Some people have an easy time changing their diets. If they find they’re gaining weight or their cholesterol rises, they throw out the meat, dairy products, and fried foods without batting an eyelash. But for others, a switch to a healthy diet is a bigger challenge, sometimes a perpetual battle with temptation.

George, a 38-year-old Web designer, is in the first category. After developing a cholesterol problem in 1997, he switched to a vegetarian diet, and then went vegan about a year later. It took him very little time to get the hang of the new way of eating, and he never looked back. He loves Mexican bean burritos, Asian vegetable dishes, and Italian pasta. To his surprise, he lost his taste for meat and cheese and now considers them “disgusting.” His cholesterol dropped dramatically—well into the normal range—and he takes no medication for cholesterol or anything else.

Lina, a 52-year-old woman with diabetes, had a very different experience when her doctor sent her to a dietitian for a “diabetic diet.” “After a couple of weeks, I got tired of it,” she said. “And between travel and my crazy work schedule, I really haven’t followed the diet very well.” In two years, her weight climbed from 180 to 205, and her diabetes is less controlled than ever.

So why do some of us break bad habits easily, while others have a hard time? Is it that diets are just hard to follow? Or is it something within us? In the course of PCRM’s research studies, we have found some answers in an unlikely place: our genes.

Genes control the action of the chemical messengers in the brain. One gene, in particular, relates to dopamine, the key neurotransmitter in the brain’s “pleasure center” or reward system. As dopamine passes from one cell to another, it signals a pleasurable sensation. It is normally triggered by actions that support survival, either of the individual or the species—eating or reproducing, for example. After all, if eating provided no pleasure at all, we wouldn’t eat—and wouldn’t live very long. Likewise, if reproducing were a total bore, the species might eventually vanish.

Now, unfortunately, many unhealthful things can cause a dopamine release, too. Smoking, alcohol, and drugs, for example, are popular precisely because they cause the release of dopamine, in addition to whatever other brain effects they have.

Here is where genes come in: Some people have fewer dopamine receptors than other people due to a gene variant called DRD2 A1. If you inherited this gene
from your mother or father, it tends to cut the number of dopamine receptors by about one-third. With fewer dopamine receptors, you are likely to feel a bit out of sorts compared to other people. You are also somewhat more susceptible to addictions of many kinds, including overeating, smoking, alcohol, and even drugs, presumably because these substances provide the good feelings that seem not to come naturally.

Working with Earnest Noble at the University of California, Los Angeles, PCRM’s research team did genetic analyses on 70 people with diabetes taking part in PCRM’s ongoing study comparing a low-fat, vegan diet to a more conventional American Diabetes Association diet. The ADA diet cut food intake by 500 calories per day for overweight people, limited portion sizes, and required keeping tabs on carbohydrate intake. The vegan diet eliminated animal products and added oils, but placed no limits on calories, portions, or carbohydrate. The study is still in progress, but in a report to the American Diabetes Association’s scientific sessions in San Diego on June 10, 2005, I presented some intriguing findings on the interaction of genes, food, and health.

First of all, we found the DRD2 A1 gene variant in 46 percent of the participants, which is about twice its prevalence in the general public. Second, the gene seemed to affect how well people do on their diets, which became most obvious in participants who kept their medications constant during the first 22 weeks of the study—allowing us to compare the diets without the confusion caused by changing medication regimens.

Among participants without the gene variant (those whose dopamine receptors were “normal,” that is) the vegan diet led to a much greater drop in the primary measure of blood sugar, called hemoglobin A1c (1.4 points), compared to the ADA diet (0.1 point).

However, among those with the gene—and with fewer dopamine receptors—the two diets were much more similar: a 0.3 point drop for the vegans and no drop at all for the ADA group. Here is what we suspected was going on:

With too few dopamine receptors, the brain is not getting the stimulation it needs in order to feel “normal.” So one theory is that such individuals simply find it hard to stay free of substances of abuse, including unhealthful foods. Now, for them, the vegan diet is at least as good as the ADA diet, or perhaps slightly better, but many still have a tough time. Those with “normal” brain function find it easier to break habits of all kinds, including those related to food. At least, that is one theory. There may be other explanations, too. Perhaps the alteration in dopamine influences diabetes in other ways.

Paradoxically, the vegan diet may be easier to follow than the ADA diet, particularly for people with normal brain receptor function. In the same way that it is easier to quit smoking entirely than to try to smoke in moderation, it may be easier to simply leave unhealthy foods aside, as a vegan diet does, rather than asking dieters to moderate their use, as the ADA diet does. And that may be just the kind of diet that best fits your genes.

Why do some of us break bad habits easily, while others have a hard time? We have found some answers in an unlikely place: our genes.