



3400-A Old Milton Pkwy • Ste 360 • Alpharetta GA 30005
770.475.0077 • georgiahormones.com

Weight Control

Robert P. Goldman, MD

Food and energy

We have all heard the expression, “You are what you eat.” Food fills two basic needs — to supply the building blocks to make body parts and to provide fuel to run those parts. We get our fuel by eating other living things, plants and animals, or foods made from them. If we eat more than we need, the excess is stored for the future.

Energy sources — three major food elements

- **The simplest and most concentrated is fat:** Fat consists mostly of long chains of carbon and hydrogen. We get energy by chemically oxidizing or *burning* the carbon into carbon dioxide and the hydrogen into water.
- **Sugar and starch are carbohydrates:** Carbohydrate means carbon and water. They are made of carbon, hydrogen and some oxygen -- already partially oxidized, they don't yield as much energy.
- **Protein:** Contains nitrogen and must be disposed of as urea. To be used as fuel, all starch, protein and complex sugars must be turned into glucose. Complex fats are turned into simple fats.

How we use and store food

As we live our daily lives, the most easily accessible fuel is from the food we just ate. After the food is broken down into small units, it is distributed around the body by the blood stream. Every cell of the body takes what it needs. Inside each cell are energy processors called mitochondria. In most cells, the mitochondria can burn either sugar or fat. The brain and nervous system can only use glucose (sugar). Inside the liver and to a lesser extent the muscles, the body can store about a day's worth of glucose in a special form called glycogen. Beyond that, all excess food is turned into fat and stored around the body as fat. The body can turn any food into fat, but it can't turn fat into glucose. If you fast and are running out of glycogen, your body will break down your own body proteins, mostly muscle, to make glucose.

Cash vs. bank accounts

Glucose provides quick energy and is easy to use. It is the only thing the brain lives on and a sugar high makes the brain happy -- at least for a little while. Muscle will burn sugar first if it has a choice. Glucose is considered ready cash and fat is the money in the bank. If you earned a lot of cash every day, you would always have plenty in your wallet, with no need to run to an ATM. If you keep eating enough *cash (or carbohydrates)* to supply your daily needs, you will never burn any of the fat in your *storage bank*. Eating too much sugar or other carbohydrates raises blood glucose levels. If blood glucose levels are too high, the pancreas has to make insulin to push the extra glucose into fat cells to help lower blood sugar levels — the extra glucose will be stored as fat.

Exercise and weight loss

Muscles can burn either fat or sugar, but they would rather burn sugar. If the carbohydrate supply is limited, muscles learn to burn fat and reserve the sugar for the brain. **It takes about two weeks of restricting carbohydrate intake, regular exercise and sleeping on an empty stomach to teach the muscles to burn fat.** Unless you exercise and limit calorie intake (*especially carbohydrates*) your muscles will never learn to burn fat. They will never remove money out of your *fat bank account*. Aerobic and cardio exercises encourage muscle cells to make more mitochondria so food is burned more efficiently. Weight training builds more muscle, but excludes mitochondria for endurance. You need both.

Dieting and weight loss

When you eat and how much you eat is more important than what you eat.

There are many diet books available containing a variety of philosophies. Farmers know the easiest way to fatten an animal for slaughter. Keep the animal inside a stall to avoid getting much exercise and feed them grains such as corn. The high carbohydrate content turns into sugar and is rapidly digested, quickly turning into fat. The speedy digestion makes the animal become hungry again and is ready to eat more. **Eating before going to sleep yields the maximum fat production.** A meal with a lot of fiber and some fat are more filling, digested more slowly, postpones hunger longer and less likely to turn into fat.

As women age

Many women over thirty-five do not produce eggs on a monthly basis. This reduces progesterone production and may cause irregular periods. Estrogen is still produced but it is unopposed by progesterone. Unopposed estrogen has many effects; among them are increased cravings for carbohydrate food and a tendency to deposit fat in the abdominal area. Insulin resistance also increases with age and weight. This causes higher levels of insulin, resulting in greater deposits of fat. Excess insulin also increases estrogen levels, making matters worse. Hypothyroidism also becomes more common and slows down the rate that food is burned. Thyroid and progesterone replacement therapy may help.

As men age

Cravings for carbohydrate foods are stimulated by a high estrogen/testosterone ratio. As men age, testosterone levels gradually fall. Abdominal fat can convert testosterone into estrogen. As abdominal fat increases, the E/T ratio rises and so do cravings for more carbohydrates. This makes more abdominal fat — it is a

vicious cycle. Supplementing testosterone can raise levels to stimulate the increase of muscle mass and make calories burn faster. Lowering carbohydrate intake and reducing belly fat lowers estrogen. The lower E/T ratio can help break the weight gain cycle, speed calorie burning and reduce belly fat.

Stress

Chronic stress raises cortisol levels from the adrenal glands and has many effects. It raises estrogen, inhibits progesterone, represses the thyroid and increases cravings for high caloric *comfort food*. In the past, this helped to store up fat for the upcoming bad times, when food shortages would prevail.

Body type

Traditional doctors in India describe three body types, each with its own best foods and times to eat. In his book *Perfect Health*, Deepak Chopra provides charts, tests, and explanations. It is worth a look.

Assess where you are

Keep a log of what you eat for a while. That includes beverages, snacks, licking the bowl while baking, etc. Note the time when you eat, your food choices and the quantity eaten. Do some research to determine a diet you could adhere to for a period of time. We need life style change, not fad diets. Consider joining Weight Watchers. They are sensible, not too expensive and provide a heavy support group.

Timing

Avoid eating one to two hours before sleep. Eat a solid meal at the start of the day. A breakfast of dinner leftovers with some fat and protein is better than many breads, Pop-tarts, instant oatmeal or some other carbohydrate-filled breakfast. Eating large amounts of carbohydrates will leave you hungry again by mid-morning.

Portion size

Today American food is cheaper than any other time or place in human history. The average restaurant portion size is two to five times higher than it was 50 years ago. Allowing for inflation, the food and employee wages are about the same. In 1965, the typical McDonald's lunch was around \$1.00 and contained approximately 350 calories. Today, a Supersize Meal costs \$5.00 but jumps to a total of 1,850 calories! The increase is due to larger amounts of French Fries and soda, which simply plows massive carbohydrates into the body.

Caffeine and sugar substitutes

Caffeine stimulates extra insulin with all of the problems described above. A sugar substitute such as Equal, Sweet & Low, etc., fool the tongue into thinking it is sugar. It also tricks the pancreas, which produces insulin. In either case there is no actual sugar in the food. Blood sugar falls and causes hunger (diet sodas just increase the appetite). A study was done on rats: The ones who were given Diet Coke ended up 50% fatter than the rats on the same exact diet but given water only.

Exercise

You don't have to become a long distance runner — start with walking — just getting out there stimulates the muscles. Walking for a long period of time is

more important than generating a faster heartbeat or lifting heavy weights.

Supplements

Since food intake will be reduced, get on a good vitamin and mineral supplement program.

Make a lifestyle plan

Losing weight and then maintaining that new set point represents a change in lifestyle. It has to be something you can live with. Don't worry about short-term setbacks. If you cheat one day, go back on the new eating and exercise regimen the next day. Feeling increased energy, health and strength will become an immediate reward.