

## HOW I GOT SKINNY BY EATING FAT or WHY LOW-CARB WORKS

by Adrienne Larocque, Ph.D.

When I was a child, I was so skinny that schoolmates called me names like toothpick and beanpole. When I was in my teens, I could eat anything I wanted without gaining weight. Unfortunately, as I got older, my body changed. My lifestyle became more sedentary. I gave birth to 2 children. During each pregnancy, I gained 60 lbs (almost 30 kg), rather than the recommended 25 lbs; each time I gave birth, I weighed almost 100kg (over 200 lbs)! I was able to slim down each time by working out a lot, but my weight had become much harder to control.

Over the summer of 2005, I gained so much weight that none of my clothes fit me anymore. I was so tired that I was sleeping 13 hours a day. Blood work during my annual physical exam showed that I had high levels of triglycerides (see Table 1), a risk factor for heart attack. A doctor told me to eat less fat, but I was already anemic because I never ate red meat. A friend of mine, a nurse and a diabetic, warned me that I was in trouble. I needed to make changes right away, or I would continue to gain weight and eventually develop diabetes like my mother and my grandfather.

This point was a wake-up call for me. I realized that I needed to take control, not only of my weight but my health. My friend told me to read *The Diabetes Solution* by Richard K. Bernstein, M.D. Following the guidelines in the book, I changed my diet and started walking regularly. I lost weight so quickly (especially around my waistline) that almost everyone I saw commented on it. I began to feel better and my energy levels increased. Some people would call that miraculous, but I'm a scientist by training, which means that I'm a natural skeptic. I've never been on a "diet" before, because I thought I was already eating healthy foods.

My story may sound like other weight-loss success stories that you've heard, but there are several things that I think make my experience remarkable. First is the speed at which I lost weight – 30 lbs (almost 14 kg) in 3 months. Second is how easy it was to lose weight; I did not ever starve myself. And finally, I've been able to keep the weight off WITHOUT being hungry. I haven't used any type of diet aid to suppress my hunger and make me eat less. I don't eat less. In fact, I actually consume MORE now than I did before. But I eat differently. And I feel alive and healthy and full of energy. I'm 46 years old, but I feel better about my body than I did when I was 20.

The most exciting thing about what happened to me is that it could also happen to you! If you've struggled with your weight, if you work out but don't get the results that you want, if you have no energy even though you sleep a lot - your problem may be that you're eating the WRONG foods, not too much food. Like the old me, you may think that you know what the "right" foods are. But if you're reading this, then what you've been told is "right" in terms of eating or exercising probably isn't working for you.

If you ask most doctors or dieticians what makes up a healthy diet, they'll probably tell you to eat foods that are low in fat and high in fibre. If you check the websites for most government organizations that deal with health, they recommend eating mainly grains and cereals, fruits and vegetables, small amounts of meat, fish and poultry, all while limiting your intake of fat. For years, this is exactly the type of eating plan that I followed. Unfortunately, this approach made me struggle with my weight.

What exactly is a low-fat diet? What are the alternatives? To answer this, we need to talk a bit about energy. There are 3 dietary sources of energy: carbohydrate, protein and fat. Carbohydrate and

protein each provide 4 calories of energy for every gram that you eat. Fat provides 9 calories per gram. If you eat a diet that's low in fat, you'll rely on protein and carbohydrate to provide your body with energy. Since the best sources of protein also are sources of fat, it's very difficult to get enough energy from low-fat sources without eating a lot of carbohydrate. So what's the problem with that? It's fat that makes you fat, right? Not necessarily. Let me explain what exactly happens when you eat "carbs".

Sugar, starch and fibre are different types of carbohydrates. You can't digest fibre, so it just passes through your body (it provides no calories); sugar and starch are easy to digest. The basic building block of all carbohydrates is glucose. Glucose is made up of carbon, hydrogen and oxygen atoms arranged in a ring structure. Single glucose molecules link up with other carbon rings to form long chains such as starch and complex sugars (like paper chains little kids make in art class). Sugar and starch molecules are too big to pass into your bloodstream through the lining of your digestive tract. They must first be broken down by digestive enzymes into glucose, which is then absorbed. So whether you eat Tiramisu or Pasta Primavera, the end result is that glucose enters your bloodstream.

Your brain actually prefers glucose for fuel, but your body is very intolerant of changes in glucose levels. If you eat carbohydrates, you'll experience a surge in "blood sugar" (the concentration of glucose in your bloodstream), usually peaking about 1 hour after you eat. To counteract the rise in blood sugar, a hormone called insulin is released from your pancreas. Insulin has several jobs. One is to help move glucose from the bloodstream into body cells to be used as fuel. Insulin also converts some glucose into glycogen (a kind of starch) for storage in your muscles and liver; this can be released quickly to provide energy during exercise. If there's more glucose than you need at any given time (i.e., during periods of low activity), insulin converts the excess glucose to a fat called triglyceride and stores it.

That's right. Even if you don't eat fat, your body will make it from the carbohydrate that you eat. That fat will be stored as adipose tissue, especially around your waist. That's exactly what happened to me. In August 2005, my best friend told me that I looked like I was pregnant – but I wasn't! Since cutting down on the amount of carbohydrate that I eat, I don't look pregnant anymore. That's because, simply put, you can't store fat without insulin, and you won't have insulin circulating in your bloodstream if you don't eat carbohydrate. And if you exercise, you'll burn fat that you have already stored. Of course if you eat fat and carbohydrate together (e.g., French fries), you will store both the excess glucose and the fat!

Dietary protein and fat can provide energy for your body, but they don't raise the concentration of glucose in your blood like sugar and starch do, and so insulin is not released from the pancreas (a lot of protein actually causes an insulin release, although the effect is much less than if carbohydrates are eaten). Proteins are large, complex molecules made up of amino acids. Amino acids are like beads; if you string them together, they make a protein molecule. There are 20 amino acids used by your body; 8 of these are considered "essential" in the diet because they can't be made or stored by your body and therefore you must eat them every day. The body also needs, but cannot make, essential fatty acids; these are the building blocks of fat molecules.

Unlike carbohydrates, proteins and fats have other (non-fuel) functions in the body. There are many, but one of the most important is in the growth, repair and maintenance of cells. Every cell in your body has an outer layer called a cell surface membrane that controls what goes in and out of the cell (things like water and nutrients, but also bacteria and viruses). Each cell membrane is made of a double layer of fat with protein bodies distributed here and there. Both amino acids and fatty acids are necessary for the manufacture of hormones in the body. Antibodies, which fight bacteria and

viruses, are specialized blood proteins. So in addition to supplying you with energy, fat and protein provided the building materials to keep your body functioning properly. Carbohydrates don't do this.

Whenever I talk about limiting the amount of carbs that you eat, someone always says "But you need carbohydrate for energy!" While it's true that your brain prefers glucose for its fuel (although it can use other substrates like fatty acids and lactate), you don't need to **eat** carbohydrate to keep your blood sugar at the correct level. The best illustration of this is the fact that the traditional diet for people living near the Arctic Circle in Europe, Asia and North America consisted almost entirely of meat, fowl and seafood, with no carbohydrate. They survived because the body can actually make glucose by breaking down the building blocks of protein and fat.

Most people don't really have a clear idea about what foods contain carbs. For example, many people I've spoken with think that fruits don't have any, possibly because they've heard mainly about "complex carbohydrates" in grains. The sidebar summarizes the main food sources of carbohydrates; note that this list was compiled by Dr. Bernstein for his diabetic patients. I actually eat many of the foods on the list, but I eat small portions of them; I no longer eat ANY rice, noodles or potatoes, and I rarely eat any bread. These foods definitely should not be eaten just before bedtime or other periods of low activity. Some of the items on the list are obvious no-no's (such as cakes and candies), but you may be surprised by others (who knew about tomatoes?!).

OK, so now that you know what **not** to eat, you might ask "What's left?" It's actually pretty simple. For energy, eat food that comes from animals: meat (beef, pork, lamb, goat), poultry and eggs, fish and seafood, and some dairy products (cheese, butter, cream). In addition to protein, animal sources contain fat which, as I explained above, your body needs. The list of foods that I eat is short, but I don't feel deprived because I can eat a lot of any of them and not gain weight. In contrast, carbs actually make you hungry because they rob your body of energy, at the same time that they make you gain weight (instead of being used, energy is stored). Dietary fat suppresses the appetite center in your brain, so your hunger cues correspond to your actual energy needs.

Plant sources (with the exception of soya beans, which are harmful to health unless fermented) are considered second-class or incomplete proteins because they don't contain all of the amino acids you need in the right proportions. However, plants do contain valuable nutrients like anti-oxidants and minerals. Nuts and seeds are particularly good sources of B vitamins, Vitamin E, calcium, and zinc. Vegetables provide Vitamins A, C and K, folic acid (folate), and trace minerals. I rarely eat fruit (aside from avocado, which has very little carbohydrate) because any nutrients in fruit can also be found in vegetables.

The low-carb way of life necessarily requires you to eat a lot of fat (because the best sources of protein also are rich in fat). Many health professionals are horrified by this, because of the incorrect idea that dietary fat is bad for you. In fact, fat is only unhealthy if you mix it with carb. In spite of the fact that my diet is high in saturated fat and cholesterol (my typical daily diet includes eggs, butter, cheese, meat and at least 250 ml of whipping cream!), my triglyceride levels have gone down dramatically and my total cholesterol is almost too LOW (Table 1). In addition to the improvement in all of my blood tests, I've experienced dramatic changes in my immunity to respiratory infections. I used to catch a cold or flu if I didn't get a good night's sleep, or if I got on an airplane. In contrast, I've only had one cold since I went low-carb, even though I stopped taking a multi-vitamin in 2005.

The only other health issue I've had to deal with in the last 5 years was a bout of gastroenteritis in the fall of 2007 (since then, I've stopped eating out at certain restaurants in Jakarta, where I currently live!). At that time, I lost another 10 lbs (Fig. 1). My body mass index (BMI) bottomed out at 19.1, which is considered underweight. Imagine that - I went from someone who couldn't keep her weight

down to someone who was too skinny! After nearly 2 years, I made a conscious decision to gain some weight back, so I **temporarily** increased my carb consumption. My weight rose back to a healthier level, and then stabilized. The lesson you should take away from this is that when you find your optimum level of carb intake, your weight doesn't change - you can actually **control** it.

If this all sounds too good to be true, I recommend taking the scientific approach: before changing your diet, do a complete blood workup. At the very least, measure your fasting blood glucose (although measuring HbA1c provides better information about glucose tolerance), triglycerides, total cholesterol and HDL. That way, you can monitor the state of your health. Knowing that all of my numbers have improved keeps me motivated to avoid carbs. And if well-meaning friends and family try to talk you out of eating fat, you'll be armed with the evidence that it really works. In case you think you don't need a baseline analysis, consider the petite, skinny personal trainer in her early 20s who told me her cholesterol was over 400!

The key to success in the low-carb lifestyle is NOT about giving up food. It's about giving up foods that don't promote good health or give you sustained energy. You don't need to be hungry. You simply need to replace carb-loaded foods with something better for you. I've found that the less I ate of bread or pasta or potatoes, the less I wanted them. Weaning yourself off carbs is like beating any addiction. It takes time, and you may suffer some withdrawal initially, but it's definitely worth it!

*Adrienne Larocque is an award-winning scientist from Canada. She has a Ph.D. in Geochemistry. Her nutritional expertise is based on personal experience and experimentation as well as reading books and articles published in nutrition journals.*

Table 1: Weight and Lipid Profile Before and Since Dietary Changes

	Sept 2005	Dec 2006	Sept 2007	May 2008	Feb 2010	Ideal
<b>Weight (kg)</b>	74	66	67	63	66	62-83
<b>Body Mass Index</b>	22.8	20.4	20.7	19.4	20.4	19.1-25.8*
<b>Cholesterol</b>	133	208	176	188	162	Above 160
<b>Total Cholesterol/HDL</b>	3.5	2.6	2.3	2.4	2.6	Below 4.5
<b>Triglycerides</b>	174	72	54	49	58	Below 160

\*Ideal BMI for women, Standards Committee, American Society of Obesity Surgery.

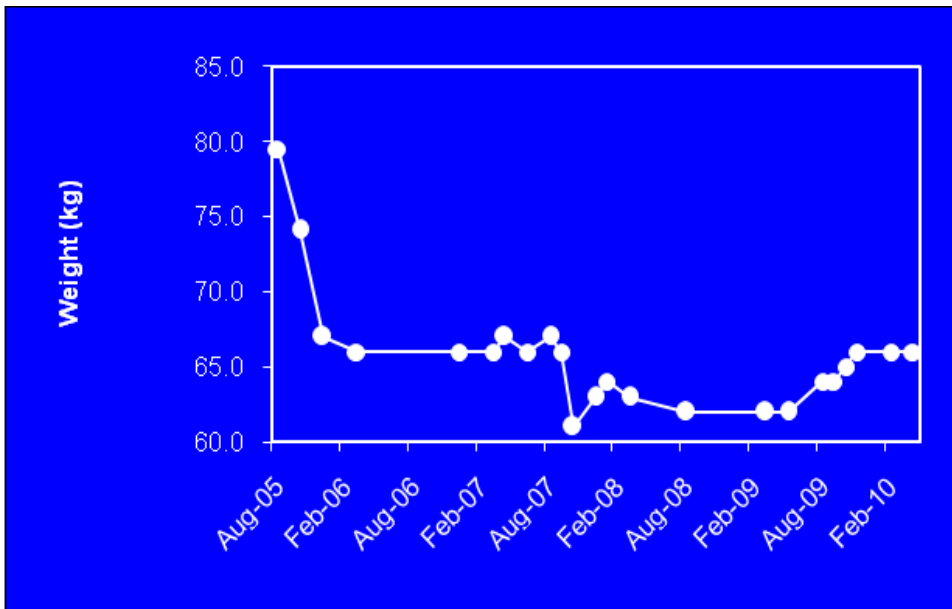


Fig. 1: My weight since I made dietary changes



Me in 2006

## **NO-NO FOOD LIST**

**From *The Diabetes Solution* by Richard K. Bernstein, M.D.**

**Sweets & Sweeteners:** No surprises here! Stay away from sugar, honey, candies, desserts (ice cream, cakes, cookies, pies, tarts, etc.).

**Sweet or Starchy Vegetables:** Avoid beans (chili beans, chickpeas, lima beans, lentils, sweet peas), root vegetables (carrots, beets, potatoes, parsnips, sweet potatoes, onions), corn, squash (pumpkin), and cooked tomatoes

**Fruits and Juices:** Limit all fruits (except avocados) and all juices (including tomato and vegetable juices)

**Certain Dairy Products:** Consume less milk, sweetened and low-fat yogurts, powdered milk substitutes and coffee lighteners, and canned milk concentrate. If you must drink milk, get full cream rather than skim milk (skim milk has much more carbohydrate). Same for yogurt.

**Grains and Grain Products:** This is the toughest one! Cut down on anything made from wheat, rye, barley, or corn. That means bread, pasta, noodles, cereal, pancakes, waffles and crackers. Also limit white, brown or wild rice (or anything made from them).

**Prepared Foods:** Just say no to most commercially prepared soups, most packaged “health foods” (they usually are “low-fat” which means they are high in carbohydrate), and snack foods, even nuts (typically these contain lots of added sugar and starch).



Photos above: April 2007; just before giving birth in Sept 1998; just after giving birth in Aug 2001. Sadly I don't have a photo of me in Aug 2005. There was one taken, but I was so horrified when I saw it that I tore it up! I now wish that I hadn't been so vain!



These 3: me in March 2009