achieve your weight goals?

Calorie needs are based on individual needs. In order for your weight to stay the same, the energy (or Calories) you consume must equal the energy (or Calories) you expend. In most cases, it's really a simple matter of energy balance: "Calories In" must equal "Calories Out." "Calories In" includes what you eat and drink. "Calories Out" includes your resting metabolic rate, thermic effect of food, and physical activity.

Read on to learn...

- "Calories In": How to calculate the amount of calories in a food or beverage.
- What you can do to rev up your metabolism.
- Whether fat burner supplements are worth your money.
- How many calories you can burn during different physical activities.
- Exactly how many calories you need to meet your weight and fitness goals.

"CALORIES IN"

Do all foods have calories?

Yes. Except for water, all foods contain Calories. The four main food types are: carbohydrate, fat, protein, and alcohol. Each of these food types contains a different number of Calories per gram:

- Carbohydrate contains **4 Calories** per gram.
- Fat contains **9 Calories** per gram.
- Protein contains **4 Calories** per gram.
- Alcohol contains **7 Calories** per gram.

To determine the number of Calories in a particular food, you need to know roughly how many grams of carbohydrate, protein, and alcohol the food contains.

Example:

1 cup (8 oz) of 1% milk contains:

- 2.5 grams of fat
- 12 grams of carbohydrate
- 8 grams of protein

How many calories are in 1 cup of milk?

- 2.5 grams of fat x 9 calories/gram of fat = 23 fat-Calories
- 12 grams of carbs x 4 calories/gram of carb = 48 carbohydrate-Calories
- 8 grams of protein x 4 calories/gram of protein = 32 protein-Calories

$$\begin{array}{r} 23 \text{ calories from fat} \\ + 48 \text{ calories from carbohydrates} \\ + \underline{32 \text{ calories from protein}} \\ = \mathbf{103 \text{ Calories in 1 cup of 1\% milk}} \end{array}$$



“CALORIES OUT”

1. Resting Metabolic Rate

Resting metabolic rate (RMR) is the number of Calories it costs for you to maintain all your internal physiological functions at complete rest. In other words, it's the amount of energy required to keep your heart beating, your lungs breathing, your brain and liver functioning, and all your cells alive and well at complete rest. RMR accounts for approximately 65% of your total daily Calorie needs.

Several factors affect RMR. Some of these factors you cannot control because they are part of your genetic make up. As examples, males and/or tall individuals often have higher RMRs. Having a fever, growing (i.e. during puberty or pregnancy), living in a cold climate, and the premenstrual period in a women's monthly cycle all increase RMR and calorie needs. Meanwhile, having low levels of thyroxin (thyroid hormone) or leptin (a metabolism-regulating protein) in your body decrease RMR and calorie needs.

What can you do to rev up your metabolism?

1) Build lean body mass and Exercise

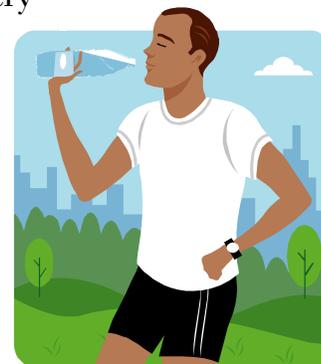
2) Avoid restrictive diets

Build lean body mass and exercise.

Of the factors you can control, the main one that affects your RMR is the amount of lean body mass you have. Lean body mass (which includes muscle tissue) is very metabolically active and accounts for 75-80% of your RMR. At rest, one pound of muscle burns up to 70 times more Calories a day than a pound of fat. So, people who have more muscle on their bodies burn more Calories just sitting in class than people who have more fat on their bodies.

Of course, your lean body mass is somewhat determined by your genetic make-up, sex, and your age (things you cannot control). Genes dictate what body type you have and whether you tend to carry more muscle or fat on your body. Also, as you get older, your body naturally shifts towards more fat and less muscle, which results in a 2-5% decline in RMR (about 75-100 fewer Calories per day) every decade past age 30, unless you do something to combat muscle loss.

What can you do to combat muscle loss and keep your metabolism revved up? You can partly control your lean body mass and prevent the age-related body composition shift by regular resistance training two to three times per week. In fact, older women and older men can recover 1 to 2 decades of loss, respectively, with just 2 months of resistance training 3 times per week. That's a metabolic boost of up to 10%! Resistance training may include lifting weights, doing push ups, sit ups, and other muscle toning exercises, or holding up your own body weight in yoga poses. When it comes to aging and muscle loss, "if you don't use it, you're going to lose it." So, use it!



In addition to building muscle (which is more metabolically active tissue), very intense exercise sessions can speed up your RMR for several hours after you stop working out. So, people who have more muscle AND are training very hard most days of the week need a lot more Calories just to maintain their internal physiological functions at rest.

Avoid restrictive diets.

Restrictive dieting, on the other hand, slows down RMR. Your body slows down in order to adapt to the

lower Calorie intake (so it can function with less fuel). Your body is very smart, and it wants to protect you. So, it actually begins holding on to every Calorie you eat and storing it as fat (since it's not sure you will feed it later). This is one possible reason why people who diet usually gain back their weight (and then some!) once they return to their normal eating patterns.

What about fat burner supplements?

Many dietary supplements are marketed as “thermogenic agents,” claiming to speed up metabolism and burn fat. These substances, like Metabolife and Ripped Fuel which contain ephedra and caffeine, do have some stimulating effects. They can increase heart rate, increase blood pressure, and increase metabolism slightly. But, looking at the big picture, their effect is relatively minor. And some products can cause serious health problems. There is no magical pill that can shed pounds without some life-long adjustments in eating and activity patterns. If something sounds too good to be true, it probably is.

2. Thermic Effect of Food

Thermic effect of food is the amount of Calories it costs to digest, absorb, transport, and store nutrients in your body. Every time you eat, your RMR goes up slightly and stays up for about 5 hours to fuel these metabolic activities. This may be why you're more likely to maintain a healthy weight and keep your metabolism revved up if you eat smaller, more frequent meals throughout the day (instead of skipping breakfast and lunch and then stuffing yourself late at night).

In reality, the thermic effect of food plays only a minor role in your total Calorie expenditure (maybe 5-10% of your total needs), so it probably has minimal effect on your weight. But, eating smaller, more frequent meals certainly won't hurt. If anything, your brain and muscles will appreciate the steady supply of nutrients throughout the day, and you are likely to feel better and perform better in school and physical activities.



Interestingly, researchers have found that the thermic effect of food varies between obese and lean people. When lean people eat a meal, energy use speeds up for a while and then drops back to normal (as expected). Many obese people, on the other hand, do not experience any change in energy use after eating (i.e. food has no thermic effect for them). So, while thermic effect of food contributes little to our overall daily energy needs, this small amount of energy probably adds up over a lifetime and may explain why some people stay lean while others gain weight, despite similar calorie intake.

3. Physical Activity

Physical activity includes the calories you spend during normal daily activities (such as walking to school, brushing your teeth, and fidgeting in class), as well as the calories you spend during purposeful exercise sessions (like jogging, swimming, and kick-boxing). As you may suspect, there is huge variability in the number of calories different people spend in physical activity. Do you take the stairs or the elevator? Do you walk to school or drive? Are you fast-moving and fidgety all day, or do you move slowly and prefer to stay still and relaxed? Do you enjoy sports, weight lifting, hiking, and aerobics in your free time or do you prefer reading, painting, or writing? The calories burned in physical activity varies widely, but it usually accounts for about 25-35% of your total daily calorie needs.

The exact number of calories you personally burn during different activities depends on your size (it costs more calories for a larger person to do the same task as a smaller person), your fitness level (it takes more calories for a beginner to do the same exercise as an experienced athlete), and the intensity of the activity (it takes more calories to run for 30 minutes than to walk for 30 minutes), see **Table 1**.

TABLE 1: CALORIES SPENT PER HOUR BY A 100, 150 AND 200 POUND PERSON DOING A PARTICULAR ACTIVITY			
Activity	100 lb	150 lb	200 lb
Bicycling, 6 mph	160	240	312
Bicycling, 12 mph	270	410	534
Jogging, 7 mph	610	920	1,230
Jumping rope	500	750	1,000
Running 5.5 mph	440	660	962
Running, 10 mph	850	1,280	1,664
Swimming, 25 yards/min	185	275	358
Swimming, 50 yards/min	325	500	650
Tennis singles	265	400	535
Walking, 2 mph	160	240	312
Walking, 3 mph	210	320	416
Walking, 4.5 mph	295	440	572

How do I Calculate My Calorie Needs?

There are many equations to estimate your total Calorie needs based on your RMR and level of physical activity (NOTE: the thermic effect of food is usually not accounted for since its role is so minor). *It is important to realize that all these equations are just estimates.* You may need more or less depending on genetic differences in RMR and your body composition. Consult a qualified health professional for more information about your personal Calorie needs.

Step 1: Estimate RMR:

Men	Healthy body weight x 11 calories
Women	Healthy body weight x 10 calories

Step 2: Multiply RMR by Activity Factor:

ACTIVITY	WOMEN	MEN
Very Light/Sedentary (sitting or standing all day) e.g. lab/computer work, typing, painting	1.3	1.3
Light (walking and some movement throughout day) e.g. student, teacher, homemaker, child care worker	1.5	1.6
Moderate (job with some physical work or <u>moderate</u> intensity exercise 4-5 x/wk. for about one hour) e.g. gardening, carrying loads, most recreational exercisers	1.6	1.7
Heavy (job with heavy manual labor or <u>vigorous</u> intensity exercise 5-6 x/wk. for one or more hours) e.g. roofer, carpenter, many athletes	1.9	2.1
Exceptional (intense physical training for many hours every day) e.g. professional or collegiate athletes during their seasons	2.2	2.4

What if you want to lose weight?

The only way to lose weight is to create a calorie deficit. One pound of fat equals 3500 Calories. So in theory, to lose ½ pound to 1 pound a week, you have to create a deficit of 250 to 500 Calories per day (either by eating fewer Calories or burning more in physical activity). Of course, genetic differences determine how easy it is for you personally to lose weight. In one recent study, researchers overfed a group of people 1000 extra calories every day for 8 weeks and found that there was a huge difference in the amount of weight gained (ranging from 3 to 16 pounds)! The researchers concluded that the people who gained less weight “wasted” the extra Calories by fidgeting more and giving off more body heat. The people who gained more weight, on the other hand, had bodies that were more efficient in storing the extra calories. To maximize fat loss, minimize the drop in your metabolism, energy, mood, and grades, and increase the chances that you won't gain it back, lose weight slowly! Decrease your intake slightly by 300-500 calories per day and increase your exercise level. Aim for about 0.5-2 lb. weight loss per week. If you are very overweight, 2 lb. per week is acceptable. But, if you only have a few pounds to drop, the rate should not exceed 0.5-1 lb. per week. Click here to learn more about [weight loss](#).

What if you want to gain weight?

The only way to gain weight is to create a calorie excess. So, in theory, to gain ½ pound to a pound a week, you have to create an excess of 250 to 500 calories per day. Whether or not those extra calories go towards building muscle or body fat depends on whether or not you exercise. Of course, as with weight loss, genetic differences make it easier for some people to gain weight and harder for others. If your metabolism speeds way up every time you eat more, you may have to consume many more calories before you'll achieve results. Click here to learn more about [weight gain](#).

Take the Calories

