Chapter 2 Metabolism.com

What Makes Your Metabolism Fast or Slow?

Metabolism.com member Maskoliiko writes:

“I recently spoke with a chiropractor about metabolism. He claims your metabolism is all based on your genes and family. I believe you can change your metabolism through exercise and diet. Can you explain please?”

Your metabolism is actually influenced by a combination of genetic, lifestyle and environmental factors:

• Your age. After you turn 20, your metabolism naturally slows by about 2% per decade. After age 40, it drops even more, decreasing by about 5% per decade. That's why many people who were thin in their younger years gain weight as they get older, even if they follow the same general dietary guidelines and exercise routine as before.

• Your gender. Men, because of their greater muscle mass and lower body fat percentage, generally have a 10-15% higher basal metabolic rate (BMR) than women.

• Your weight. The heavier you are, the higher your metabolism will be. For example, the resting metabolism of an obese woman is 25% higher than that of a thin woman. This is because the more you weigh, the harder your body has to work to keep itself running, even when you are resting.

• Your muscle mass. Muscle is a more active and energy-demanding tissue than fat. This means that more energy is needed to maintain these tissues. As a result, the higher your percentage of muscle (compared to fat), the faster your metabolism will be.

• Your body surface area. Body surface area (BSA) is calculated using both your height and weight. Researchers have found that the greater your BSA, the faster your resting metabolism. This means that tall, thin people tend to have higher BMRs. Also, if a tall person and a short person who weighed exactly the same both followed a diet designed to maintain the weight of the taller person, the shorter person could gain up to 15 pounds in a year!

• Your diet. Many people think that losing weight means eating less. However, when you don't get enough calories from your diet, your metabolism can slow by up to 30%. A healthy diet should consist of at least 3 balanced meals per day plus 1-3 snacks or 4 to 6 mini-meals
per day. Following such an eating plan will help increase
or maintain your metabolism much more effectively than an unhealthy,
restrictive plan.
• Your exercise routine. An exercise program that includes aerobic
and strength training activities helps improve your muscle-to-fat
ratio, which keeps your metabolism high even when you are
losing weight.
• Rapid weight loss. The process of weight loss itself slows down metabolism.
Your body will never lose just fat when losing weight;
your body also loses water and a little bit of muscle. Because of
this muscle loss, your metabolism actually decreases a bit after
weight loss. The more rapid your weight loss, the more muscle
you lose. This is one reason why it’s important to aim for slow
gradual weight loss (about 1-2 pounds per week) because it will
help preserve muscle to keep your metabolism up.
Rapid weight loss also induces hormonal changes that can slow
down metabolism. For example, levels of the potent thyroid hormone
T3 decline during weight loss, which may explain why dieters
find their weight loss plateaus after a brief period of success.
• Smoking. The nicotine found in tobacco products increases metabolism
and energy expenditure, as well as reduces appetite.
this may be why smokers tend to weigh less than non-smokers
and often gain weight when they quit. Still, cigarette smoking
increases insulin resistance and has been linked to central fat accumulation.
As a result, smoking increases a person’s risk of developing
metabolic syndromes like diabetes, as well as increasing
the risk of cardiovascular disease.
• Your sleep patterns. Insufficient sleep can seriously alter the levels
of hormones linked to metabolism:
• Insulin levels increase as a result of high blood sugar levels,
causing the body to store more fat
• Leptin levels decrease, which causes carbohydrate cravings
• Growth hormone levels decline, affecting how the body regulates
its muscle-to-fat balance
• Additional cortisol is released, which can stimulate hunger
Based on a study presented at the American Thoracic Society
International Conference, women who slept for 5 hours a night
were 32% more likely to experience major weight gain (defined
as an increase of 33 pounds or more) and 15% more likely to become
obese over the course of the 16-year study compared with
women who slept 7 hours.
• Your stress levels. There are different types of stress, and their effects
on your metabolic rate are very different as a result. For
example, there is the metabolic stress of an illness, trauma or surgical procedure. These types of stressors actually increase our metabolic rate. However, the common stress we face in our daily lives will not increase metabolic rate, and evidence shows that it instead destroys our good intentions and resolutions to adopt healthy eating habits.

How we handle stress is the key. Some people use food as an outlet, to quell an emotional fire. This is a poor outlet and leads to weight gain. A recent study in the American Journal of Clinical Nutrition showed that when study participants are occupied with either a TV program, news article or mental problem, they consistently consume more food and a higher caloric intake than those not preoccupied or distracted while planning and eating meals.

The moral of this study is that our high-pressured lives keep us on “auto pilot,” and we consume more calories than we need. Finding constructive outlets to stress, such as talking with friends, taking up a hobby, meditation, prayer, exercise, or any positive form of expression, can prevent the common distraction and self-medication with less than spectacular food choices during tough times.

• Your exposure to light. A research team from The Ohio State University discovered that mice exposed to a dim light during the course of a night for roughly a two-month period, gained 50% more body mass than mice exposed to a regular light-dark cycle. This is most likely because nighttime light exposure disrupts the natural rise and fall of the hormone melatonin. Since melatonin plays a significant role in metabolism, light exposure at night could disrupt the time animals choose to be active and eat and contribute to obesity.

• Your genes. The sad fact is that some people are just born with slower metabolisms than others.

The Role of the Thyroid

Probably the most important structure in your body when it comes to metabolism is your thyroid. The thyroid is a butterfly-shaped gland located in the front of your neck, just below the larynx (voice box). The main function of this gland is to control your metabolism by producing and releasing hormones like thyroxine (T4) and triiodothyronine (T3).

As I mentioned in the previous section, T3 and T4 are key players in regulating your resting metabolic rate. The more thyroid hormones
that are produced and released, the higher your BMR will be. You might think that producing more and more thyroid hormones would be a good thing then. However, too much or too little of these hormones can cause serious health issues.

Hyperthyroidism is a condition that develops when the thyroid becomes overactive and produces too much thyroid hormone. Such high quantities of these hormones can actually double a person’s BMR and can lead to symptoms such as severe weight loss, increased heart rate and blood pressure, protruding eyes, and goiter (a swelling in the neck caused by an enlarged thyroid gland). I need to point out that not everyone who has an over-active thyroid loses weight. I estimate that about 1/3 of my patients with excess thyroid levels actually gain weight. My thought is that excess thyroid hormone stimulates the nervous system, and that can affect the appetite. After what would be a normal sized meal, these hyperthyroid people don’t register the feeling of fullness (satiety) and so they continue to eat. this results in them consuming more calories than they can burn, leading to weight gain.

When your thyroid produces too little thyroid hormones, hypothyroidism can occur. this condition develops as a result of developmental problems, destructive diseases of the thyroid or thyroid under activity. the result is a very low metabolism (BMR) that may be 30-40% less than normal, as well as fatigue, slow heart rate, excessive weight gain and constipation. For infants and young children who don’t receive treatment, hypothyroidism can lead to stunted growth and mental retardation.

Occasionally, a person’s metabolic rate can also be affect by his/her nutritional status. Iodine, for example, is an essential component of the thyroid hormones that regulate metabolism. therefore, without enough iodine, sufficient amounts of these hormones can’t be produced, leading to sluggishness and weight gain. However, in countries like the United States where iodine is supplemented in various products (think iodized salt), this problem is relatively rare.

For people who have a very hard time losing or gaining weight despite following all of the usual medical and nutritional advice, making sure that your thyroid is functioning properly may be the first step to restoring the body’s hormonal balance and reaching a healthy, desirable weight.

As you can see, while your metabolism may be influenced by your genes and family history, it is by no means carved in stone. there are still many ways to maximize the metabolism you have been born with—whether it runs fast or slow—in order to reach your ideal body weight.
CHAPTER 3 Metabolism.com
How to Increase or
Decrease Metabolism

The practice of endocrinology deals with a lot of different conditions resulting from hormonal imbalances, of which weight problems is just one. Of course, in a public forum like Metabolism.com, questions and answers about weight gain and weight loss take up a large portion of the forum. But in my practice it is just one of the many conditions I treat.

Problems with Losing Weight

A metabolism.com member writes:

“I have a really slow metabolism and I was wondering besides exercise, is there anything I can do to speed it up, or should I go and see my doctor. I have tried to lose weight many times and have failed, what else can I do?”

I hope you enjoyed this excerpt from my book Metabolism.com. If you are still interested in reading more about increasing or decreasing metabolism, new approaches to treat sluggish thyroid conditions, advances and pitfalls in the treatment of diabetes, a 20 page custom diet and exercise program, and much more....... than follow this link: http://www.metabolism.com/metabolism-book back to metabolism.com where you can easily download the complete book for only $3.95.

You can also post your thoughts and comments on the website by using the open forum.

Best regards,

Gary Pepper, M.D.