

# Whether slow or fast, here's how your metabolism influences how many calories you burn each day

29 December 2020, by Terezie Tolar-Peterson

It's a common dieter's lament: "Ugh, my metabolism is so slow, I'm never going to lose any weight."

When people talk about a fast or slow metabolism, what they're really getting at is how many calories their body burns as they go about their day. The idea is that someone with a slow metabolism just won't use up the same amount of [energy](#) to do the same task as does someone with a fast metabolism.

But does the speed of metabolism really vary all that much from person to person? I'm a nutrition scholar who focuses on the biological, environmental and socioeconomic factors that influence body composition. This question is trickier than it might first seem—and whatever the current speed of your metabolism, there are things that will nudge it into lower or higher gears.

## Your body's energy needs

Metabolism is a biological term that refers to all the chemical reactions needed to maintain life in an organism. Your metabolism accomplishes three main jobs: [converting food into energy](#); breaking down food into its building blocks for protein, lipid, nucleic acid and some carbohydrate; and eliminating nitrogen wastes.

If you're agonizing over the speed of your metabolism, you're probably focused on how much energy you're getting from the foods you eat and how much your body is using. The [energy value of a food](#) is measured in calories.

Your caloric needs can be divided into two categories.

Basal [metabolic rate](#) is the minimum amount of

[calories required for basic functions at rest](#). Resting energy expenditure is the amount of calories you body use while resting or sleeping – [about 60%-65% of your total energy expenditure](#). It doesn't take into account the calories you'd need to power everything else you do—moving around, or activity energy expenditure (25%-30%), thinking, even digesting food (5%-10%). So your total energy expenditure combines the two: your resting energy expenditure plus your energy expenditures for other activities.

## Coming up with a number

The [estimated daily caloric intake needs](#) for an adult woman of 126 pounds range from 1,600 to 2,400 calories per day. For a man of 154 pounds, daily calorie needs can range from about 2,000 to 3,000 calories per day. That's about 13 calories per pound of body weight.

In contrast, [infants burn about 50 calories per pound of weight per day](#). This requirement continuously decreases as the child ages. So infants have the highest metabolism of all. This extra calorie requirement is necessary [for growth](#).

So if two women of the same weight can have caloric needs that vary by as much as 30%, does that mean the woman whose body uses up more calories has a faster metabolism than the woman whose body uses fewer calories? Not necessarily. One woman might spend more of her day physically active and thus need more energy to power her walking commute and after-work kickboxing class, for instance.

Beyond those rough guideline ranges, there are many ways to estimate resting and [total energy expenditure](#) if you want to figure out your body's specific calorie needs. One common and easy

method is to use predictive formulas [such as the Mifflin-St. Jeor](#) or [Harris-Benedict](#) equations which are [based on your age, height, weight and gender](#) to figure out how much energy your body needs just to be alive. To calculate total [energy expenditure](#), you also need to add the activity factor.

[Indirect calorimetry](#) is another way to estimate metabolic rate. Energy expenditure is calculated by measuring the amount of oxygen used, and carbon dioxide released by the body. Your body relies on oxygen to perform all its jobs of metabolism. For every liter of oxygen you use, you [use about 4.82 calories of energy](#) from glycogen or fat. Respiratory indirect calorimetry is typically done at a doctor's office, though small, portable, more affordable devices are increasingly being brought to market.

### Factors that influence metabolic rate

Metabolic rate and calorie requirements vary from person to person [depending on factors](#) such as genetics, gender, age, body composition and amount of exercise you do.

Health status and certain medical conditions may also influence metabolism. For example, one regulator of metabolism is the thyroid gland, located at the front of the neck just below the Adam's apple. [The more thyroxin a person's thyroid gland produces](#), the higher that person's basal metabolic rate will be.

Having a fever can also affect a person's basal metabolic rate. For [each increase of 0.9 degrees Fahrenheit \(0.5 C\)](#) in a person's internal body temperature, their basal metabolic rate increases by approximately 7%.

Other medical conditions that influence [basal metabolic rate](#) can include muscle wasting (atrophy), [prolonged starvation](#), [low oxygen levels](#) in the body (hypoxia), muscular disorders, depression and [diabetes](#).

Another important factor is body composition. For example, an overweight woman with a body composition of 40% body fat and 75 pounds of muscle mass will burn fewer calories while resting

than a woman with 30% body fat and 110 pounds of muscle mass; [muscle tissue is more metabolically active than fat tissue](#) in the [body](#).

This is also why [basal metabolic rate decreases with age](#). As people get older, they typically lose muscle mass and gain fat tissue—which equates to a [decrease in basal metabolic rate of approximately 1% to 2% per decade](#).

If you really want to give your [metabolism](#) a jolt, the easiest way is to bump up your muscle mass and activity level. By increasing muscle mass, you'll also increase the base number of calories needed [to maintain those muscles](#). Instead of complaining about a [slow metabolism](#), you can try to turn it up to be at least a bit quicker.

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