THE CHOLESTEROL MYTH

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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 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.

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, 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:

> *"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 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."

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*:

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

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).
- **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 *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*.

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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:

> *"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."*

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 (an 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.
- **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 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 Açai 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!