

WHAT CAUSES OBESITY?

Dr. Thomas Torok

This E-book contains excerpts from the 327-page book entitled

[The Secret of Permanent Weight Loss](#)

[What Your Doctor Won't Tell You](#)

INTRODUCTION

Obesity is the plague of the new millennium. Since the beginning of the 20th century, obesity has claimed more lives than all wars, violent events and dictatorships combined, including World War I, World War II, genocides, civil wars, man-made famines and communism. The vast majority of our modern-day diseases such as type-2 diabetes, heart disease, stroke, cancer, arthritis and many others are closely related to obesity. The common feature of these ailments is that they are all lifestyle diseases and in many cases they could be prevented by simply adopting a healthy lifestyle.



Have you ever wondered, why are there fat doctors? Physicians treat all sorts of diseases; they are the experts of the physiology of the human body. However, despite their expertise, they are just as obese

as the rest of us. Have you ever wondered if we were given the wrong advice? How does mainstream medicine treat obesity? What kind of guidance were we given? Eat less, exercise more. Avoid fat, eat more fruits and vegetables. Count calories. Drink four glasses of milk every day. Eat six meals a day. Snack between meals. Take multi-vitamins, mineral supplements. It's the perfect recipe for disaster, as people are just getting more and more obese every year. Obviously, we have lost the battle against obesity. But why did that happen? It seems like real science got hijacked by junk science, and we were given bad diet advice for decades.

Mainstream medicine heavily relies on a very controversial theory, called the *diet-heart hypothesis*. The whole idea is based on two key assumptions: One; dietary fat raises blood cholesterol levels; Two; high blood cholesterol increases the risk of heart disease. Cholesterol earned a very bad reputation during the past couple of decades. It should be noted that cholesterol is often confused with the *low density lipoprotein* known as LDL, which is also referred to as the "bad cholesterol". Although there is some moderate correlation between LDL levels and cardiovascular disease, the relationship is much weaker than previously thought. Cholesterol by itself is absolutely harmless, it plays many important functions and is present in every single cell of our body. Literally, there is no life without cholesterol. It is never mentioned in mainstream media, that dietary fat and cholesterol intake has virtually zero effect on your blood cholesterol level. Since its conception, the diet-heart hypothesis has lacked scientific evidence. In the beginning of the great coronary heart disease epidemic of the 1960s however, the diet-heart hypothesis had become more like a political issue. The long debate about the harmful effect of refined carbohydrates vs. fats was finally decided by politicians, not by scientists.

In 1977, the *Nutrition Committee of the United States Senate* published a pamphlet entitled *Dietary Goals for the United States*. This was the first time in history that the government told people to reduce their fat consumption and increase their carbohydrate intake. Unfortunately, people took the bad advice and did exactly what they were told to do. The fattening effect of carbohydrates was suddenly

forgotten. Dietary fat and cholesterol became the number one public enemy. As we followed the wrong advice and went low fat, we increased our carbohydrate consumption and also developed the new habit of constant “grazing”, we just became more and more obese. Since the 1970s, the number of obese individuals has tripled. Overweight people, including the obese make up 70% of the U.S. population today.

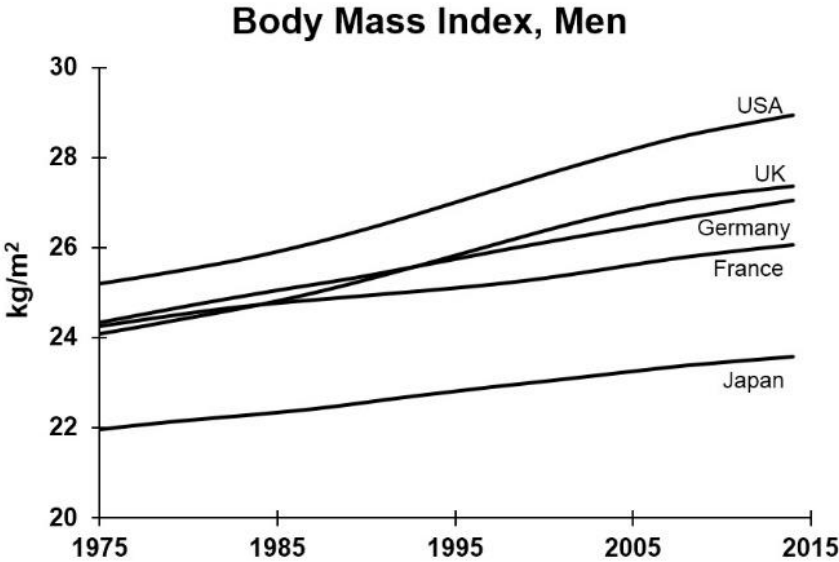


Figure 1.1A. Change in body mass index between 1975-2014

Body Mass Index, Women

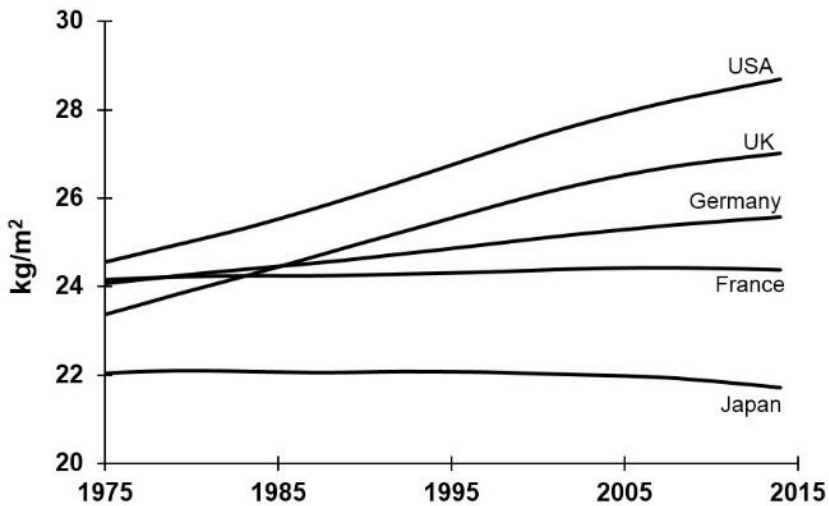


Figure 1.1B. Change in body mass index between 1975-2014

In 2019 I wrote a 327-page book on obesity entitled “[The Secret of Permanent Weight Loss – What Your Doctor Won’t Tell You](#)” (Available on [Amazon](#)). This E-book contains excerpts from that original work. Despite its title, it is not just a regular diet book, but a comprehensive study on the causes and treatment of obesity. Personally, I do not believe in dieting at all. Diets simply fail in the long run, all of them. Once the program is over, within a few months or a year, the pounds gradually will come back. In order to achieve long-lasting results, you need to completely change your lifestyle; a temporary fix is not enough. In the original full text of my book, I will share with you the secret of permanent weight loss. Obesity, diabetes, cardiovascular disease and many modern-day ailments have the same underlying cause: an unhealthy lifestyle. If you treat the roots of these conditions, you will not only get rid of your extra pounds, but you will also prevent most of our modern-day lifestyle diseases.

WHY DON'T DIETS WORK IN THE LONG RUN?

I am a nutrition scientist and I have been researching obesity since 2016. Even decades earlier, when I was much younger, I noticed that from time to time, people make resolutions and go on diets. Dieting takes a lot of self-discipline and causes a lot of suffering. By following mainstream medicine's standard advice "Eat less, exercise more", the first thing dieters try to do is to drastically cut their food intake. Others attempt to lose weight by exercising: they sweat in the gym for long hours. Either way, despite their heroic efforts, dieters hardly manage to lose more than just a few pounds. Considering the hardships you need to go through and the minimal results, it is definitely not worth it. Such a self-torturing lifestyle can not be sustained forever. After a while, dieters simply give up. The worst thing is however, that immediately after you stop dieting, the pounds start coming back. It is just a question of a few months, and you will weigh the same, probably even more than you did before. It looks like there is an invisible mechanism that keeps our body weight the same in the long run, just like the thermostat that regulates the temperature of your house. This phenomenon is called the *thermostat effect*, I will explain it later. We can conclude that all diets are destined to fail: even if you manage to achieve some temporary weight loss, diets simply don't work in the long run.

THE AUTHOR'S STORY

I was a normal-weight kid until the last year of high school. Although I've never been an athletic type, once in a while, I participated in medium-intensity sport activities that required a certain level of endurance, such as swimming or running long distances. However, things started to change shortly after I turned 17, when I got my driver's license. I gradually developed a very unhealthy, sedentary lifestyle. I stopped occasional exercising and would drive literally everywhere. Virtually, I did not walk at all except for those short distances between the door of my house and the door of my car. My family often teased me, "You would even drive to the washroom if it were possible". In addition to my unprecedented laziness, I adopted a second bad habit as well: I got addicted to sugar-sweetened beverages, especially Coca Cola. I used to drink Coke as normal people would drink bottled water: 1 to 2 liters every single day. My diet was based on massive amounts of refined carbohydrates: sugar from Coca Cola, white bread, pasta, white rice and potato. Although, before the end of high school, I did not notice any significant changes and weighed pretty much the same. During the first year of university, the numbers on the scale began to creep upward. By the age of 19, I had gained 22 pounds (10 kg). In my mid 20's, with an extra 58 pounds (26 kg), I became heavier than ever before in my life.

At that point, I finally acknowledged that I had become obese and had to do something about it. That was the beginning of my hopeless battle against obesity, which lasted for a quarter of a century. Although I didn't have any serious health conditions, I felt miserable. I had the worst possible type of obesity: most of my body fat was concentrated in the abdominal region. I grew a huge belly and looked like a 9-month-pregnant woman. I was always tired, couldn't walk longer distances without exhaustion, and lost the ability to run or swim. My weight problem bothered me so much that I decided to try a radical solution. I started a rigorous, calorie-restrictive diet. I quit Coke and cut back my food intake drastically. As a result of my self-torturing regimen, within a period of several months, I managed to lose 33 pounds (15 kg). It was not easy; it took a lot of pain and suffering, but

I finally did it. I was very proud of the results of my hard work. At the age of 25, this was one of the greatest achievements of my young life.

You've probably heard the saying "It ain't over until the fat lady sings". I was young and inexperienced; I did not factor in the "fat-lady-effect". I was very naive. I thought that I would remain lean forever, and simply went back to my old life. Although I strictly limited my Coca Cola consumption to no more than two glasses a day, I did not make any other significant changes to my lifestyle. Not surprisingly, within a period of a year or two, all the weight gradually came back, except for 4 pounds (2 kg), due to the limited Coca Cola consumption.

I had to face the reality that human-torturing, calorie-restrictive diets simply don't work in the long run. This time, I was looking for an easy solution. My family doctor prescribed *Xenical* tablets for me (other trade name is *Orlistat*). Those miracle pills helped me lose a few pounds, however after I quit taking the tablets, the weight shortly came back.

Until my mid 40s, I weighed pretty much the same. After two decades of obesity, I decided to start a strenuous exercise program. I did lap swimming, 2000-3000 meters every single day. I managed to lose over 10 pounds (4.5 kg). After a short period of time however, it was clear to me that 60 to 90 minutes of intense training in the swimming pool every day is not the ideal weight-loss solution for an overweight, middle-aged man. Once I cut back my training sessions to below 60 minutes a day, the weight I had lost just started coming back again. I simply gave up. I had to accept the fact that I was going to be obese for the rest of my life.

Back in those days, there were no books available like this one. I had to rely on mainstream medicine's standard advice: eat less, exercise more. However, neither decreasing caloric intake, nor increasing caloric expenditure, worked in the long run. I have always been a person who likes to think outside the box. I love challenges too, so I set an ambitious goal for myself: to get back to my high school weight by my 48th birthday. This time, I wanted permanent results, no more upward creeping scale. I went through the scientific literature and laid down the foundations of a new weight-loss program.

I was the very first subject myself. My regimen was based on intermittent fasting and the complete elimination of refined carbohydrates such as sugar, white flour, and white rice. I also continued exercising: I did 30 minutes of lap swimming every day. Throughout the whole program, I managed to maintain a nearly linear weight loss of more than half a pound (0.23 kg) a day. By day 80, the weight I lost totaled 42 pounds (19 kg). The protocol was so efficient that after completing the program, I just kept on losing weight even in the maintenance phase.

After 25 years of obesity, I finally managed to lose 55 pounds (25 kg) in total. Now, I weigh the same as I did back in high school (this is not even my graduation weight, but that one that I weighed in Grade 10). My *body mass index* went down from 31 to 21. I feel 25 years younger. I can run again. Climbing a hill is not a problem. The best thing is that not only have I lost 55 pounds (25 kg), but I have also maintained the same weight for years. If I did it, you can do it too.

THE CALORIES IN – CALORIES OUT MYTH

During my early years, the most important lesson I learned, was that it is nearly impossible to lose weight by following doctors' favorite advice to eat less and exercise more. Even if you manage to lose some weight, after a while the pounds just keep coming back. It seems like there is an invisible mechanism which controls our body weight. Obesity is one of the biggest mysteries of the 21st century.

I went through the medical literature, and it became clear that weight loss is not just about counting calories. Besides calories there must be other regulators of our body weight as well. What if we were given bad advice for decades? The traditional calorie-counting method has failed. Today, 70% of the population in Western countries is obese or overweight. Even doctors are just as obese as the rest of us. What causes today's worldwide obesity epidemic?

Probably you've already experienced yourself that the common advice *Eat less, exercise more* doesn't really help you lose weight. Eating less fat, or more fruit, dairy products and vitamin supplements doesn't make you healthier either. Let's see what's wrong with the basic concept itself?

In my book, I wrote 9 chapters about the causes of obesity. Let me highlight briefly what is wrong with the medical advice given to us by mainstream doctors and dieticians. Why is it nearly impossible to lose weight by simply just dieting? As mentioned earlier, the general formula for weight loss today sounds like "Eat less exercise more". The whole idea is based on the calories in-calories out model. If your energy intake is less than your energy expenditure, you will lose weight. Conversely, if you consume more calories than you expend, you will gain weight.

Calorie counters refer to the *first law of thermodynamics* which states that energy can be neither created nor destroyed. The law itself is correct, however it has nothing to do with weight loss or weight gain.

Let me tell you an exaggerated example. Let's say you cut back your food intake by a 100 calories a day. Not a big deal; you won't even notice a 100 calories. For example, one single chocolate chip

cookie has more than one 100 calories. We have all heard the saying; “Little things add up”. With minimal effort, your annual energy intake will be reduced by 36,500 calories and you will have managed to lose 10 pounds (4.5 kg) in the first year alone. This is just the beginning. Within a few years, you will be even slimmer than you were back in high school. In a couple of decades, your body will weigh virtually zero. 😊

Our body doesn't work that way. It seems like there is an invisible mechanism which controls our body weight. We need to introduce another new concept: the *thermostat effect*. Our body desperately defends our pre-set weight. If you eat less, your body will switch into an energy-saving mode. Your metabolism will slow down and you will end up burning fewer calories. The weight regulator keeps the same body weight in the long run, just like the thermostat regulates the temperature of your house. That's why calorie restrictive diets simply don't work in the long run: if you eat less, your metabolism will slow down, you will be sluggish and hungry all day long. You cannot just lose weight by simply eating less. Let's talk about another common myth. Calorie counters often say that a calorie is a calorie. If that were the case, it wouldn't really make a difference whether you ate a 100 calories of sugar or a 100 calories of cabbage, both would have the same effect on your weight. This is totally wrong. The human body doesn't work that way.

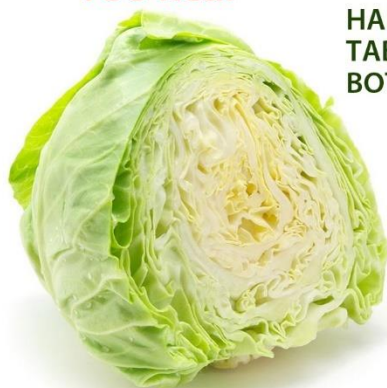
Although both foods contain a 100 calories, they have absolutely different effects on our metabolism. Sugar is a very energy dense food. A hundred calories are packed into only the small amount of twenty five grams, which is the equivalent of two tablespoons. Shortly after ingestion, the sugar will cause a sudden spike in the blood glucose level, followed by an insulin rush. Insulin is an anabolic hormone and is the main driving force behind obesity. Acting like a squirrel or a hamster, insulin works hard to store every possible food item for later use. After the initial blood sugar peak however, the blood glucose level will drop faster than normal and you will be even hungrier than before. As a result, you will end up eating more food.

Cabbage, on the other hand, is not an energy-dense food. Four hundred grams, which is about half an entire cabbage, contains the

same amount of energy, as two tablespoons of sugar. Besides calories, cabbage also contains fiber and a lot of water. By slowing down nutrient absorption, fibers prevent enormous fluctuations in blood sugar levels. Since there are no sharp blood sugar spikes, insulin levels also remain stable. Fewer nutrients will be stored as fat. As we've seen in the previous example, it makes a huge difference what source the energy comes from.

Previously, we discussed how not all calories are created equal. Some of them can make you obese, while others have just a minimal effect on your weight. The calories in-calories out model can't give you a satisfying answer to our most important question: What causes obesity?

100 kcal



**HALF A CABBAGE AND TWO
TABLESPOONS OF SUGAR
BOTH CONTAIN 100 CALORIES**

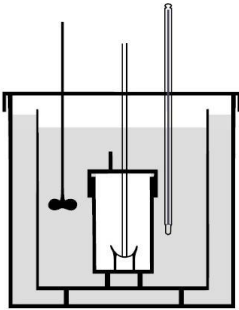
100 kcal



WHAT IS A CALORIE?

The term *calorie* is one of the most frequently used words these days. If you google “calorie”, there will be several hundreds of millions of search results, which is remarkable. People are really concerned about their weight and ultimately the calories they consume. You may ask the question, what exactly does the term calorie mean? A calorie is the amount of energy needed to raise the temperature of one gram of water by one degree Celsius.

In a lab environment, the calorie content of foods is determined by a device called *bomb calorimeter*. Let’s see how it works. The foods are burned in a combustion chamber surrounded by water. The food’s energy content is calculated from the temperature change measured in the water tank.



Bomb calorimeter

The device consists of a container full of water, and a combustion chamber where the food sample is burned in the presence of oxygen. The energy content of the food is calculated from the water’s temperature rise in the tank.

If we burn a hundred calories of sugar in a calorimeter, it will produce the same result as if we use one hundred calories of cabbage. You’ve already heard the old saying “a calorie is a calorie”. It is one hundred percent correct in a lab environment. However, as you would expect, the human body doesn’t work the same way. Different foods are metabolized differently and they don’t have the same fattening effect.

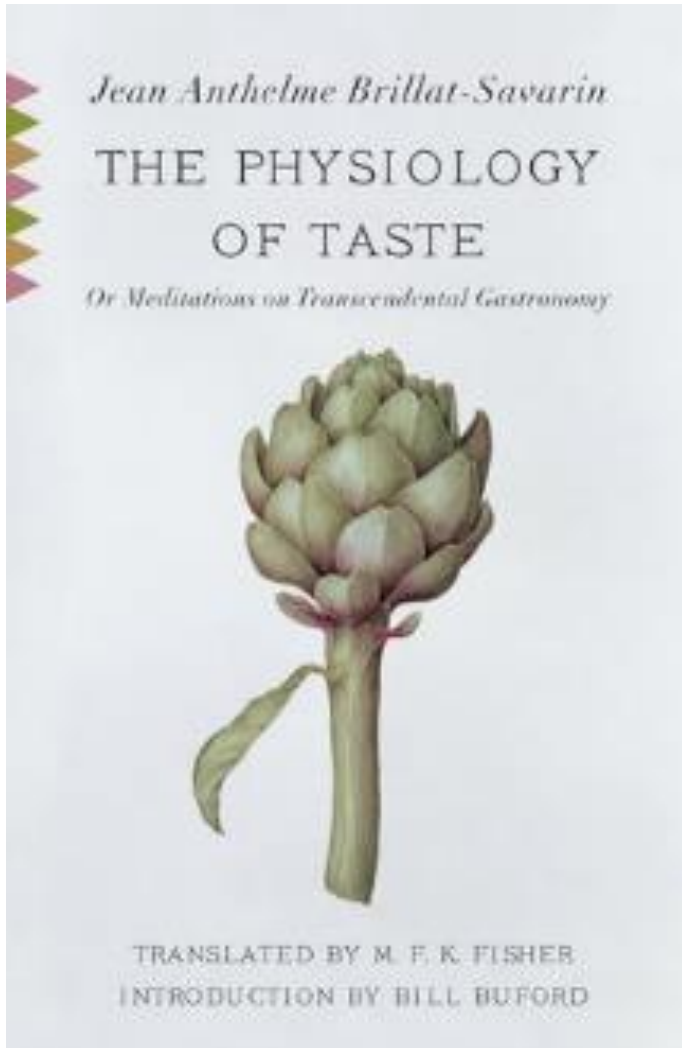
FATTENING CARBOHYDRATES

Over the centuries, people had various ideas of the causes of obesity. For a long time, carbohydrates were considered the main culprits. Two hundred years ago, the French polymath, *Brillat-Savarin* laid down the foundations of modern nutrition science. His famous book, *The Physiology of Taste* has been continuously in print since 1825. In his work, the author examined the relationship between dietary habits and health. He also dedicated a whole chapter to obesity. We learn from his book that morbidly obese people existed even in the 19th century. He talks about a friend of his who was about five feet two inches (157 cm) tall, but weighed five hundred pounds (227 kg). However, the most remarkable case Brillat-Savarin ever encountered, was in New York. There was a large man sitting in a chair in the doorway of a café on Broadway. Savarin described his legs as “stout enough to have sustained a church”.

The author listed three causes of obesity: First, there are individuals who were born with a predisposition to obesity. Now, this was long before the birth of the science of genetics. Starch is the second cause of obesity. All animals that live on starchy food become fat; man is also subject to this common law. Starchy foods with added sugar are the most fattening ones. The author also noted that “We never eat sweet things until the appetite is already satisfied”. He pointed out that carbohydrates in beverages are as fattening as those in foods. Beer drinking nations have “huge stomachs”. He also found that some Parisian beer drinkers grew big bellies since they could not afford wine. The third cause of obesity is excessive eating and drinking. The human race is the only one that eats without hunger, and drinks without thirst. Animals simply don’t do that.

In the history of medicine, Brillat-Savarin was the first scientist who studied the underlying causes of obesity and based his theory on modern scientific principles. Although some of his findings are outdated, he identified the three major risk factors that are associated with obesity: genetics, refined carbohydrates and binge

eating. Unfortunately his warning about the fattening effects of carbohydrates has been forgotten during the last two centuries.



THE BANTING DIET



William Banting's name may sound familiar to many of us. Be careful not to confuse William Banting with the famous Canadian physician, *Sir Frederick Banting*, who discovered insulin. Our friend William Banting was neither a doctor, nor had a formal science education. He was a coffin maker and the funeral director of the royal family in 19th century London. Although he was not a scientist, he wrote the first diet book ever.

In his thirties, Banting started to put on weight. Over the course of the following decades, he developed a considerable amount of body fat. He wasn't able to find the remedy for his obesity for nearly thirty years. Nothing seemed to work for Banting; he said "the evil still gradually increased". An eminent surgeon and family friend recommended more physical exertion. Following the doctor's advice, Banting started every morning with vigorous rowing exercises on the nearby Thames river. Although he gained some muscular strength, regular outdoor activities caused him to develop a very healthy appetite. Rather than losing weight, he became even heavier. Banting was involved in other forms of physical exercise as well, such as

walking and horse back riding; he tried alternative remedies such as Turkish baths or sea air. None of these worked for him. By 1862, Banting was so obese that he wasn't able to tie his shoes and had constant joint pains and ear- and vision problems.

Then, Banting came to the attention of a well known ear surgeon, *William Harvey*, who prescribed a specific diet for him. Banting was told to refrain from bread, butter, milk, sugar, beer, and potatoes, which were the main elements of his diet. On the other hand, meat, fish, fruits and vegetables were allowed. His bread consumption was limited to one ounce (30 grams) per meal. As a result of the strict low-carbohydrate diet, Banting managed to lose 46 pounds (21 kg) in one year.

He felt much younger and more energetic. The joint pains were gone; he had no more heart burn and he could tie his shoes again. His sight and hearing had greatly improved. Banting was amazed by the results. He authored a booklet entitled *Letter on Corpulence, Addressed to the Public* which is considered to be the first diet book. Banting approached the editor of *The Lancet* with the manuscript. The *Lancet* was one the most prestigious medical journals at the time and still is today. However, the scientific community didn't take the former carpenter seriously. After Banting was turned down by the editor, he self-published the book which finally became a bestseller and had multiple editions. By the 1870s the expression "to bant" became synonymous with dieting. Many modern, low-carbohydrate, high-fat diets are very similar to the Banting diet, and these schemes have lots of followers even today. Did you know that William Banting never reached a normal weight, as some authors claim? From the *obese category*, BMI of 33 he went down to be *overweight* BMI of 26. BMI means body mass index: this is a measure of the relationship between a person's weight and height. There are many pictures of William Banting available on the internet. If we take a close look at a photo of his whole body, we will notice his strikingly enlarged abdominal fat deposits that remained even after his alleged weight loss. Banting claims that he lost 46 pounds (21 kg), but we have no information if he managed to keep the weight off for a long period of time. This is the Achilles' heel of the diet industry, where every single diet fails in

the long run. Last but not least , Banting was a heavy drinker. He mentioned in his booklet that four to seven glasses of wine were part of his everyday diet. Unfortunately, Banting's alcoholism greatly undermines his credibility. Personally, I wouldn't call Banting's method a perfect diet, but we can at least learn one important thing from his story: severe carbohydrate restriction helps you lose weight.

THE CHOLESTEROL HYSTERIA

The fattening effect of carbohydrates was considered a scientific fact until the 1960s. In 1963, Dr. Passmore wrote in the *British Journal of Nutrition* “Every woman knows that carbohydrate is fattening: this is a piece of common knowledge, which few nutritionists would dispute”

However, things started to change in the 1960s. Coronary heart disease had become the number one cause of death in industrialized countries. The great epidemic of heart disease gave rise to the *diet-heart hypothesis*. The whole theory is based on two key assumptions. One: dietary fat raises blood cholesterol levels. Two: high blood cholesterol increases the risk of cardiovascular disease. None of these claims is entirely correct. First, let’s examine the first assumption. Mainstream scientists believe that foods rich in fat and cholesterol will increase your blood cholesterol levels as well. This is totally wrong. There is no convincing scientific evidence for that claim.

Do you like eggs? Have you ever felt guilty because you were told by your doctor to limit your egg consumption to no more than one egg a day? No need to worry anymore. In my book, I am telling the story of an 88 year-old man, who lived in a retirement home and ate 25 eggs every single day for the last 15 years. Despite the excessive cholesterol intake, the old man maintained a perfect blood cholesterol level. Dietary cholesterol intake and blood cholesterol levels are virtually independent of each other. Let me explain why. Cholesterol is present in almost every single cell of our body as a building block of the cell membrane. Cholesterol is also an important component of bile and is the raw material of vitamin D and various hormones. Literally, there is no life without cholesterol. Every single day our body synthesizes approximately 700 milligrams of cholesterol. The more cholesterol you eat the less cholesterol your body has to produce. On the other hand, if you are on a low cholesterol diet, your body has to make more cholesterol than you would normally. Our body is smarter than you think.

The second part of the diet-heart hypothesis says that high blood cholesterol increases the risk of cardiovascular disease. Wrong.

Contrary to the widely held belief among doctors and researchers, there is no proof that high cholesterol by itself causes heart disease. *Dr. Uffe Ravnskov* of Denmark is one of the most prominent cholesterol sceptics today. He authored over 80 scientific papers critical of the diet-heart hypothesis.



Dr. Uffe Ravnskov

Atherosclerosis is a disease in which plaque builds up inside your arteries. If one of the heart's narrowed arteries gets clogged, the heart's muscle tissue starts dying; this life threatening condition is called *myocardial infarction* also known as a heart attack.

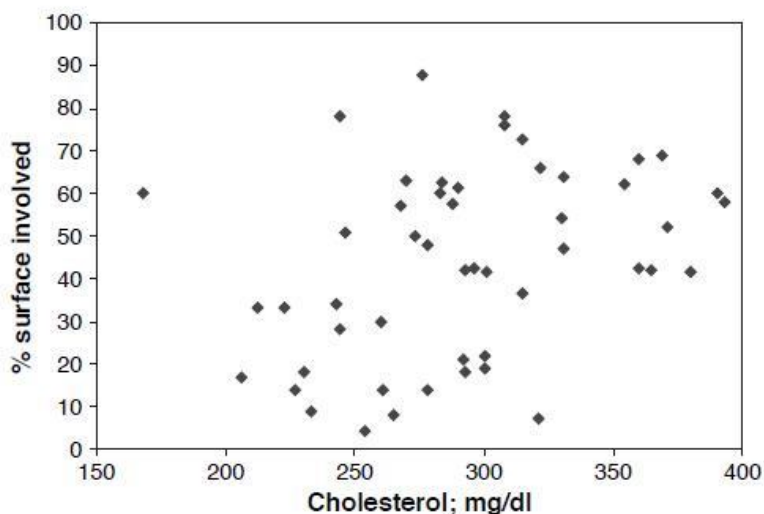
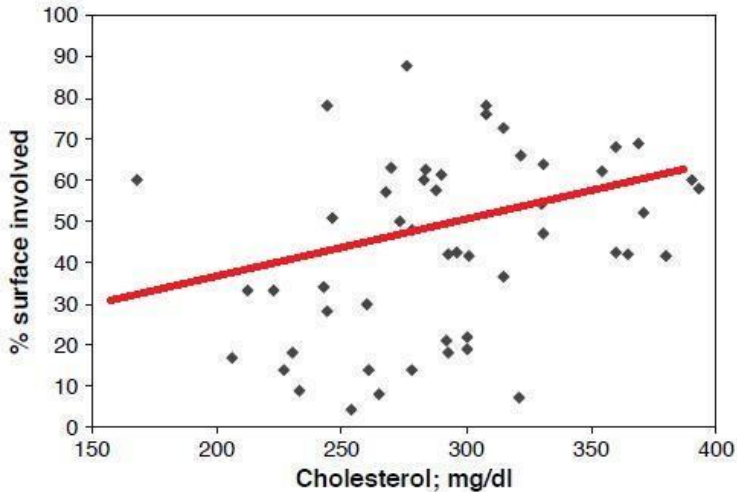


Figure 2. Association between degree of atherosclerosis and total cholesterol at autopsy. It is obvious that the weak association disappears after exclusion of individuals with cholesterol above 350 mg/dl. (9 mmol/l). Redrawn from Solberg et al. (see ref. 7).

Uffe Ravnskov: [The fallacies of the lipid hypothesis](#)

Scandinavian Cardiovascular Journal: SCJ · August 2008



Although the dots are widely scattered all over the place, you can force the program to draw a trendline over the dots.

Take a look at the first graph. The x axis shows blood cholesterol levels and the y axis represents the degree of atherosclerosis. The dots are widely scattered all over the place. In other words, there is no close relationship between cholesterol and heart disease. Now, old statisticians used to say, if you torture your numbers long enough, they will confess. If you use *Microsoft Excel*, you can force the program to draw a trendline over the widely scattered dots (the second graph). Honestly, for experts it is not really convincing.

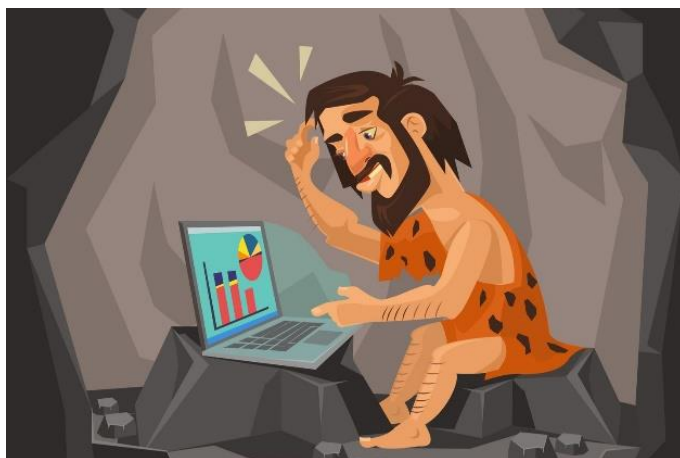
Thanks the mainstream media, cholesterol is often confused with the *low density lipoprotein* known as LDL. It is also referred to as the “Bad Cholesterol”. Although there is some moderate correlation between LDL levels and cardiovascular disease, the relationship is much weaker than previously thought.

Let’s talk about scientific evidence. The Austrian-born philosopher, *Karl Popper* said that a theory should be considered

scientific if, and only if, it is falsifiable. From this philosophical point of view, science and falsification of scientific evidence go hand in hand.

Let's see how scientific evidence can be falsified. Probably you already know that the vast majority of clinical trials are directly or indirectly funded by large pharmaceutical companies. They spend billions of dollars on research projects each year. Since they are not charitable organizations, they put a tremendous pressure on researchers. The only trials that are published are the ones that support their claims. The results of negative outcomes are never released.

As for the cholesterol hypothesis, the experiments can be falsified very easily. Researchers don't have to forge data, they don't even need to tell a single lie. All it takes is applying some selection bias. There is a genetic disorder called *Familial hypercholesterolemia*. The body of an individual with this disorder is unable to remove LDL, or bad cholesterol from the blood. If such patients are included in a clinical trial, the outcome can be easily manipulated.



If you are old enough, you should probably remember there was a time before the internet. In those days mainstream science and mainstream media owned the privilege and the monopoly of knowledge. Alternative thinkers didn't really have an opportunity to share their ideas. In those dark ages, back in 1977, the *Nutrition*

Committee of the United States Senate formulated a paper entitled *Dietary Goals for the United States*. For the first time in US history, the government told the citizens that they can improve their health by reducing the fat in their diets. If we dig a little bit deeper, we will see that the *Rockefeller Foundation* played an important role in the formulation of the new US dietary guidelines. In my book, I tell the story of the Rockefellers, how they put their hand on the pharmaceutical industry. I'd like you to notice that the new dietary guidelines were inspired by Big Pharma. The proposed low-fat, high starch dietary pattern didn't offer any health benefits. Unfortunately, people took the bad advice and did exactly what they were told to do: reduced their fat intake and increased carbohydrate consumption. It is no wonder that the new dietary guidelines coincided with the beginning of the largest obesity epidemic in human history. The number of obese people has been on the rise for decades and Americans have the poorest health among Western countries. Today over 70 percent of Americans are obese or overweight.

THE ATKINS DIET



Robert Atkins

As a result of the cholesterol hysteria sweeping through the world in the 1970s, the low-fat diet was the only politically correct answer to the great epidemic of heart disease. Alternative thinkers were discriminated against and very often ridiculed. There was a brave young man who dared to swim against the tide. His name was *Dr. Robert Coleman Atkins*, a cardiologist from New York. In his thirties, Atkins started to put on some weight and his obesity made him very frustrated. The young doctor decided to go on a diet. He went through the medical literature and settled on the 150-year old low carbohydrate method, that had been successfully used by *Alfred Pennington* since the 1940s. Atkins saw that the low carbohydrate approach does work – at least in the short run. By the end of the first month he managed to lose 20 pounds (9 kg). Dr. Atkins started prescribing this new diet for his patients as well. A telecommunication company hired Dr. Atkins as a medical consultant. He treated 65 patients, and 64 of them achieved their goal to lose a substantial amount of weight. His first book was published in 1972,

entitled *Dr. Atkins' Diet Revolution*. The Atkins diet received a lot of media attention. Atkins suddenly became the most popular diet doctor in the United States. Various editions of the book sold more than 15 million copies, making it one of the best-selling diet books ever written.

Although he was a celebrated national hero, the medical community wasn't really amazed by Dr. Atkins' revolutionary new ideas. The *American Medical Association* called the Atkins diet "a serious threat to health". All the prestigious medical and scientific organizations opposed the Atkins Diet, including the *American Dietetic Association*, the *National Academy of Sciences*, the *American Cancer Society* and the *American Heart Association*.

However, Atkins was not discouraged by the criticism and he continued building up his diet empire. Atkins Nutritionals Inc. was selling a whole variety of Atkins approved products. In 2012, the company earned about \$311 million in revenue.

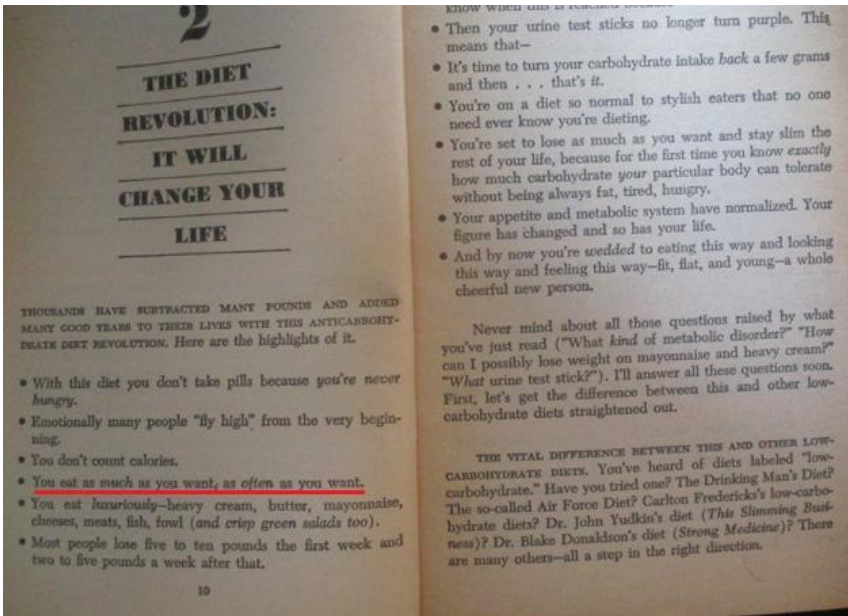
The death of Dr. Atkins was even more controversial than his life. In 2003, he fell and suffered a head injury on an icy sidewalk. He was admitted to hospital and underwent surgery to remove a blood clot from his brain. Later he fell into a coma and died from complications. This is the official version of the story of Dr. Atkins' death. Others claim however, that the famous diet doctor was severely obese and he was diagnosed with heart disease as well. People who personally knew Dr. Atkins, described the diet doctor as obese. The billionaire *Michael Bloomberg* who was the mayor of New York City at that time, called Atkins "fat" and claimed that he doesn't believe that the accident caused the doctor's death. He called the official version of the story "B.S."

Let's take a quick look at the diet itself. It is an undeniable fact that some dieters experience a drastic weight loss during the first week or two after they start the program. However, the results are very questionable, because patients don't lose a large amount of fat. The human body stores the excess carbohydrates in the form of glycogen in skeletal muscles and the liver. Since the Atkins diet is based on carbohydrate restriction, the glycogen reserves of the body

are gradually depleted during the initial period of the program. Glycogen tends to retain a large amount of water; most of the weight loss experienced comes from the lower levels of glycogen and water and a reduced amount of food passing through the digestive tract; not from the fat deposits. After the mobilization of the easily accessible nutrients, the pace of weight loss slows down in most individuals.

Several studies were done to evaluate the long term effect of the Atkins diet and other low-carbohydrate diets. After analyzing the results of 13 experiments with the participation of 1,222 volunteers, researchers found that in the beginning, low-carbohydrate diets result in a faster weight loss compared to those subjects who were on a low fat diet, however within a few months subjects tend to gain the weight back. After a year, there was just a minimal difference between the two groups.

In addition to Dr. Atkins' controversial character, there were a few issues about the integrity of the book itself. In the 1972 edition of Dr. Atkins' Diet Revolution the author still claims that dieters can eat unrestricted amounts of approved food "You eat as much as you want, as often as you want". Later, *Atkins Nutritionals* denied it, insisting that the famous diet doctor never made such a statement. Here is the evidence.



The book was never meant to be a scientific work. Certain chapters were written by *Ruth West* who was neither scientist nor doctor, but rather a content writer and marketing executive. After all, the corporate spokesman may have been right and Dr. Atkins never made the ominous statement "You eat as much as you want, as often as you want" , but was that was done by the ghost writer? Who knows?

Personally, I would put the Atkins method definitely into the *fad diet* category. On the other hand, Dr. Atkins also made two valuable contributions to modern nutrition science. First, he pointed out the fattening effect of carbohydrates. Although there was nothing new about his concept, he provided a slightly better alternative to mainstream medicine. Secondly, the Atkins diet is based on the same principles which are known today as the *carbohydrate-insulin model*. By emphasizing the fattening effects of insulin, Dr. Atkins paved the road to the hormonal theory of obesity.

THE HORMONAL MODEL OF OBESITY

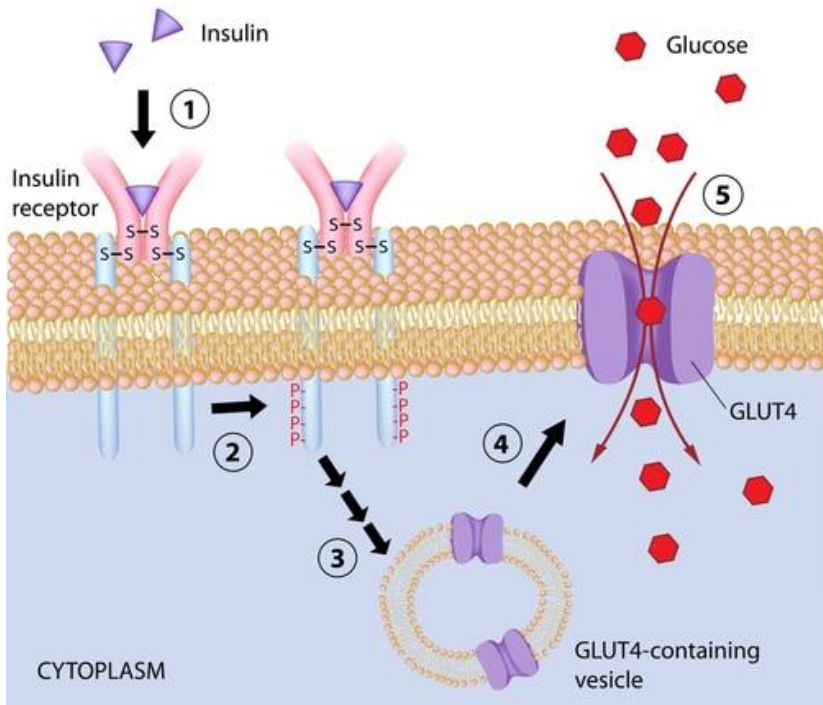
Our metabolism, like anything else in our body is precisely regulated by hormones. *Leptin* and *ghrelin* control appetite. You've probably heard about these two hormones already. Ghrelin is the bad guy that earned its reputation as the "hunger hormone". Ghrelin is produced by the inner lining of the stomach and its main function is to increase appetite. The other hormone is called leptin and it suppresses appetite. Leptin is secreted by fat cells after food consumption. Since leptin is produced by fat cells, it sounds reasonable that the level of circulating leptin is higher in obese individuals compared to lean people. Following the pattern of insulin resistance, obese people also tend to develop leptin resistance as a result of elevated leptin levels.

Over the course of the last few decades several experiments were made to treat obesity with leptin. Scientists achieved impressive results in the treatment of patients with leptin gene mutation. However it turned out that the application of leptin replacement therapy is limited to such rare cases only, and is not suitable to treat common obesity. That's really sad news for those who were waiting for the new miracle pill. We should keep in mind that there is no such thing as a free lunch.

Although both ghrelin and leptin play a vital role in the regulation of our food intake, I have to say these two guys are just the small players. Let's see the big boss, the CEO of the energy management company . It's insulin. Everybody has heard about insulin. We know from our high school studies that diabetic patients are treated with insulin. Their lives literally depend on insulin. Without insulin, diabetic people fall into a coma and die. Basically, that's all we know about insulin. The hormone's fattening effect is less well-known. For example, diabetic patients with type-1 diabetes, who can not produce insulin in their pancreas, are usually very thin. On the other hand, type-2 diabetic people who have insulin secretion, but their body became resistant to the hormone, are typically obese.

Insulin's job is saving and storing every possible food item for later use. It promotes the growth of fat cells and the storage of excess carbohydrates in the form of glycogen. By putting the excess nutrients into storage, insulin lowers blood sugar levels. That's why diabetic patients use insulin.

Effect of Insulin on Glucose Uptake



The slide above demonstrates the mechanism of how insulin works. Every skeletal muscle and fat cell of our body has insulin receptors. Let's say they are the keyholes. Insulin is the key. It opens up the transport channels which let glucose inside the cells.

Now that we already have a rough idea of how insulin works, let's take a look at the *carbohydrate - insulin model*. As mentioned

earlier, the fattening effect of carbohydrates has been known for 200 years. We knew that carbohydrates caused obesity, but we didn't really know why. A plausible explanation is that it is the calories contained in carbohydrates that make us obese. It is true to a certain degree, but as we discussed earlier, the calories in-calories out model by itself can not explain the causes of obesity. Although insulin was discovered in the early 1900s, nobody really connected insulin with obesity until the second half of the 20th century. In 1972, Robert Atkins emphasized in his *Diet Revolution* book that excessive carbohydrate intake results in high insulin levels which in turn leads to obesity.

The carbohydrate-insulin model proposes that foods rich in carbohydrates, especially in sugar and starch, cause *hyperinsulinemia*. This is a condition with higher than normal levels of insulin in the blood. Elevated insulin levels promote the deposit of calories in fat cells instead of burning up the energy in lean tissues, which ultimately leads to obesity.

The insulin hypothesis is very convincing, however, just like the *carbohydrate theory* or the *calories in-calories out* model - by itself - can't give you a satisfying answer to our original question: what causes obesity? The carbohydrate-insulin theory is incomplete. It lacks one of the crucial elements of obesity, the time factor. People who have been obese for most of their lives may find it extremely difficult to lose weight. In contrast, those who have become obese just recently, can get rid of their excess pounds with significantly less effort. How is it possible? We will see the answer in the next chapter.

We've seen that insulin is the big boss of your energy management company. However, it also has a little brother that does just the opposite of what insulin does. This hormone is called *glucagon*. Both insulin and glucagon are produced by the pancreas, a slender organ located behind the stomach. As a result of low blood sugar levels, the pancreas releases glucagon. The main role of glucagon is to increase blood sugar levels. It is a catabolic hormone, that mobilizes the stored energy from body fat and depletes the glycogen reserves in the muscles and the liver. In other words,

glucagon helps you lose weight. However, you don't need to pay too much attention to glucagon, because you can not influence glucagon levels without affecting insulin, which is the chief regulator of our energy metabolism.

You've probably heard that long time exposure to stress makes you obese. It is a well known fact that people tend to eat more under stress. From the calories in-calories out point of view it makes perfect sense: you eat more and you put on weight. However, as you may suspect, besides the extra calories, there are other causes as well. In response to long-term stress exposure, adrenal glands secrete a steroid hormone called *cortisol*. After insulin, cortisol is the second most important hormone regulating body weight. The fattening effects of cortisol have been well known for a century. A typical example is *Cushing syndrome* which was named after Harvey Cushing, who first described the disorder. The disease is caused by excessive cortisol production. Rapid weight gain, especially in the trunk and face region are the most apparent symptoms of Cushing syndrome. In contrast, those who suffer from *Addison's disease*, have insufficient cortisol production and they are very thin. There is a clear causal relationship between high cortisol levels and obesity, especially abdominal obesity.

Long-term stress is one of the key contributing factors in the development of not only obesity but also diabetes, cardiovascular disease and numerous other serious health conditions. Directly reducing our stress level is very difficult, however getting an adequate amount of sleep may significantly lower our stress and cortisol levels.

Researchers at the *University of Warwick* studied the relationship between the duration of sleep and obesity. Scientists combined data from numerous clinical trials with over 600,000 participants. The studies showed a strong negative correlation between sleep duration and obesity. On average, one hour of sleep reduction is associated with a 0.35 kg/m² increase in body mass index. In addition to causing elevated cortisol levels, sleep deprivation also interferes with two other hormones: leptin and ghrelin, ultimately leading to increased appetite.

After the major players, let's see the sidekicks. Individually they don't have a major influence on obesity, but their combined effect may have a significant impact on body weight. Thyroid hormones have a complex relationship with other hormones. Hypothyroidism (low levels of thyroid hormones) lowers metabolic rate and ultimately leads to obesity. In contrast, hyperthyroidism (abnormally high levels of thyroid hormones) increases metabolic rate and causes weight loss.

Adrenalin and noradrenalin help you burn calories by increasing your heart rate, blood pressure and other physiological processes associated with energy expenditure. Obesity and weight gain are correlated with low levels of testosterone in men. Growth hormone stimulates the breakdown of body fat and the use of stored glycogen in the liver.

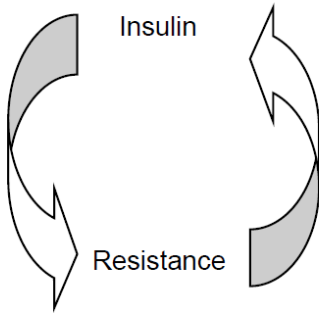
The role of estrogens in the development of obesity is controversial. In women, estrogens stimulate the formation of fat deposits in certain areas of the body. On the other hand, in post-menopausal women low estrogen levels promote abdominal fat accumulation.

In this chapter, we saw that obesity is not just about nutrients and calories; body weight is precisely regulated by a whole array of hormones. Our theory of obesity however is not complete yet. In the following section, we will find out what is still missing from our model.

INSULIN RESISTANCE

In the previous chapter, we mentioned that foods rich in carbohydrates, especially in sugar and starch, cause higher than normal levels of insulin in the blood. Elevated insulin levels promote the deposit of calories in fat cells instead of burning up the energy in lean tissues, which ultimately leads to obesity. We called this phenomenon the *carbohydrate-insulin theory*. This model contains lots of elements of truth, however the *carbohydrate-insulin theory* itself is incomplete. It lacks one of the crucial elements of obesity, the time factor. People who have been obese for most of their lives may find it extremely difficult to lose weight. In contrast, those who have become obese just recently, can get rid of their excess pounds with significantly less effort. How is this possible?

If we ignored the time factor, from this point of view it makes no difference if you have been obese for just one year or fifty years; it would take the same effort to lose the weight. This assumption is not correct. Over time, obese people tend to develop insulin resistance. The longer the duration of obesity, the worse insulin resistance gets. As obesity progresses, the cells of the human body gradually become desensitized to insulin's effect. With an impaired insulin sensitivity, cells can't absorb as much sugar as they normally would. As a consequence, unabsorbed glucose molecules pile up in the blood. In contrast, body cells go into starvation mode due to the low glucose levels inside the cells. Rising blood glucose levels provoke more insulin secretion. Higher blood insulin levels worsen insulin resistance, forming a vicious cycle.



The vicious circle of insulin resistance

We have seen so far, that insulin is the main driving force behind obesity and high insulin levels lead to insulin resistance. Once again, I'd like to emphasize that a continuous exposure to high insulin levels causes insulin resistance over time. It's very similar to the concept of drug tolerance. Repeated use of a certain drug will reduce the drug's effects and the patients need to increase their dosage to have the same effect. For example, many painkillers, tranquilizers, sleep aids or even alcohol fall into this category. The medication of diabetic patients follows a similar pattern. Although type-1 and type-2 diabetes are two totally different disorders, both groups receive a very similar treatment in the form of insulin. Type-1 diabetes is an autoimmune disease and type-1 diabetic patients can not produce insulin in their pancreas. Type-1 diabetes often begins in childhood and we don't really understand what causes the disease. Since people with type-1 diabetes can not produce insulin in their body, insulin treatment is the only available option to control type-1 diabetes.

Type-2 diabetes on the other hand is a totally different disorder, being a lifestyle disease, a direct result of our unhealthy way of living. It is virtually non-existent in primitive societies. Type-2 diabetes is a preventable disease. By adopting a healthy lifestyle, in most cases type-2 diabetes can be prevented.

The American Diabetes Association called type 2 diabetes an incurable progressive disease that will get worse over time. This is totally wrong. Type-2 diabetes is not necessarily a progressive disease, but rather a dietary disease that needs a dietary treatment. In Canada, impressive results were achieved in the dietary treatment of obese type-2 diabetic patients. Most of the subjects experienced a significant improvement in their blood sugar levels and in many cases diabetes was even reversed. How is it possible? By introducing radical changes in an individual's dietary habits and after a substantial amount of weight loss, the body's insulin sensitivity greatly improves. By restoring the body's insulin sensitivity, we break the vicious cycle.

However, mainstream medicine still calls type-2 diabetes an incurable progressive disease that will get worse over time. Why? Let's see how doctors typically treat type-2 diabetes today. If the disease is diagnosed in the early stages, the patient will be put on oral medication. As a result, blood sugar will temporarily come down a little bit. I've already mentioned the concept of drug tolerance. Repeated use of a certain drug will reduce the drug's efficacy. Over time, as the effect slowly wears off, the individual may need stronger medication. Later, as insulin resistance gets worse and worse, diabetes can not be controlled by oral medication alone. The patient will end up on a small amount of insulin, then on more and more insulin. The disease will get worse and worse over time. But why is this happening? Because we don't treat the actual disease just the symptoms, and the disease continues to progress. A high blood sugar level is just a symptom of type-2 diabetes, not the disease itself. The disease is caused by insulin resistance. By putting insulin resistant people on insulin treatment, we are just feeding the vicious cycle and the disease will get worse and worse.

I've already mentioned that in recent years impressive results were shown in the dietary treatment of obese, type-2 diabetic patients in Canada. Diabetes was successfully treated by dietary measures even a hundred years ago. Fasting has long been known to cure diabetes. *Elliott Proctor Joslin*, the founder of today's Joslin Diabetes Center, was the first physician in the United States who

specialized in the treatment of diabetes. In 1916, Joslin published a paper in the *Canadian Medical Association Journal*, entitled *The Treatment of Diabetes Mellitus*, five years before insulin was discovered. He also authored a book entitled *A Diabetic Manual for the Mutual Use of Doctor and Patient* that became a bestseller. Joslin successfully treated over 1,300 diabetic patients by applying dietary measures alone. Once again, this happened years before insulin was discovered. The author says that there is a “natural tendency” towards diabetes in certain individuals and the disease develops when the body is overfed. Approximately 60% of the diabetic patients were found to be obese and 91% overweight. Joslin found that physical inactivity and sugar consumption were the main driving forces behind obesity and diabetes. Joslin called diabetes a dietary disease which has to be treated by diet and not by drugs. The patient’s understanding of the methods of treatment is crucial; those who know the most, live the longest. The treatment of diabetes based on Joslin’s method seemed to be working. In the Massachusetts General Hospital, the mortality rate of diabetes between 1898 and 1918, in the pre-insulin era remarkably decreased from 28% to only 4%. Although Joslin’s method targeted the underlying causes of the disease, his protocol is not used today. For today’s profit oriented Western medicine, it is more convenient to suppress the symptoms with expensive drugs regardless of the consequences.

We’ve seen so far that insulin resistance is today’s most devastating disease which can manifest in type-2 diabetes , obesity or many other disorders. Before we speak about the dietary treatment of insulin resistance, we need to mention the *thermostat effect*. Did it ever happen to you that you went on a certain diet and successfully managed to lose some weight, but a few months later the pounds gradually came back and you ended up weighing the same or even more than before? Why did that happen? Contrary to the widely-held belief, long-term weight loss is not just about counting calories. In the [THE CALORIES IN – CALORIES OUT MYTH](#) chapter, I told an exaggerated example of why you can’t achieve permanent weight loss simply by reducing your caloric intake.

Our body desperately defends our pre-set weight. If you eat less, your body will switch into an energy saving mode. Your metabolism will slow down and you will end up burning fewer calories. There is an invisible mechanism that keeps our body weight the same in the long run, just like the thermostat regulates the temperature of your house. In the following chapters, I will explain how you can reset your inner weight thermostat.

INTERMITTENT FASTING

Let's see how you can reset your inner weight thermostat and break the vicious cycle of insulin resistance. I've already spoken about the concept of drug tolerance. Repeated use of a certain drug will diminish the drug's effect. That's why some painkillers or sleep aids may not work after a while. Hormones work the same way. For example, continuous exposure to high levels of insulin leads to insulin resistance; high leptin levels cause leptin resistance in obese individuals. In healthy people, the hormones are released in a pulsatile manner.

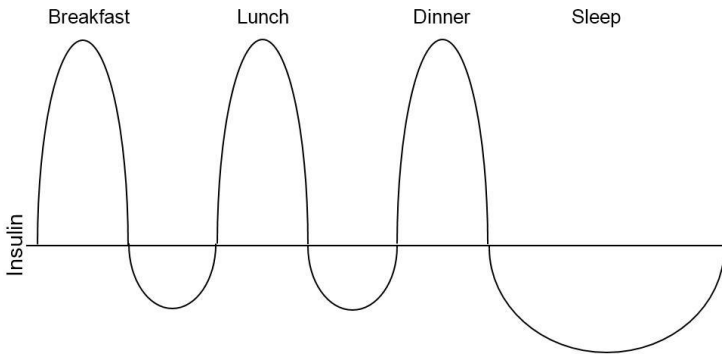


Figure 13.1. 24-hour insulin levels with a dietary pattern consisting of 3 meals a day

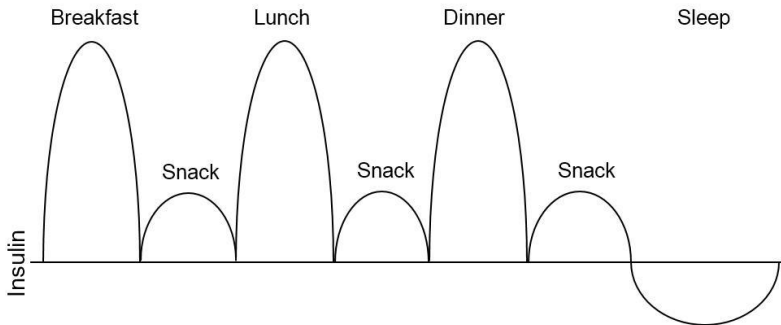


Figure 13.2. 24-hour insulin levels with a dietary pattern consisting of 6 meals a day

The first slide shows the simplified diagram of our insulin production. If you eat 3 meals a day, you will have 3 insulin peaks, shortly following each meal. For the rest of the day you will have low insulin levels. Since high insulin levels occur only periodically you have significantly less chance to develop insulin resistance. Having 3 meals a day used to be our traditional eating pattern, back in those days when we were still lean. However, in the second half of the 20th century, with the invention of the snack food, our eating pattern changed radically. By adding 3 snacks to our regular breakfast, lunch and dinner, the pattern of our insulin production changed drastically. By developing a habit of non stop grazing , the low insulin phase is limited to the second half of the night only. For the rest of the day, we are in a continuously high insulin state as shown in the second diagram. Frequent eating causes constantly high insulin levels which leads to insulin resistance. It may sound a little bit strange, but it is true. It is just the opposite of what your doctor or dietitian tells you.

We have arrived at the million dollar question: how can we reverse insulin resistance? It's not as hard as it looks. If we decrease the body's exposure to high insulin levels, the body's insulin sensitivity will greatly improve. Practically, it means fasting. I know, it may sound shocking to you. You may have heard of some so called experts who tried to convince you that fasting is harmful. Those

claims have no scientific evidence. Fasting has been practiced safely by various religious and ethnic groups for thousands of years.

However, if you are a diabetic you need to be extra careful. Fasting is an extremely powerful tool to improve your insulin sensitivity. Consult with your doctor in order to adjust your blood glucose lowering medication. If your doctor opposes fasting, you may consider asking for a second opinion from a physician who is familiar with intermittent fasting. As mentioned earlier, a hundred years ago, Joslin successfully treated over 1,300 diabetic patients by applying dietary measures only. Otherwise, if you are not diabetic, fasting is absolutely safe for you. According to the *Guinness Book of World Records*, the longest recorded fast lasted for 382 days. You definitely won't die after 24 hours of fasting.

You may also say, fasting is not for me, I don't have the willpower. How do you know? Have you ever tried it? What is the longest period you've ever been without food? Was it 8 hours, 10 hours or maybe even 12? Have you ever tried going through a whole day without eating? Fasting and caloric restrictions are two totally different things. For example, if you just cut your caloric intake in half, you will constantly be hungry. You may slow down a lot and will be very sluggish all day long. This happens because of the lower caloric intake, your body switches into energy-saving mode and you are hungry and tired whole day long. Fasting is totally different.

Right before your regular dinner, you may feel terribly hungry. If you have never tried fasting before, you may assume that your hunger just gets worse and worse over time. Absolutely wrong. The first pleasant surprise you will experience is that after a while hunger just disappears. Depending on the individual, it takes about half a day, and then no more hunger. The second surprise is that you are not much weaker than on a regular day. Some people even feel more energetic on fasting days. Once your glucose and glycogen supplies are depleted, your body gradually switches into fat burning. You can continue your regular daily job and even do physical exercise when you are fasting. I know it sounds hard to believe but why don't you give it a try? You have nothing to lose except for your fat deposits.

There are many intermittent fasting protocols. What I used myself is a combination of 24 hour fasting periods and regular eating days. It's up to you to see how many fasting days you can commit to yourself. It can be as little as just one day a week or as many as seven days a week. The higher the level of commitment, the faster the results. In my book, you can read more about intermittent fasting and meal plans.

GENES AND OBESITY

The mystery of obesity is almost solved. Let's talk about a very popular topic: genetics. Many people say "I can not lose weight, obesity is in my genes." If this applies to you, I have to say you are not the only one. About 70% of the whole population is prone to obesity. Although genetics is an important part of the equation, genes by themselves do not cause obesity (except for a few extremely rare cases). Considering the fact that in industrialized countries nearly one third of the population is obese and another third is in the overweight category, only a negligible number of these people have a primary genetic cause for their weight problem. For example, possible genetic causes may include *leptin gene mutation* or *Prader-Willi syndrome*. Although Prader-Willi syndrome is the most common genetic cause of morbid obesity in children, it occurs only once in every 25,000 births.

From time to time, newspapers come up with headlines like "Scientists discover how key gene makes people fat". Such claims lack scientific evidence. Those experiments are often limited to a specific group of people or the evidence is based on animal studies alone. In my book, I tell the story of the FTO gene. We can conclude that most likely, it is not your genes that make you obese.

WHAT CAUSES OBESITY?

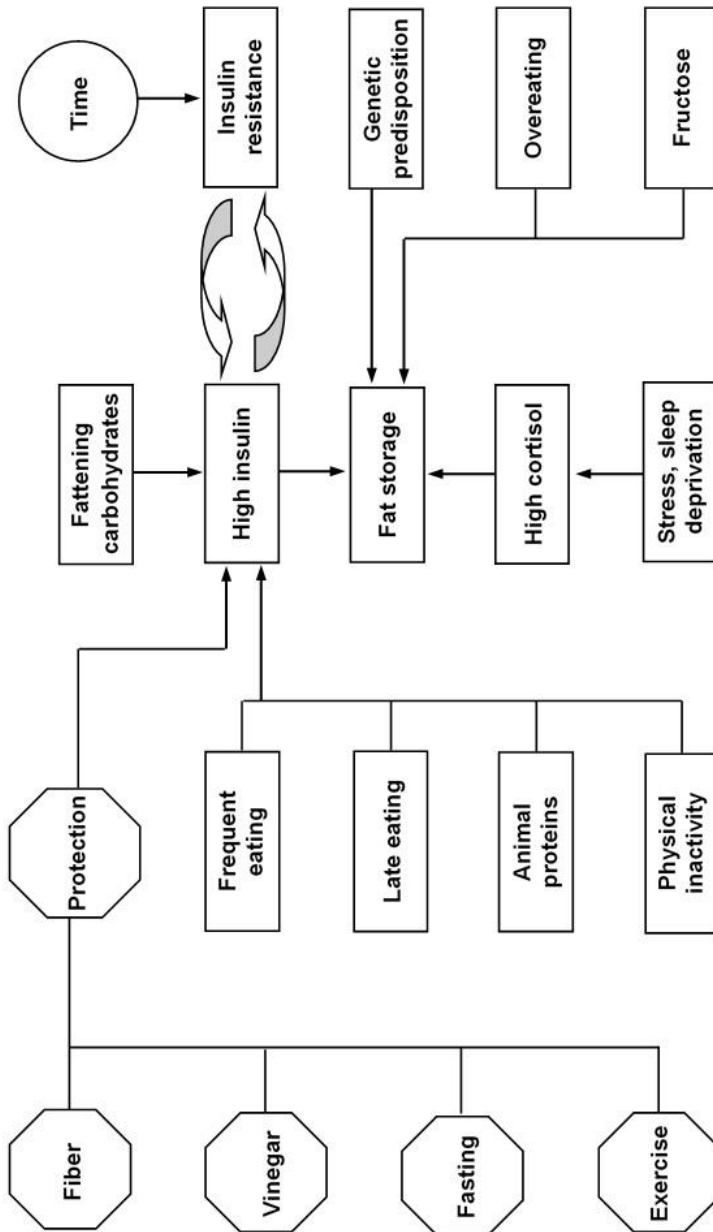


Figure 15.3. The new model of obesity. Protective factors are shown in octagons, risks are in rectangles.

The model of obesity is almost complete. Take a look at the chart. The *carbohydrate-insulin model* is a good starting point. The fattening effect of carbohydrates has been a well known fact for 200 years. In addition to the carbohydrates' concentrated energy content, the fast digestible carbohydrates trigger a severe insulin secretion. Insulin is the main driving force behind obesity. Over time the body develops insulin resistance, forming a vicious cycle.

It is also well known fact that long term stress exposure leads to obesity. The stress hormone cortisol diverts calories into fat deposits. Sleep deprivation leads to obesity.

Although we previously showed that the *calories in - calories out model* can not give a full explanation to obesity, calories still do matter. However, you don't need to count them, since not all calories are created equal. Nevertheless, it is safe to say that overeating definitely leads to obesity.

The question of *when to eat* is as important as *what to eat*. Try to narrow down your eating window. The time frame between the first and last meal of the day should not be wider than 8-10 hours. Don't eat more than 3 times a day; avoid snacks and eating late night.

Be physically active. Although exercising is an extremely inefficient way of energy expenditure, physical exercise increases insulin sensitivity, thus it directly and indirectly helps you lose weight.

Avoid excessive meat consumption and foods with high fructose content.

Finally let me talk about negative calories. Personally, I would call fiber man's best friend. Especially true for soluble fibers. They greatly slow down nutrient absorption and significantly reduce the insulin peaks after food intake. Vinegar is our second best friend. It has been used for millennia and it's main benefit is reducing the glucose and insulin responses following a carbohydrate meal.

Based on my own research, this is the formula for obesity. We went through each element. We have seen that the answer to our original question *What causes obesity* is way more complex than previously thought. Calories, nutrients, fasting, hormones, genetics,

our lifestyle and even the duration of obesity have a significant impact on our body weight.

In this short E-book, I gave you a brief overview of the causes of obesity. In my full book entitled “The Secret of Permanent Weight Loss “ you can read more about obesity. I discuss in detail what causes obesity and how you can get rid of your excess pounds and prevent most of our modern-day civilization diseases. The book also contains meal plans, recipes, fasting protocols, and a very detailed food guide to help you make wise food choices to become lean and healthy.

To order a printed copy or an E-book, please check out my web store by [clicking here](#).

I wish you best of luck on your weight-loss journey and becoming a healthier person.

With regards,

Thomas Torok, Ph.D.

Barrie, Ontario, Canada, 2020