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REPORT

The Great American Heart Hoax

By Michael Ozner, MD

America spends at least \$60 billion a year on invasive cardiovascular care. Even in these days of escalating national debt and unbalanced budgets, that's a staggering amount of money. And shockingly, evidence suggests that much of it is being squandered on high-risk, expensive procedures that have not been proven to either save lives or prevent heart attacks. Studies show that these now-common cardiac procedures—including coronary artery angioplasties, stent placements, and coronary bypass surgeries—are of dubious value, adding little in terms of long-term health outcomes, and sometimes even making things worse than if they hadn't been performed at all. America has 5 percent of the world's population, yet we perform half of the world's bypass surgeries and stent placements. And countries that spend a fraction of what we do on heart surgery have fewer per capita heart attacks and fewer heart-related deaths! Cardiovascular care is an almost obscenely lucrative industry in America, and evidence abounds that financial concerns may be distracting hospitals and physicians from focusing on what should be their primary concern: what's truly best for the patient.



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The American Heart Association reports that 80 million men and women suffered from cardiovascular disease in 2005. Many of those unfortunate individuals experienced severely reduced quality of life, enduring symptoms that include intermittent to constant chest pain, to the inability to walk, breathlessness, and countless drug side effects, among other troubling symptoms. As heart disease worsens, doctors are often forced to prescribe an increasing number of drugs to alleviate escalating symptoms—medications that present the risk of dangerous drug interactions. And despite the billions spent on cardiovascular medicine annually, nearly a million men and women in America over the age of eighteen die each year of heart disease.

Clearly, we have a problem. But it doesn't *have* to be this way. We don't *have* to resign ourselves to lives of increasingly clogged arteries and ever-mounting risk of heart attack or stroke. Nor must we resign ourselves to dependence on expensive medications, or submit to surgeries that don't work. There *is* an alternative to invasive procedures, costly surgery, and an ever-declining quality of life.

In my work as an experienced, well-trained, board-certified cardiologist and a Fellow of both the American Heart Association and the American College of Cardiology, I've seen countless numbers of patients not only avoid worsening heart disease, but actually improve their health and quality of life.

THE NUMBERS TELL THE STORY

More than 1.5 million angioplasties and coronary bypass surgeries are done annually in the US, which makes heart surgery among the most commonly performed surgical procedures for both men and women. Although heart surgery can be lifesaving, the truth is that surgery benefits only a small fraction of the millions of patients who undergo these operations. For the majority—an estimated 70 to 90 percent—these procedures are at best unnecessary. In fact, except for a minority of patients, bypass surgery and angioplasty have *never* been shown to prolong life or prevent heart attacks. And while American patients are seven times more likely to undergo coronary angioplasty and bypass surgery than patients in Canada and Sweden, the number of Canadians and Swedes who die from cardiovascular disease is *nearly identical* (per capita) to the number of people who die from heart disease in this country.

We're spending billions of dollars every year on risky procedures that have never been shown to benefit the majority of patients, or make a significant difference in the overall mortality rate.

In fact, the mortality rate for bypass surgery ranges from 3 to 5 percent. This may sound insignificant initially, but when you consider that half a million people undergo these procedures every year, 3 to 5 percent quickly adds up: to 15,000 to 25,000 lives lost a year. Additionally, an estimated 25 to 30 percent of angioplasties fail, requiring patients to repeat the procedure. And eventually many of these angioplasty patients will also require bypass surgery.



The mortality rate isn't the only worrying statistic associated with bypass surgery. Up to 80 percent of patients may experience cognitive difficulties after surgery, something that can be especially devastating to elderly patients, who may already be experiencing problems with memory and other early signs of cognitive decline. People who undergo bypass surgery are nearly four times more likely to suffer a subsequent stroke at the time of surgery than if they had elected not to go under the knife. They are also vulnerable to post-surgical infections. Nor are coronary angioplasty and stent placement risk-free; complications include heart attack, stroke, aneurysm at the puncture site, infection, and the need for emergency bypass surgery. Contrast this with the cost of following a heart-healthy lifestyle: none!

AN IMPORTANT DISCLAIMER

I'm not saying that all heart surgery is a hoax. Far from it! Over the past thirty years, tremendous strides have been made in the surgical treatment of many once-fatal heart problems. Indeed, heart surgery is a life-saver for many, many patients.

Atherosclerosis-related conditions that do warrant surgical intervention include disabling chest pain, despite maximal medical therapy and lifestyle changes; severe blockage of the left main coronary artery; critical blockages of all the major coronary arteries in patients with a weak heart muscle; and unstable coronary syndromes, such as an evolving heart attack.

Don't mistake my intent: my concern isn't with cardiac intervention that's appropriate. My concern's with the sheer number of inappropriate and unnecessary procedures that are performed—procedures that subject stable patients with coronary artery disease to needless risk when they would be far better served in other ways.

HEART DISEASE—IT'S NOT WORTH DYING FOR

What we call cardiovascular disease encompasses a wide range of conditions that affect the heart and vascular system, from high blood pressure (hyper-tension), to coronary artery disease, to heart failure, heart attack (myocardial infarction), peripheral arterial disease, aneurysm, and stroke, among others. All are manifestations of disease within the heart or within the literally thousands of miles of blood vessels in our bodies.



The majority of heart disease is related to something called atherosclerosis, the "hardening" of the arteries through chronic inflammation due to fatty deposits in the artery wall. Healthy arteries are tough while still remaining flexible and elastic. Atherosclerosis gradually destroys this crucial elasticity. When arteries harden, they can block the flow of vital oxygen and nutrient-rich blood to the heart, brain, and other organs. Unfortunately, for a majority of men and about half of all women with atherosclerosis, the first indication that they have this condition is heart attack or sudden cardiac death. Atherosclerosis may take decades to develop, and its progression is stealthy.

METABOLIC, NOT SURGICAL

Neither plaque formation nor plaque rupture is simple or straightforward. They both occur because of complex interactions between cholesterol, free radicals, and inflammatory cells. All of these are controlled, either directly or indirectly, by our metabolic processes, which makes heart disease a *metabolic disorder*—a disorder caused by abnormal chemical reactions in the body that disrupt the normal process of metabolism (how we create energy from the food we eat). And metabolic disorders require metabolic solutions—not surgical ones.

But surgery, in any circumstance, is like putting on a band-aid: it doesn't fix the problem; it just covers it up for a while.

If we want to stop heart disease, we have to address the underlying causes: cholesterol levels, free radical production, inflammation. The good news is that, because heart disease is a metabolic disorder, all of these things are, to a certain degree, *within our control*. No one has to die prematurely from heart disease.

Preventing heart disease is in large part a matter of simply encouraging a healthy metabolism: eating the right foods, getting plenty of exercise, and avoiding chronic stress. And you can reverse heart disease the same way. Studies have shown this again

and again, including one study published by Harvard-based researchers in the *New England Journal of Medicine* that concluded that lifestyle changes (diet, exercise, etc.) are capable of reducing cardiovascular disease risk by more than 80 percent—a figure which trumps even *statin drugs*, known to reduce the relative risk of cardiovascular disease risk by 30 to 35 percent.

But if all this is the case—and I can tell you from experience that it is—why aren't your doctors telling you this? Why does the treatment of heart disease still rely so thoroughly on surgery, which often doesn't work?

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FOLLOW A MEDITERRANEAN DIET

What you eat is the single most important factor in your health. It's something you have an incredible amount of control over (because you make decisions about it every day) and something that affects you at every level (because what you eat provides the building blocks for everything in your body). It plays a part, directly or indirectly, in every other prevention step that follows. And clinical studies have proved that the best way to eat, for heart disease prevention and for overall health and well-being, is a way that's been followed for over a thousand years: a Mediterranean diet.



The study that changed the way I think about the connection between diet and health was the Seven Countries Study, the twenty-year study that showed that men living in the Mediterranean region had the lowest incidence of heart disease and the longest life expectancy. This study prompted the lead author, Dr. Ancel Keys, to ask, "If some developed countries can do without heart attacks, why can't we?" But the Seven Countries Study is far from the only study that demonstrated the benefits of a Mediterranean diet.

LOWERING YOUR CHOLESTEROL

What we need to do is clear: reduce our total cholesterol to under 150 mg/dl, and our LDL cholesterol to around 70 mg/dl. Luckily, how to do it is just as clear. Since we get almost all our cholesterol from our diet, the first step is just to stop consuming so much of it. Lower cholesterol intake equals lower cholesterol.

But what we eat can have a less direct effect on our cholesterol as well. The top foods that have been shown to have a favorable impact on cholesterol include:

- Fruits and vegetables
- Olive oil
- Oatmeal
- Nuts (especially almonds)
- Beans
- Cold water fish
- Red wine
- Cinnamon
- Whole grains
- Soy protein
- Plant sterol and stanol spreads

The fiber contained in fruits and vegetables lower cholesterol; in addition, plant sterols in fruits and vegetables interfere with cholesterol's intestinal absorption. The fiber in nuts, and the plant sterol and stanol in spreads, work the same way. The omega-3 in fish lowers triglycerides, red wine raises "good" HDL cholesterol, and cinnamon (and olive oil) lowers "bad" LDL cholesterol. You may recognize this list of foods; they're also the main components of a Mediterranean diet.

In addition, exercise has been shown to raise "good" HDL cholesterol, lower triglycerides, and make the "bad" LDL cholesterol particles larger. Larger LDL particles are beneficial because they are less likely than smaller particles to squeeze through the artery lining, get trapped in the wall, and form plaques.

REDUCE FREE RADICALS AND OXIDATIVE STRESS

The formation of atheromatous plaques, the dangerous cholesterol-laden deposits that can lead to heart attack and stroke, begins when LDL cholesterol gets into the artery wall. But what happens next is just as important to plaque formation as

cholesterol itself. Inside the artery wall, LDL cholesterol comes into contact with free radicals, those electron-stealing byproducts of cellular respiration, and becomes oxidized, kicking off a potentially dangerous immune response as the body registers the oxidized cholesterol as a foreign invader.

Ready for some bad news? First, cholesterol isn't the only thing free radicals steal electrons from. Left unchecked, free radicals cause damage on the cellular level in every part of the body. They've been shown to play a part in everything from heart disease, to premature aging, cancer, and many other diseases. When they steal electrons from cholesterol, it leads to heart disease; when they steal electrons from DNA, it leads to cancer.



Second, oxygen free radicals aren't the only free radicals floating around your body, looking for electrons to steal. We know that oxygen free radicals are produced as a normal part of cellular respiration—the process of turning food into energy—and are used by the immune system to fight off foreign invaders. But any molecule can become a free radical.

All the term “free radical” means is that the atom or molecule is missing an electron and looking for a new one to replace it. So when an oxygen free radical steals an electron and becomes stable—no longer a free radical—whatever molecule it stole from usually becomes a free radical in its place. The new free radical then steals an electron from something else, and so on, creating a dangerous chain reaction that causes disease. We take antioxidant nutrients for the purpose of donating electrons to unstable molecules, thus breaking dangerous free radical chain reactions.

Third, there are certain things—toxins—that, when they enter the body, cause free radical production to go into overdrive. Exactly why this happens, scientists don't yet know. What we do know is that introducing toxins into the body is like adding lighter fluid to a fire—it causes a free radical explosion.

Known toxins include air pollutants (like carbon monoxide from cigarettes or car exhaust), ultraviolet rays, pesticides, and radiation (from X-rays and tests like the CAT scan as well as things like your television and computer screens). Things like cigarette smoke, excess alcohol, the preservatives and additives in processed foods, and trans fats are also toxins, in that they ratchet up free radical production. (Trans fats, for example, lead to elevated levels of free radicals called lipid peroxides.) It's impossible to get away from toxins altogether, though we do have some control over the amount of exposure we receive. And we are exposed to many, many more toxins today than our ancestors were even fifty years ago.

Here's the good news: We know how to fight free radicals. We have a way to make free radicals stable and stop the chain reaction of free radical creation. That way is antioxidants.

ANTIOXIDANTS

Antioxidants—which include vitamins and nutrients like vitamins C, gamma tocopherol and coenzyme Q10—work by supplying free radicals with the extra electron they would otherwise steal from cholesterol or DNA or other cells of the body. Unlike those other cells, antioxidants can lose an electron to a free radical without becoming free radicals themselves.

One way to think of it is as if there was a war going on inside your body, all the time. On one side are the free radicals, which are attacking your cells; on the other side are the antioxidants, which are trying to “neutralize” the free radicals before they can cause any damage. The more antioxidant soldiers you have, the better off you are.

Unfortunately, we don't manufacture many antioxidants on our own. Rather, we get most of them from the foods we eat—largely fruits and vegetables, but also whole grains, beans, and other plant products. Different antioxidants work at different

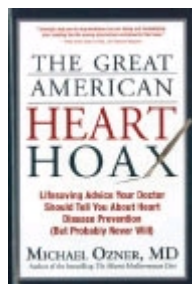
“levels” of the body: some of them protect cell nuclei, for instance, while others protect cell membranes. And we need thousands of different antioxidants in order for our whole body to remain healthy. The best way to ensure this happens is to eat a wide range of fruits and vegetables, in a variety of colors, as antioxidant-type appears to correspond loosely to food color.

For example:

- Oranges provide vitamin C
- Tomatoes provide lycopene
- Carrots provide beta-carotene
- Blueberries provide anthocyanins
- Spinach provides lutein and zeaxanthin
- Purple grapes provide resveratrol

One intriguing experiment, reported recently in the *Journal of the Federation of American Societies for Experimental Biology*, demonstrated the benefits of antioxidants, specifically resveratrol (found in red wine as well as in purple grapes). One group of subjects was given a simple meal of turkey cutlets. A second group was given 200 mL (about 6.8 fluid ounces) of red wine with the turkey cutlets. And a third group was given turkey cutlets that had been pre-soaked in red wine before cooking, in addition to the 6.8 ounces of wine.

Afterward, the investigators measured post-meal oxidative stress by assessing blood levels of malondialdehyde, a toxic compound involved in oxidative stress. Even though turkey is not high in saturated fat, which is ordinarily associated with heart disease, eating a simple turkey cutlet was sufficient to raise blood levels of malondialdehyde alarmingly. However, researchers found that the group who also drank the red wine reduced their post-meal oxidative stress dramatically in comparison—and the oxidative stress in the group whose meat had also been pre-soaked was reduced to zero. This experiment demonstrated a simple concept: by consuming ordinary foods, such as turkey, our bodies inevitably generate free radicals—*unless* there are plenty of antioxidants ingested in the same meal.



If you're looking for a way other than red wine to increase your antioxidant intake, green tea could be a great choice. Green tea is a rich source of antioxidants called catechins. The best known and most prevalent of these, epigallocatechin gallate (EGCG), is so efficient as an antioxidant that it actually protects the body from the damaging effects of ultraviolet radiation. This effect has been proven, not only when green tea extract is applied directly to the skin, but also when it is consumed orally. Laboratory studies and clinical trials have indicated that EGCG and/or green tea extract may offer protection against various forms of cancer, including prostate, breast, and oral cancer, and that it may alleviate symptoms of rheumatoid arthritis and protect against the development of Alzheimer's disease, among other potential benefits. These findings are not surprising, given that many of these conditions are believed to be related to oxidative stress.

Even better than green tea, however, may be pomegranates. Pomegranates have received considerable attention due to their powerful antioxidant capacity; they show promise in improving atherosclerosis-related conditions such as erectile dysfunction in men, and are effective at preventing cell damage from oxidation. A recent objective analysis conducted by researchers at UCLA examined the relative anti-oxidant capacity of various widely available anti-oxidant drinks, including green tea, white tea, red wine, and grape, cranberry, orange, and pomegranate juices. Results confirmed manufacturers' claims that pomegranate juice offers the highest antioxidant potency of any of the beverages tested.

Cocoa and the curry spice turmeric are other great examples of natural antioxidants. Cocoa has been shown to directly benefit endothelial function, and to lower blood pressure, possibly through antioxidant activities. Turmeric, the canary-yellow spice that is a fundamental component of Asian curries, is the source of highly beneficial antioxidants called curcuminoids. The most common of these, curcumin, has been avidly studied in recent years due to its apparent ability to suppress cancer at various stages, among numerous other beneficial activities, including anti-inflammatory activity. Current human clinical trials are investigating the role of this ancient spice/herbal medicine in treating everything from atherosclerosis, to colon cancer and multiple myeloma, to psoriasis, high cholesterol, and Alzheimer's disease.

In the war for your health, your body is the battle-ground. By avoiding toxins and eating high anti-oxidant foods, you can help stop free radicals before they cause the oxidative stress that leads to heart disease, cancer, and other disease.

Blood tests are a useful way of detecting problems that may not have manifested yet as physical symptoms, and of determining the correct cause of what physical symptoms are already present.

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