

# BIG FAT LIES

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by John Fotheringham, NTP (excerpt from [BigFatLies.info](http://BigFatLies.info))

## Myth: Fat Makes You Fat

### “FAT FREE” AND FATTER THAN EVER!

We've all heard the staggering statistics: more than two-thirds of American adults are overweight, with more than one-third considered to be clinically obese. But how did we get here? Ironically, the sharp increase in obesity rates can be tied to efforts by the United States Department of Agriculture (USDA) to ostensibly make Americans *healthier*. Their 1980 report *Dietary Guidelines for Americans* urged Americans to:

- Eat *less* fat.
- Eat *more* grains.

And this is precisely what most Americans have done over the past 35 years, helped by food companies offering a slew of new low-fat and fat-free products. But since food tastes terrible without fat, they had to replace it with something palatable. The answer? Sugar. Gobs and gobs and of sugar. Formerly high-fat foods like yogurt now have the words “non-fat” proudly plastered on the front of the package. But flip the cup of yogurt around and you will see that your supposedly healthy cup of yogurt has as much sugar as a candy bar!

Look in nearly any processed food product today, even items you would not consider sweet, and you will find sugar in one of its many forms:

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*Agave Nectar, Barley Malt Syrup, Beet Sugar, Brown Rice Syrup, Brown Sugar, Cane Crystals, Cane Sugar, Coconut (Palm) Sugar, Corn Sweetener, Corn Syrup (Solids), Dehydrated Cane Juice, Dextrin, Dextrose, Evaporated Cane Juice, Fructose, Fruit Juice Concentrate, Glucose, High-Fructose Corn Syrup, Honey, Invert Sugar, Lactose, Maltodextrin, Malt Syrup, Maltose, Maple Syrup, Molasses, Palm Sugar, Raw Sugar, Rice Syrup, Saccharose, Sorghum (Syrup), Sucrose, Syrup, Treacle, Turbinado Sugar, Xylose (and more).*

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Note that to avoid listing sugar as the first ingredient in their products, some sneaky food makers use multiple types of sugar (e.g. honey, cane sugar, and brown rice syrup), each of which alone may be smaller in volume than the ingredient listed first (e.g. oats) even though taken together, sugar forms a far larger portion. All this sugar adds up quickly: the average American now consumes 150 to 170 pounds of refined sugars each year, up from just 120 pounds in 1970, and just 10 pounds in 1821. Trends in other industrialized countries are similarly concerning.

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But the obesity epidemic is not just the result of this avalanche of added sugar. The base of the USDA food pyramid (or a quarter of the new and not-so-improved “MyPlate”) is really made up of sugar, too. It just happens to be sugar packaged up within starch molecules waiting to be quickly digested back into glucose...

## STARCH IS JUST SUGAR IN WAITING

Foods high in starch, including cereal, pasta, bread, and even supposedly healthy choices like whole grains, are quickly converted into glucose by the body. A single slice of whole wheat bread has a higher glycemic index (GI) than a Snickers® bar! So the base of the USDA’s food pyramid—made of up to 11 servings of grains a day!!!—is really just made of sugar in waiting. How could this be? The USDA’s *Dietary Guidelines for Americans*, and the iconic pyramid shaped food guide that goes with it, are based on incontrovertible science, right? Wrong. As Denise Minger demonstrates in *Death by Food Pyramid*, the recommendation to eat less fat and more grains was the product of “shoddy science, sketchy politics, and shady special interests”:

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*“Contrary to popular belief, America’s dietary guidelines aren’t the magnum opuses of high-ranking scientists, cerebral cortexes pulsating in the moonlight as they solve the mysteries of human nutrition. What reaches our ears has been squeezed, tortured, reshaped, paid off, and defiled by a phenomenal number of sources...the USDA’s wisdom, pyramid and beyond, isn’t the only source of misguided health information out there. But it is some of the most pervasive, the most coddled by the food industry, the most sheltered from criticism, and—as a consequence—the most hazardous to public health.”*

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## SUGAR IS A POISON. FAT IS THE ANTIDOTE.

Dr. Robert Lustig makes a damning case against sugar, especially fructose, in his viral video presentation *Sugar: The Bitter Truth* (viewed nearly 6 million times on YouTube as of writing) and his book *Fat Chance: Beating the Odds Against Sugar, Processed Food, Obesity, and Disease*. He considers the insidious substance to be a poison, one that deserves to be regarded in the same light as alcohol, cigarettes, etc.

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*“Politicians have to come in and reset the playing field, as they have with any substance that is toxic and abused, ubiquitous and with negative consequence for society. Alcohol, cigarettes, cocaine. We don’t have to ban any of them. We don’t have to ban sugar. But the food industry cannot be given carte blanche. They’re allowed to make money, but they’re not allowed to make money by making people sick.”*

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But dose makes the poison. A little bit of sugar consumed in the form of local, in-season fruit is not a problem. Since the sugar is bound up with a large amount of fiber, it is digested more slowly and helps us avoid over-consumption. Even a full-grown man would probably not eat a dozen oranges in one sitting, but any small child could easily throw back the sugar found in 12 oranges in one glass of orange juice. Moreover, whole fruit contains important vitamins, minerals, and polyphenols that are lost or damaged during processing. The good news in all this is that we don't need all this sugar to make food taste good when we add back in the most wrongly maligned macronutrient of all time: fat. Healthy dietary fats are extremely important for proper function of the body and a satisfying life:

- Fats provide a stable, dense source of energy.
- Fats are required to make healthy cell membranes.
- Fats are essential for proper liver function, including the creation of cholesterol (essential for numerous bodily functions) and bile (essential for the digestion of fats and elimination of toxins).
- Fats must be present in food for us to absorb the fat-soluble vitamins A, D, E, and K.
- Fats form a protective lining around bodily organs.
- Fats slow the absorption of food, helping to regulate appetite and energy needs.
- Fats are required for the body to inflame and anti-inflame (the body needs both to heal).
- Fats make foods taste better, providing both physiological and psychological satiation.

And it is important to note that "healthy fats" do not just include olive oil, avocados, and fish as most people have been led to believe, but also saturated fats like coconut, palm oil, lard, tallow, and fatty cuts of meat from properly sources animals. Saturated fat is not the bad guy you've been led to believe, and is in fact an essential form of fat required for optimal health and function.

## A CALORIE IS NOT A CALORIE

The obesity epidemic is *not* simply a matter of people eating too much and not exercising enough. The problem is that we have been eating too much of the wrong things (sugar and starch) and not enough of the right things (fat and protein). Carbohydrates, especially refined sugars and starches, are uniquely fattening. Drinking a 200-calorie soda will have a very different effect on your body's hormones than eating a 200-calorie slice of steak. As Gary Taubes illustrates in *Why We Get Fat and What to Do About It*:

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*"...the science itself makes clear that hormones, enzymes, and growth factors regulate our fat tissue, just as they do everything else in the human body, and that we do not get fat because we overeat; we get fat because the carbohydrates in our diet make us fat. The science tells us that obesity is ultimately the result of a hormonal imbalance, not a caloric one—specifically, the stimulation of insulin secretion caused by eating easily digestible, carbohydrate-rich foods: refined carbohydrates, including flour and cereal grains, starchy vegetables such as potatoes, and sugars, like sucrose (table sugar) and high-fructose corn syrup. These carbohydrates literally make us fat, and by driving us to accumulate fat, they make us hungrier and they make us sedentary."*

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## WANT TO LOSE WEIGHT? EAT MORE FAT & LESS SUGAR.

When trying to shed body fat and regain health, fat is your friend, not foe.

Fat is satiating. It helps you feel fuller and provides constant, steady energy throughout the day, meaning you will eat less, less often, and more of the right things. If you eat a fat and protein rich breakfast, you won't be hungry an hour later as you will when eating the standard carb-heavy American breakfast of cereal, toast, and juice. With a proper breakfast, you may just find that you can coast through all the way to dinner. You won't get "hangry" in between meals, and find yourself reaching for doughnuts and coffee in the break room to keep yourself awake. Your mood and productivity will improve since you won't suffer from the brain fog and energy dips throughout the day that most people have come to think of as normal. Common? Yes. Normal? No.

The right kind of fats will also provide your body the building blocks it needs for optimal form and function. You will be able to create sufficient quantities of sex hormones, increasing your drive and libido. Your cells membranes will be healthier, allowing nutrients and hormones to pass in and out more easily. In basic terms, this translates into feeling and looking a hell of a lot better.

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## Myth: Saturated Fat is Bad for You

### ISN'T THERE IRONCLAD SCIENTIFIC EVIDENCE DAMNING SATURATED FAT?

We have been told that saturated fat is unhealthy for so long by so many that most of us now just consider it common sense and would never think to question it. The presumption that dietary saturated fat causes heart disease (known as the "Diet-Heart Hypothesis") is one of the fundamental tenements of major institutions like the American Heart Association, the National Heart, Lung, and Blood Institute, and The United States Department of Agriculture, so most would assume that their guidelines are based on sound scientific fact. But those who take the time to honestly evaluate the evidence will quickly see that no study has yet to show a solid causal link between consumption of saturated fat and the development of heart disease, cancer, diabetes, etc.

Nina Teicholz sums up the situation quite nicely in The Big Fat Surprise: Why Meat, Butter, and Cheese Belong in a Healthy Diet:

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*"...the disturbing story of nutrition science over the course of the last half-century looks something like this: scientists responding to the skyrocketing number of heart disease cases, which had gone from a mere handful in 1900 to being the leading cause of death by 1950, hypothesized that dietary fat, especially of the saturated kind (due to its effect on cholesterol), was to blame. This hypothesis became accepted as truth before it was properly tested, Public health bureaucracies adopted and enshrined this unproven dogma. The hypothesis became immortalized in the mammoth institutions of public health, And the normally self-correcting mechanism of science, which involves constantly challenging one's own beliefs, was disabled. While good science should be ruled by skepticism and self-doubt, the field of nutrition has instead been shaped by passions verging on zealotry. And the whole system by which ideas are canonized as fact seems to have failed us."*

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When it comes to the Diet-Heart Hypothesis, the phrase "passions verging on zealotry" belongs to one man above all others: Ancel Keys. His 1952 chart, "Fat Calories vs Deaths from Degenerative Heart Disease", appears to show a nice and tidy upward curve connecting increased consumption of fat (shown along the X axis) and increased deaths per 1,000 from heart disease (going up the Y axis). But as many critical observers have pointed out, there are two big problems with this graph, and the theory it attempts to prove.

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1. The same curve could be plotted to show a correlation between deaths per 1,000 and per capita car ownership, cigarettes sales, protein consumption, and sugar consumption—essentially everything that came along with increases in wealth in the mid 20th century. Any one of these factors (or some combination of them) could be the cause of the increased rates of heart disease we've seen over the past 100 years. But we can't be sure because Keys' study can only tease out correlative relationships.
2. Keys created the graph by cherry picking countries with data that fit his hypothesis. If one were to include a larger number data points, like Jacob Yerushalmy (the founder of the Biostatistics Department at the University of California, Berkeley) did in 1957 with 22 countries, a clean upward line can no longer be drawn and the correlation between dietary fat and heart disease evaporates.

But even if a correlation *had* remained after adding in more countries, we have to remember that at best, epidemiological (i.e. observational) studies like these can only show a possible correlation between saturated fat and disease.

By definition, such studies cannot prove causation. As every scientist knows (or rather, should know since many often seem to forget), correlation is *not* causation.

Okay, so observational studies cannot prove that dietary saturated fat causes heart disease. But what about controlled scientific trials? Bad news there, too, for the fat-phobic:

- **The Women's Health Initiative (WHI):** 49,000 women were put on a low-fat diet in what would be the largest, longest trial ever conducted on the connection between fat consumption and disease. The results? Women did not lose weight as expected and saw no significant change in their risk for heart disease or cancer.
- **The Framingham Heart Study:** Though this study is often cited in support of the Diet-Heart Hypothesis, the study's director actually made the conclusion (perhaps unintentionally) that eating fat made one *more* fit and active: "In Framingham the more saturated fat one ate, the more cholesterol one ate, the more calories one ate, the lower the person's serum cholesterol... We found that the people who ate the most cholesterol, ate the most saturated fat, ate the most calories, weighed the least and were the most physically active."
- **The American MRFIT Study:** Like the Framingham Heart Study, the MRFIT Study is also used frequently to support the Diet-Heart Hypothesis even though it showed some startling—albeit seldom reported—results. The study showed, for example, those who ate *less* animal fat and cholesterol actually had *higher* blood cholesterol.

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Another great excerpt from Nina Teicholz's [The Big Fat Surprise](#) sums up the Diet-Heart Hypothesis' failure quite nicely:

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*"If, in recommending that Americans avoid meat, cheese, milk, cream, butter, eggs, and the rest, it turns out that nutrition experts made a mistake, it will have been a monumental one. Measured just by death and disease, and not including the millions of lives derailed by excess weight and obesity, it's very possible that the course of nutrition advice over the past sixty years has taken an unparalleled toll on human history. It now appears that since 1961, the entire American population has, indeed, been subjected to a mass experiment, and the results have clearly been a failure. Every reliable indicator of good health is worsened by a low-fat diet. Whereas diets high in fat have been shown, again and again, in a large body of clinical trials, to lead to improved measures for heart disease, blood pressure, and diabetes, and are better for weight loss. Moreover, it's clear that the original case against saturated fats was based on faulty evidence and has, over the last decade, fallen apart. Despite more than two billion dollars in public money spent trying to prove that lowering saturated fat will prevent heart attacks, the diet-heart hypothesis has not held up."*

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## DOESN'T SATURATED FAT CAUSE INFLAMMATION?

By now, most people have heard about "inflammation", and most regard it as a bad thing. And it certainly *is* a bad thing if it's chronic and systemic. But the body needs the ability to both inflame *and* anti-inflame to keep us healthy. It's a matter of balance. If one were to eat *only* saturated fat day in and day out, then yes, they would indeed become imbalanced. But nobody ever eats *all* saturated fat even if one's diet is comprised solely of bacon and eggs. All fats and oils are in fact a combination of different types of fatty acids. Many foods often wrongly maligned for their saturated fat content contain large amounts unsaturated fat, too. You may be surprised to learn that an egg yolk contains 70% *unsaturated* fatty acids: 47% oleic acid, 16% linoleic acid, 5% palmitoleic acid, and 2% linolenic acid. The remaining 30% is saturated fat: 23% palmitic acid, 4% stearic acid, and 1% myristic acid.

Avoiding saturated fat is not the goal. The focus should be on getting a variety of healthy fats from good sources (note again, however, that each of the following foods contain a variety of fats; they are simply listed by which kind of fat forms the majority):

- **Saturated Fats:** coconut oil, palm oil, grass-fed meat and dairy.
- **Monounsaturated Fats:** olive oil, avocados, avocado oil, lard, and poultry.
- **Polyunsaturated Fats:** wild caught fish, fish oils, and flaxseed.

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## BUTTER, MEAT & CHEESE SHOULD BE BACK ON THE TABLE

So to sum up, saturated fat does *not* cause heart disease. On the contrary, fat-rich foods are healthy, filling, and delicious, and deserve to be back on your table. Sufficient consumption of fat, including saturated fat, is critical for optimal health as Sally Fallon shares in her book [Nourishing Traditions](#):

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*"Fats from animal and vegetable sources provide a concentrated source of energy in the diet; they also provide the building blocks for cell membranes and a variety of hormones and hormone-like substances. Fats as part of a meal slow down nutrient absorption so that we can go longer without feeling hungry. In addition, they act as carriers for important fat-soluble vitamins A, D, E, and K. Dietary fats are needed for the conversion of carotene to vitamin A, for mineral absorption and for a host of other processes."*

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## Myth: Cholesterol Causes Heart Disease

Perhaps the biggest, most devastating myth to human health is the faulty notion that cholesterol causes heart disease. We have been told for decades there is incontrovertible proof that eating saturated fat and cholesterol raises cholesterol in the blood, and that in turn, excess serum cholesterol causes heart disease. You may be surprised to learn that this theory, known as the "Diet-Heart Hypothesis", has never actually been proven despite numerous studies. But fueled by bias, vested interests, and institutional momentum, the complete lack of evidence has not stopped the media, health organizations, or pharmaceutical companies from continuing to tout their favored—albeit faulty—hypothesis as fact.

### WHAT THE STUDIES *REALLY* SAY

Let's take a brief look at some of the major studies purported to prove a link between cholesterol and heart disease:

- **The Framingham Heart Study.** Begun in 1948 in Framingham, Massachusetts, the Framingham Heart Study divided 6,000 people into two groups: one who ate a diet *low* in cholesterol and saturated fat, and one who ate a diet *high* in these two nutrients. Though the study is often twisted to *support* the Diet-Heart Hypothesis, an honest review of the study shows the exact opposite conclusion. Though it's seldom reported, the director of the study actually had the following to say 40 years into the study: "In Framingham, Mass., **the more saturated fat one ate, the more cholesterol one ate, the more calories one ate, the lower the person's serum cholesterol...** we found that people who ate the *most* cholesterol, ate the *most* saturated fat, ate the *most* calories, weighed the *least* and were the *most* physically active" (italics and bolding mine).
- **The Multiple Risk Factor Intervention Trial (MRFIT).** Following the eating habits of 12,000 American men, the MRFIT trial tracked the effect of reduced saturated fat, cholesterol, and smoking on mortality rates. Contrary to what was reported in the media, the study actually showed that people who ate *less* animal fat and cholesterol actually had *more* serum cholesterol. We cannot survive without cholesterol, so the body will actually produce more when we eat less. And it should be pointed out that although the study showed a marginal decrease in total coronary heart disease (which could very well be due solely to the benefits of quitting smoking), there was actually an overall *increase* in deaths from *all* causes, including cancer, brain hemorrhage, suicide, and violent death (no surprise, since cholesterol is critical for proper brain function, and low cholesterol levels are linked with depression and violent behavior).
- **The Women's Health Initiative (WHI):** 49,000 women were put on a low-fat diet in what would be the largest, longest trial ever conducted on the connection between fat consumption and disease. The results? Women did not lose weight as expected and saw no significant change in their risk for heart disease or cancer.
- **Whitehall Study.** This study followed 18,000 male civil servants in Britain over a period of ten years, instructing half to reduce the amount of saturated fat and cholesterol in their diets, to consume more unsaturated fats (e.g. margarine and vegetable oils), and to quit smoking. After just one year, study participants eating the diet low in saturated fat but high in unsaturated fat

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had 100% *more* deaths than those in the control group who not only ate more saturated fat but even continued to smoke!

Population studies are another tool often pulled out to support the hypothesis that high-fat, high-cholesterol diets cause heart disease and reduce lifespans, but here too the facts paint a very different picture from the story portrayed in the media. The Diet-Heart Hypothesis in fact got its start from a series of population studies by Ancel Keys in the 1950s. His 1952 chart, “Fat Calories vs Deaths from Degenerative Heart Disease”, appears to show a nice and tidy upward curve connecting increased consumption of fat (shown along the X axis) and increased deaths per 1,000 from heart disease (going up the Y axis). But as many critical observers have pointed out, there are two big problems with this graph, and the theory it attempts to prove:

1. The same curve could be plotted to show a correlation between deaths per 1,000 and per capita car ownership, cigarettes sales, protein consumption, and sugar consumption—essentially everything that came along with increases in wealth in the mid 20th century. Any one of these factors (or some combination of them) could be the cause of the increased rates of heart disease we've seen over the past 100 years. But we can't be sure because Keys' study can only tease out correlative relationships.
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But even if a correlation *had* remained after adding in more countries, we have to remember that at best, epidemiological (i.e. observational) studies like these can only show a possible correlation between saturated fat, cholesterol, and heart disease. By definition, such studies cannot prove causation. As every scientist knows (or rather, should know since many often seem to forget), correlation is *not* causation.

## IF IT'S WRONG, WHY HAS THE DIET-HEART THEORY PERSISTED?

So if the studies have not conclusively shown that consuming saturated fat or cholesterol cause heart disease, why do so many doctors, scientists, and institutions continue to recommend low-fat, low-cholesterol diets and prescribe statins (cholesterol lowering drugs)?

Dr. Uffe Ravnskov, MD, PhD, author of *The Cholesterol Myths*, places the blame on blind faith, ignorance, or worse:

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*"Masses of valid scientific evidence should have destroyed the diet-heart idea by now. Yet, like the ancient Greek Hydra, a mythological monster that grew new heads whenever its old ones were chopped off, the cholesterol Hydra continues its*

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*life as if nothing had happened... Scientists, who support the diet-heart idea and who are honest must be ignorant, either because they have failed to understand what they have read or else, by blindly following the authorities, they have failed to check the accuracy of the studies written by those authorities. But some scientists must surely have realized that the diet-heart idea is impossible and yet, for various reasons, have chosen to keep the idea alive."*

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Dr. Paul Rosch echoes the ignorance problem, while also pointing the finger at pharmaceutical companies:

"Practicing physicians get most of their information from the drug companies. Compared to their peers a half century ago, most doctors don't have the time or skills to critically evaluate reports, very few know anything about research, nor did the generation that taught them."

## SO WHAT DOES CAUSE HEART DISEASE?

Okay, so if eating saturated fat and cholesterol are not the cause of heart disease, what is? Dr. Natasha Campbell-McBride, MD, sums up the root cause well in her book Put Your Heart in Your Mouth:

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*"Atherosclerosis is not caused by dietary fats and cholesterol; it is caused by chronic out-of-control inflammation."*

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There are multiple factors that can cause inflammation and damage of the endothelium, the layer of cells that form the inside wall of every blood vessel in your body:

- **Metabolic syndrome** (chronically high levels of glucose, insulin, and triglycerides in the blood) caused by eating a diet high in sugar and refined carbohydrates.
- **Trans fats, hydrogenated oils, and processed seed oils** like canola, soy, corn, etc. (which have wrongly been touted as "heart healthy"). Trans fats: 1) Raise LDL cholesterol levels and triglycerides, 2) Lower HDL cholesterol, 3) Inhibit the enzyme Delta-6-desaturase, which is required for proper fatty acid metabolism and the balance of pro- and anti-inflammatory prostaglandins, and 4) Are implicated in the development of insulin resistance.
- **Toxic chemicals** from industrial pollution, pesticides, chlorine, fluoride, cigarette smoke, personal care products, domestic cleaning products, and detergents (laundry and dishwasher).
- **Infectious microbes** like Chlamydia pneumoniae, Helicobacter pylori, Cytomegalovirus, Herpes zoster virus, Bacteroides gingivalis, etc.
- **Gut dysbiosis** (microbial imbalances in the digestive tract) and **intestinal permeability** (a.k.a. "leaky gut", damage to the gut lining that allows undigested proteins, pathogens, etc. into the bloodstream).

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- **Deficiencies in vitamins, minerals, amino acids, and essential fatty acids.** Deficiency in vitamins B6, B12, and folate, for example, can cause high levels of homocysteine, which damages the endothelium. Vitamin D, for example, is required by every cell in the body and is essential for repairing injuries (such as to the lining of blood vessels), yet deficiency in the vitamin from a lack of sun exposure is widespread.
- **Modern lifestyles** that are high in stress, high in processed foods, low in relaxation, and low in movement.

While all of these factors are important to consider, extra attention should be given to the chronic overconsumption of sugar and refined carbohydrates. Not only does this lead to chronic inflammation, it also creates a number of negative effects on the body that contribute to disease:

- **The formation of AGEs** (Advanced Glycation End Products), sticky compounds formed when glucose attaches to proteins. AGEs attach to the endothelium, contributing to atherosclerosis, and clog up capillaries in the eyes (which can lead to **blindness**), the kidneys (which can lead to **renal failure**), in the brain (which can lead to Alzheimer's disease), and in the penis (which can lead to erectile dysfunction).
- **A chronic deficiency in magnesium.** Magnesium is a critical mineral involved in numerous bodily functions, including the proper function of the heart and arterial muscles. Without enough magnesium, serious, life-threatening problems can ensue: high blood pressure, arrhythmias, atherosclerosis, congestive heart failure, heart muscle disease, heart attack, and sudden cardiac death. It is estimated that over three quarters of Americans suffer from chronic magnesium deficiencies, no doubt thanks to excess consumption of sugar: the body uses 28 molecules of magnesium to metabolize every 1 molecule of glucose.

## CHOLESTEROL IS THE RESPONSE, NOT THE CAUSE

Most people (including many doctors and researchers who should know better) think of atherosclerosis as simply a buildup of fat and cholesterol on the inside of arteries (similar to what happens when you pour bacon grease down the sink). In reality, atherosclerotic plaques are made primarily of fibrous tissue (68%) used by the body to cover lesions in the artery wall caused by chronic inflammation. This is a good thing! If the body didn't quickly shore up these holes in your blood vessels, your health—or rather, your life—would be in serious danger. In a healthy person without chronic, out-of-control inflammation, such damage to the blood vessels would be quickly fixed. But when inflammation goes on and on (as it does for those eating a diet high in sugar, refined carbohydrates, and trans fats), the wounds never heal and the body has to keep sending more and more raw materials and energy sources (including cholesterol, saturated fats, and lipoproteins) to the area to help repair the damage. Cholesterol and saturated fat then are *responding* to damage of the blood vessels, not *causing* it.

In this sense, blaming cholesterol for heart disease is like blaming firefighters for the fire they are responding to. Or put another way, the typical approach to preventing heart disease is analogous to trying to reduce crime by removing police officers from the area. Instead of thinking, "There is so much crime around here. And there are so many police. Maybe if we get rid of the police, the crime will go down!", we should be asking, "Why are there so many police in this area? What is causing the high rate of crime in the first place?" We of course know that there are higher numbers of police in high crime areas

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because they are responding to the higher rates of crime. They are not the cause, but the response. This is a classic case of confusing *correlation* with *causation*.

The same is true of cholesterol (the police) and inflammation (the crime). Dr. Campbell-McBride describes the wrong-headed approach to treating heart disease as follows:

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*"When we have a high blood cholesterol level it means that the body is dealing with some damage. The last thing we should do is interfere with this process!*

*When the damage has been dealt with, the blood cholesterol will naturally go down. If we have an ongoing disease in the body that constantly inflicts damage, then the blood cholesterol will be permanently high. So, when a doctor finds high cholesterol in a patient, what this doctor should do is to look for the reason. The doctor should ask, 'What is damaging the body, so the liver has to produce all that cholesterol to deal with the damage?' Unfortunately, instead of that, our doctors are trained to attack the cholesterol."*

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## CHOLESTEROL IS ESSENTIAL FOR HUMAN LIFE

Not only is cholesterol *not* the cause of atherosclerosis, it is in fact *protective* against this and many other degenerative diseases. Moreover, the organic molecule is a critical component of nearly every body function and tissue. Cholesterol is:

- **Found in every cellular membrane.** Without cholesterol, your cells would lack the simultaneous stiffness and flexibility necessary to function properly, and the selective permeability necessary to transport nutrients and hormones in and out of the cell.
- **Found in high concentrations in the brain.** Cholesterol is required for proper function of serotonin receptors, which helps explain why low levels of cholesterol lead to depression, suicidal tendencies, and violent behavior.
- **Found in high concentrations in breast milk.** Cholesterol is critical for human growth and development, so it should come as no surprise that mother's breast milk is extremely high in the substance (and even includes a special enzyme that helps babies better absorb it). Giving your baby low-fat, low-cholesterol formula is a recipe for malnourishment.
- **A major component of bile.** Without cholesterol, your liver could not create bile salts (and important component of bile). And without sufficient bile, you would not be able to break down and absorb fats, leading to fatty acid deficiencies (marked by musculoskeletal issues, endocrine issues, cardiovascular issues, immune issues, allergies, skin problems, and depression).
- **Necessary for a healthy gut lining.** Cholesterol helps keep the intestinal wall strong and flexible. A deficiency of cholesterol can increase intestinal permeability ("leaky gut"), allowing undigested proteins and pathogens into the bloodstream.
- **A precursor to sex and stress hormones.** Without cholesterol, you cannot make testosterone, estrogen, progesterone, cortisol, etc., meaning you would not be able to respond to stress, have a sex drive, or reproduce.

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- **A precursor to protective corticosteroids.** Cholesterol is required to make corticosteroids, hormones that help prevent cancer and heart disease.
- **A precursor to vitamin D.** Without cholesterol, you would not be able to produce vitamin D, which is a critical fat-soluble vitamin involved in 1) the production of bone, muscle, and insulin, 2) mineral metabolism, and 3) proper function of the nervous system, immune system, and reproductive system.
- **An antioxidant.** Antioxidants protect the body from free radical damage, which is likely why cholesterol levels naturally go up as we get older. So instead of spending \$20 for a bag of Açaí Berry powder, why not just eat some cholesterol rich eggs, meat, or seafood?

## REDUCE INFLAMMATION & SUGAR, NOT SATURATED FAT & CHOLESTEROL

As you can see above, the key to preventing heart disease is reducing inflammation and limiting consumption of sugar, refined carbohydrates, and trans fats, *not* avoiding saturated fat and cholesterol as most people have been led to believe. Throw away the margarine, buy some butter, and live a longer, healthier, happier life!

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## Myth: Red Meat Causes Cancer

For nearly two decades, we've been bombarded with sensationalist headlines claiming that "red meat causes cancer." Terrified by the news, many people have significantly limited or completely given up their consumption of beef and other red meats, opting instead for chicken or fish. Some have decided to give up meat altogether, adopting vegetarian or vegan lifestyles they believe are better for their bodies and the planet. As you will see below, however, not only does red meat *not* cause cancer, it is in fact an extremely healthful, nutrient dense food that can help you avoid the very degenerative diseases it's been claimed to cause.

### THE FLAWED SCIENCE BEHIND THE HEADLINES

While many news stories and study abstracts seem to paint a clear, causative connection between red meat consumption and cancer, an honest review of the science behind these grand claims reveals a number of problems:

- **Correlation is NOT Causation.** Most of the studies claiming to show a link between red meat and cancer were *observational*, not *clinical*. By definition, observational studies can only tease out *correlation*, not *causation*.
- **The Healthy User Bias.** When it comes to red meat consumption, studies will always suffer from confounding variables caused by the "healthy user bias". Red meat has been aggressively maligned in the media for so long that most people who actively avoid it do so because they think it is the healthy thing to do. Such people are also *more* likely to exercise regularly and *less* likely to indulge in other unhealthy behaviors such as drinking alcohol, smoking cigarettes, and eating sugar, refined carbohydrates, trans-fats, fast food, processed foods, and so on. Just take a look at the rate of alcohol abstinence among vegans, vegetarians, and omnivores: 75% of vegans completely abstain from alcohol, 25% of vegetarians, and only 8% of omnivores. A similar pattern can be seen for smoking: 94% of vegans abstain from tobacco, 74% of vegetarians, and 67% of omnivores. ((Source: Maria Gacek, "Selected Lifestyle and Health Condition Indices of Adults with Varied Models of Eating."))
- **Food Frequency Questionnaires Are Unreliable.** Observational studies usually rely on self-reported "Food Frequency Questionnaires" which are notoriously faulty since 1) they rely on feeble memories (quick, tell me exactly what you ate for dinner a week ago today!), and 2) people often have an overly optimistic perception of what they tend to eat.

### FOOD QUALITY MATTERS

A big problem with well-publicized studies claiming to link red meat and cancer is that they don't control for differences in food quality or confounding variables like 1) what the animal ate (grass vs corn), 2) whether the meat is processed, 3) if/how the meat is cooked, and 4) what the meat is consumed with (e.g. French fries). When you say "red meat", are you referring to:

- A) Processed hot dogs charred to death on a BBQ, or B) Unprocessed steak cooked at low heat?

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- A) Beef from corn-fed, antibiotic-laden feedlot cows, or B) Beef from healthy cows eating only grass as they are evolved to do?
- A) A hamburger patty served on a white bun (refined grains that spike insulin levels and irritate the gut) with a side of Coca Cola® (refined sugar) and French fries (more carbohydrates, all fried in pro-inflammatory omega-6 vegetable oils), or B) Properly-sourced ground beef served on a bed of organic lettuce?

## YOU ARE WHAT YOU EAT EATS

We've all heard the phrase, "You are what you eat." And this is certainly true. But what's equally important is that we are what we eat *eats*! All animals have evolved to eat certain things, including cows and humans. Humans are lucky (or perhaps cursed) in that we can survive and even thrive on a variety of foods, but cows are designed to eat only thing: grass.

When cows are fed the wrong foods (corn, grain, and artificial nutrients), bad things happen to the cows, and to the humans who eat them. Illness and nutrient deficiencies are the rule, not the exception, in CAFOs (concentrated animal feeding operations). Sick cows then require antibiotics, which damage the proper gut flora balance of cows, and later in the humans who eat them. Proper gut flora is essential for cow *and* human health, helping keep dangerous strains of bacteria in check, helping us better digest foods, and even creating important nutrients as byproducts:

- **Short-chain fatty acids** (which feed the cells of the colon in humans and provide cows most of their energy).
- **Vitamin K2** (works hand in hand with other vitamins and minerals to help maintain a healthy heart and bones).
- **Vitamin B1** (essential for cardiovascular health).
- **Vitamin B2** (which helps break down proteins, fats, and carbohydrates, and is involved in energy production).
- **Vitamin B12** (helps maintain the health of nerve and blood cells, and is involved in the production of healthy DNA).

Conversely, cows raised exclusively on grass have:

- **More Omega-3s.** Though exact amounts vary based on the breed of cow and bio-individual differences, grass-fed beef generally contains 2 to 5 times *more* Omega-3 fatty acids than cows raised on grain.
- **More Conjugated Linoleic Acid (CLA).** This amazing PUFA (polyunsaturated fatty acid) acts as a powerful antioxidant and research suggests that it can help prevent a number of chronic degenerative diseases, including heart disease, diabetes, and cancer. The flesh and milk of cows is one of the best sources of the substance, but grain-fed beef products have 2 to 3 times *less* than their grass-fed brethren.
- **A higher percentage of stearic acid.** Though saturated fat in general is not the villain it has been made out to be in the mainstream media (see *Myth: Saturated Fat is Bad for You*), certain kinds of saturated fat (e.g. palmitic and myristic acid) can raise blood cholesterol levels more than others (e.g. stearic acid). Though grass-fed and grain-fed cows have the same percentage of

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*total* saturated fat, the percentage of saturated fat made up of stearic acid is higher in the grass-fed variety.

## RED MEAT IS A SUPERFOOD

Red meats, especially organ meats, are one of the most nutrient dense foods on the planet, rich in:

- **Vitamin A.** Sufficient vitamin A is critical for growth, proper function of the immune system, the ability to reproduce, and good vision. But munching on a bag of carrots is not as a good strategy for getting vitamin A as eating animal products rich in the vitamin. Meat contains the bioavailable form of vitamin A known as "retinol", while plants only contain "provitamin A carotenoids", a form that must be converted in the body (a conversion that most people can't do very well, or not at all, thanks to genetic mutations, liver diseases, food allergies, celiac disease, parasite infection, or deficiencies in minerals like iron or zinc).
- **Vitamin B12.** B12 is critical for healthy 1) nerves (especially myelin sheaths, the "electrical insulation" around brain cells required for proper function of the nervous system), 2) blood cells, and 3) DNA. This crucial nutrient is only found in animal products. You may have heard that it can be derived from seaweed, too, but it is important to note that plants can only create B12 *analogues* that the body cannot use as well as the more bioavailable form found in meat. Because of this, vegetarians and vegans are frequently deficient in the vitamin, leading to an increase in homocysteine levels, putting people at higher risk of heart disease.
- **Vitamin D.** Really a hormone, vitamin D plays a number of crucial roles in the body, including 1) the regulation of bone growth and strength, and 2) proper function of the immune system. Though we can (or rather *should*) get most of our vitamin D from sun exposure, red meat is a good boost during the winter months and for those who live in cloudy areas since it contains 25-hydroxycholecalciferol (a highly bioavailable form of vitamin D).
- **Vitamin K2.** As mentioned above, K2 can be created by some bacteria (found in your gut and in fermented foods like natto and sauerkraut). But if stinky, sticky soy beans are not your thing, not to worry: vitamin K2 is also rich in organ meats and dairy. It is important to note that vitamin K2 (menaquinone) and K1 (phylloquinone, found in leafy green vegetables) are not the same. Both are necessary for optimal health, but K1 alone will only help with blood clotting, while K2 is involved in the health of blood vessels, your bones, and more.
- **Heme Iron.** The human body can absorb and use the form of iron found in red meat, "heme iron", much better than plant-based non-heme iron. While some people, especially men or those with hereditary hemochromatosis can suffer from iron overload (there is a simple blood test to check for this), many people are deficient. Women are especially at risk, and those who are pregnant or trying to conceive should be especially vigilant about getting sufficient bioavailable iron as it is required for the proper development of a baby's brain.
- **Zinc.** Red meat is a great source of this vital mineral, which has numerous critical functions in the body, including 1) the production of sufficient stomach acid (which you need to break down proteins and extract minerals), 2) maintaining healthy male sexual function, 3) ensuring a strong immune system, 4) building the proper structure of various proteins and enzymes, and 5) regulating gene expression.

And even though some of the above nutrients can be obtained from plant sources, their animal based counterparts are far more bioavailable.

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## GRASS-FED RED MEAT IS EVEN GOOD FOR THE PLANET

Natural food chains (evolved over millions of years) are far healthier—not only for our bodies, but also for the planet and the economy—than the industrial food chains that have sprung up to replace them in the last century. By eating grass (nature's solar cells), ruminant animals such as cows, sheep, bison, etc., convert sun energy (a clean, free, virtually endless fuel source) into nutrient-dense protein and fat. And while doing so, they help fertilize grasslands with their manure, create ideal seed germination pools when their hoof prints fill with water, and help grasslands remain *grasslands*; without ruminant animals grazing upon them, many grasslands would become deserts.

Some ecologists and vegetarians have argued, however, that it is more efficient calorically to raise crops instead of cattle since a significant amount of food energy is lost when one animal eats another (9 calories for every 1 we eat). There are three big problems with these arguments:

- Non-arable grass lands could not be used for row crops anyway.
- Even for land that *can* be used to grow crops, far more nutrients are produced per acre when ruminants eat grass on well-managed pasture than in an acre of farmed grain.
- Since pasture doesn't require fossil fuel based fertilizers, grassing over existing crop lands would reduce reliance on fossil fuels.

Even from an ethical point of view, eating large animals raised on grass is better than growing crops as Michael Pollan details well in *The Omnivore's Dilemma*:

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*"Killing animals is probably unavoidable no matter what we choose to eat. If America was suddenly to adopt a strictly vegetarian diet, it isn't at all clear that the total number of animals killed each year would necessarily decline, since to feed everyone animal pasture and rangeland would have to give way to more intensively cultivated row crops. If our goal is to kill as few animals as possible people should probably try to eat the largest possible animal that can live on the least cultivated land: grass-finished steaks for everyone."*

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