

Abstract

The major causes of death and disability from cardiovascular disease are sudden death and acute myocardial infarction. Information from various peer reviewed articles are analyzed. Results prove that plaque buildup is indeed reversible after a period of time on a plant-based diet. Photographs show evidence of this. Through a plant-based diet plaque buildup is reversible, thus reversing some types of heart disease.

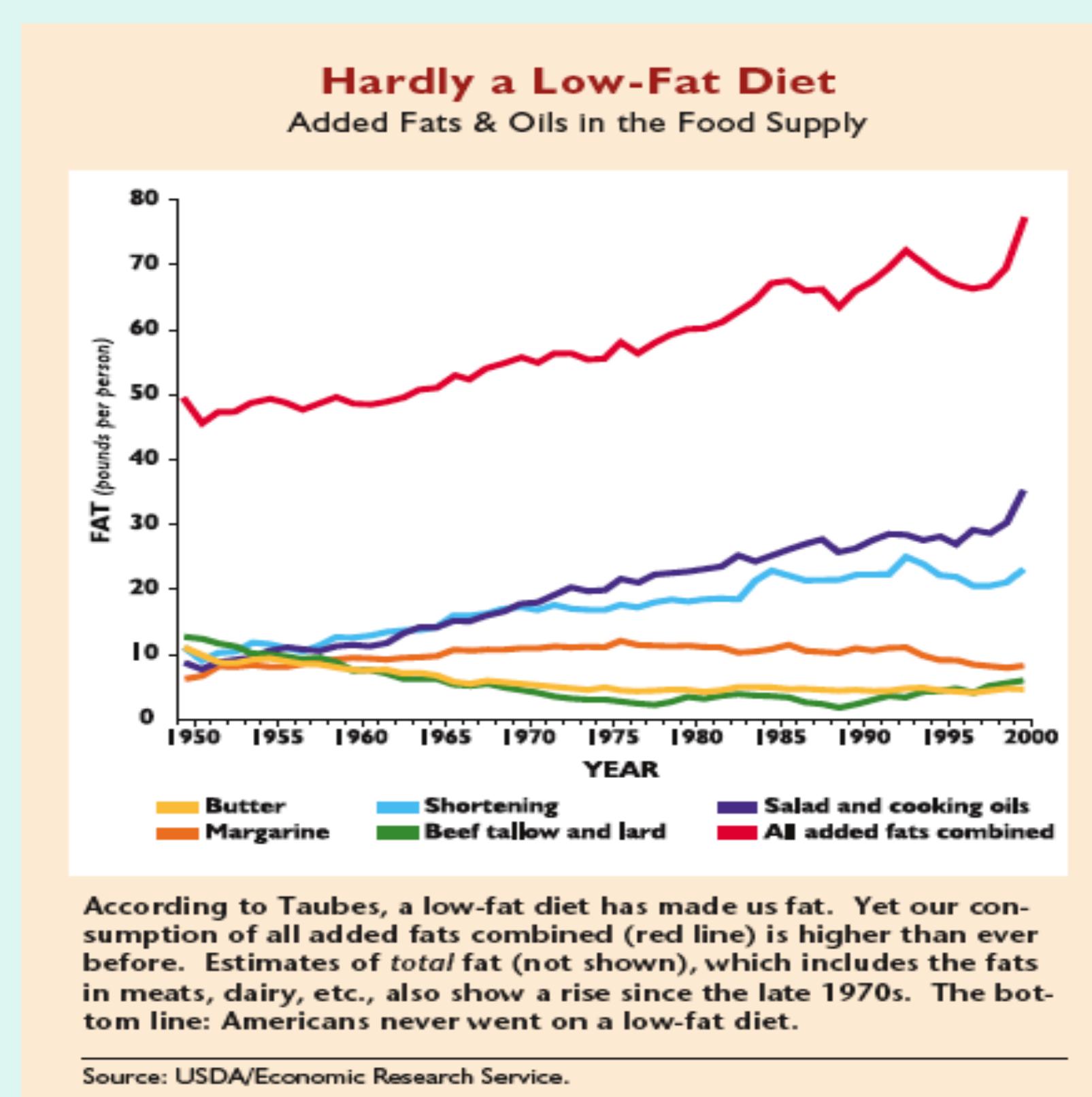
Introduction

Heart disease is defined as abnormalities of the heart and its function in maintaining blood circulation. Heart disease is the cause of approximately half of the deaths in the U.S. each year. There are various causes of heart disease. Among the most common causes of heart disease are degenerative changes in the coronary blood vessels, infectious diseases, and congenital heart disease. Infectious diseases acquired after birth, such as rheumatic fever, syphilis, and endocarditis, can damage the valves of the heart. In addition, the heart muscle itself can be affected: hypertensive heart disease can cause it to enlarge. Arteriosclerotic deposits in the coronary arteries result in the narrowing of these vessels, causing insufficient blood flow and oxygen to the heart muscle, a condition known as coronary artery disease. Coronary arteries already narrowed by arteriosclerosis are made susceptible to blockage by a clot. This clot is called a coronary thrombosis. It originates when a piece of arterial plaque breaks loose from the endothelium of an artery. This clot causes the death of the heart muscle supplied by the affected artery, which then is life-threatening and known as myocardial infarction, in other words, a heart attack. These various diseases cause heart failure. The heart attack caused by plaque is the most common cause of death. If buildup of plaque has progressed, the ways it is likely to be temporarily reversible through surgery, or permanently reversible by maintaining exercise, stress management, and eating a plant-based diet. My hypothesis is that following a plant-based diet will remove plaque from arteries.

Method

There are many websites that discuss the various kinds of heart disease and ways to reverse plaque buildup from a plant-based diet. However, when searching for these sites I found a lot of bogus sites of people trying to market their product. In order to obtain legitimate information, references from "The China Study" were used to find peer-reviewed journals. Some of these articles discussed heart disease in general and the many causes of it, and some of them focused on ways of reversing heart disease through a plant-based diet. Articles from *The New England Journal of Medicine (NEJM)* and *The Journal of the American Medical Association (JAMA)* were used. I also focus on the Internet resources of *Dr. Caldwell B. Esselstyn, Jr., MD*, as he has done numerous studies to prove that the plant-based diet reverses plaque buildup.

Chart 3: Increase in Fat Consumption



A Plant-Based Diet Reverses Plaque in Arteries

Erika Weiss
Beloit College, Beloit, Wisconsin

Chart 1: The Heart

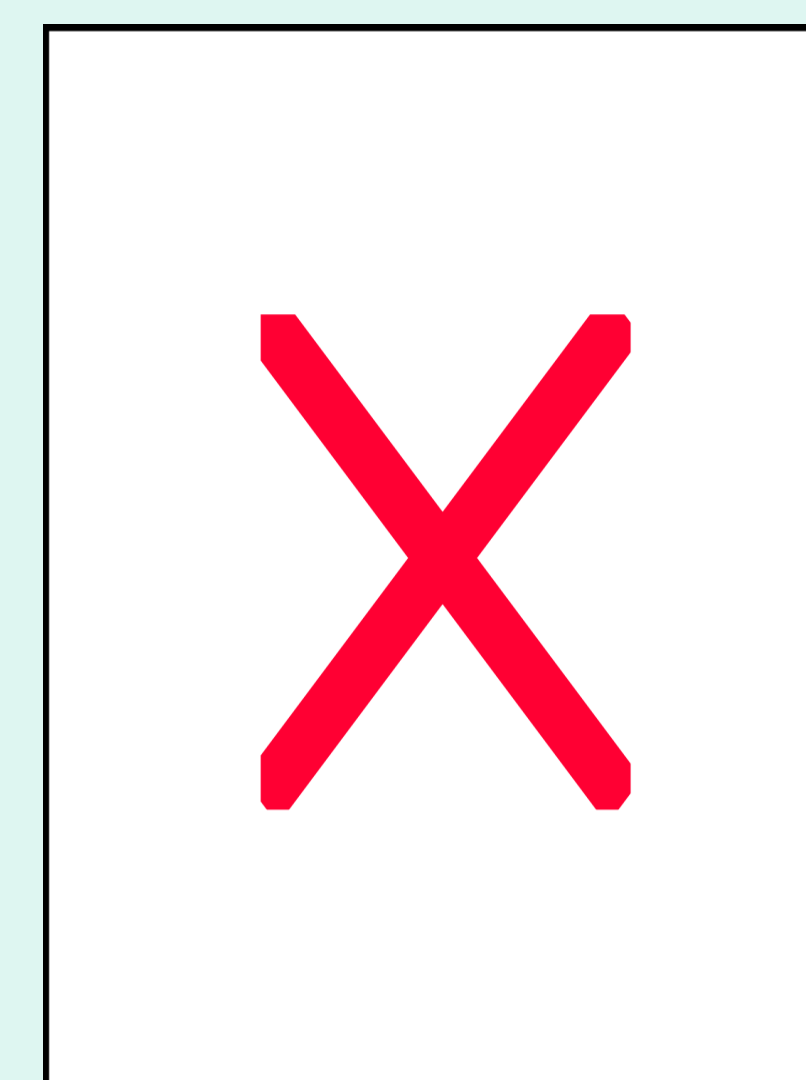
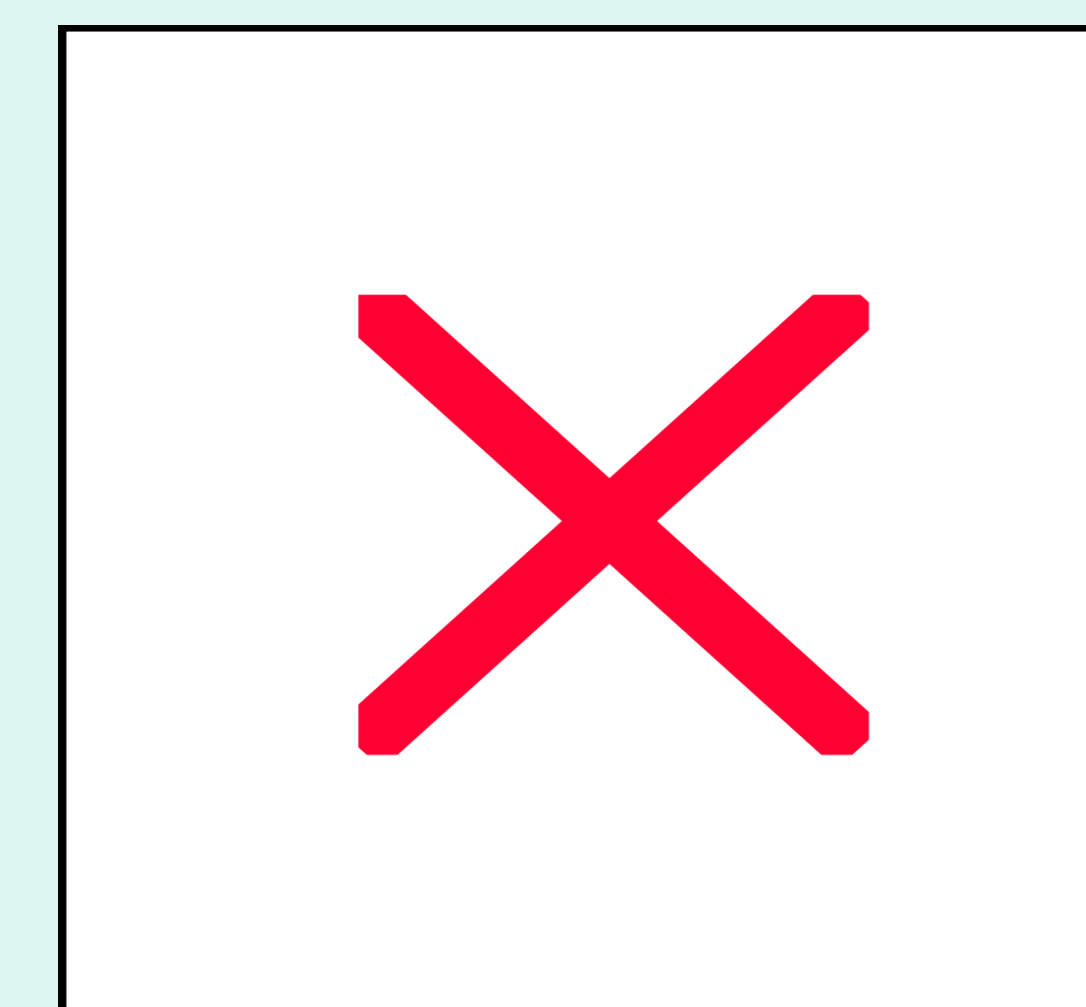
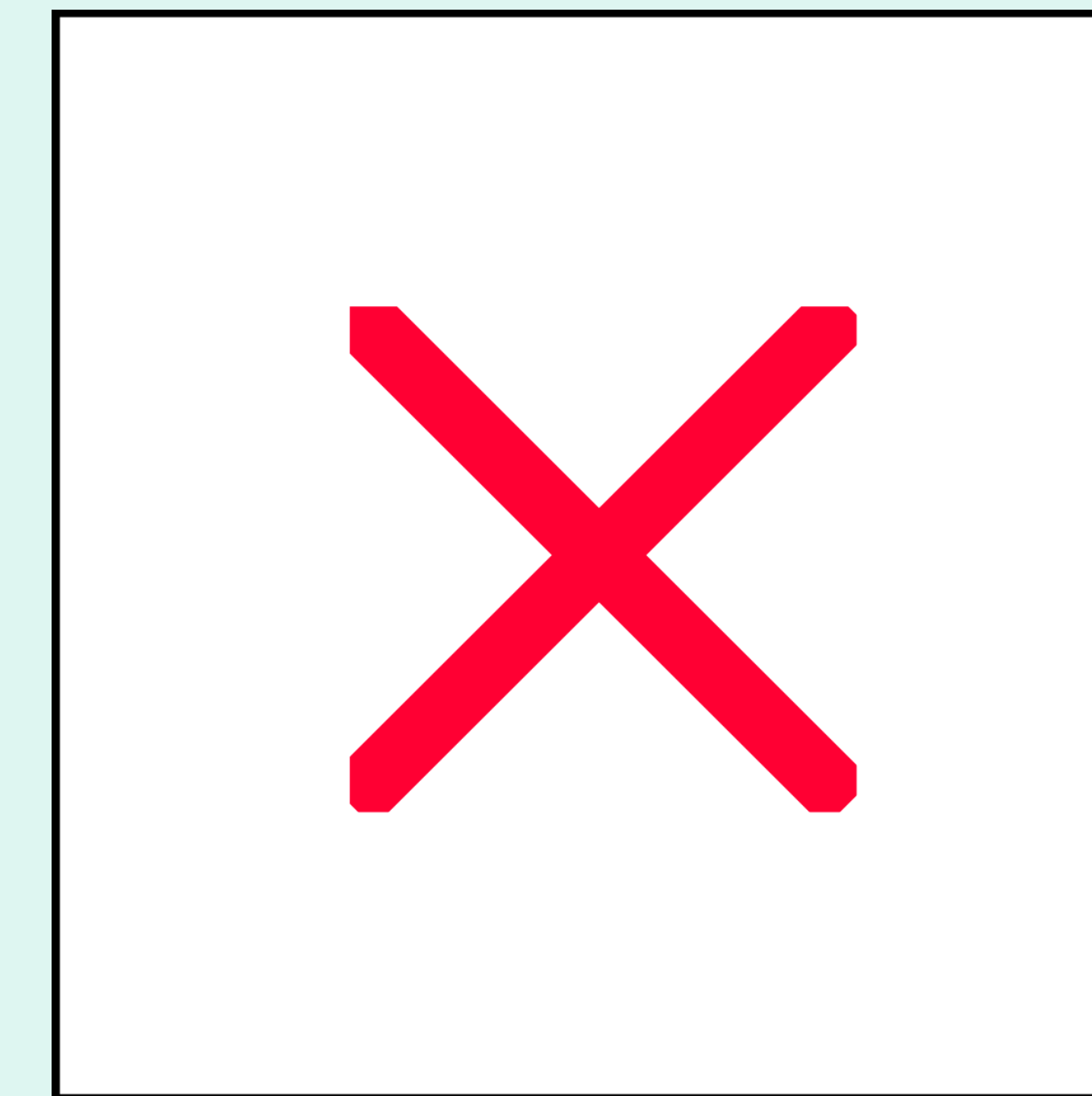
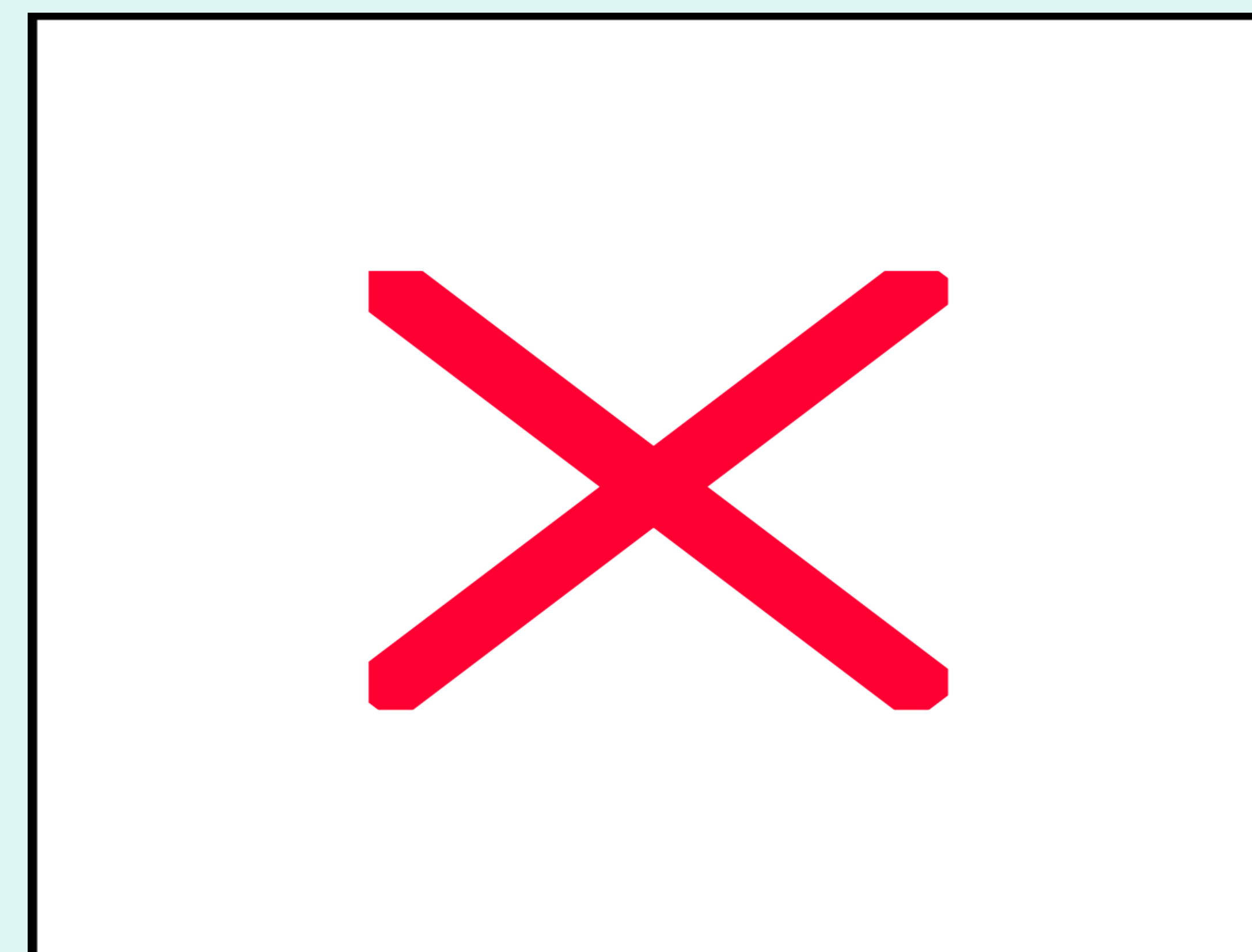
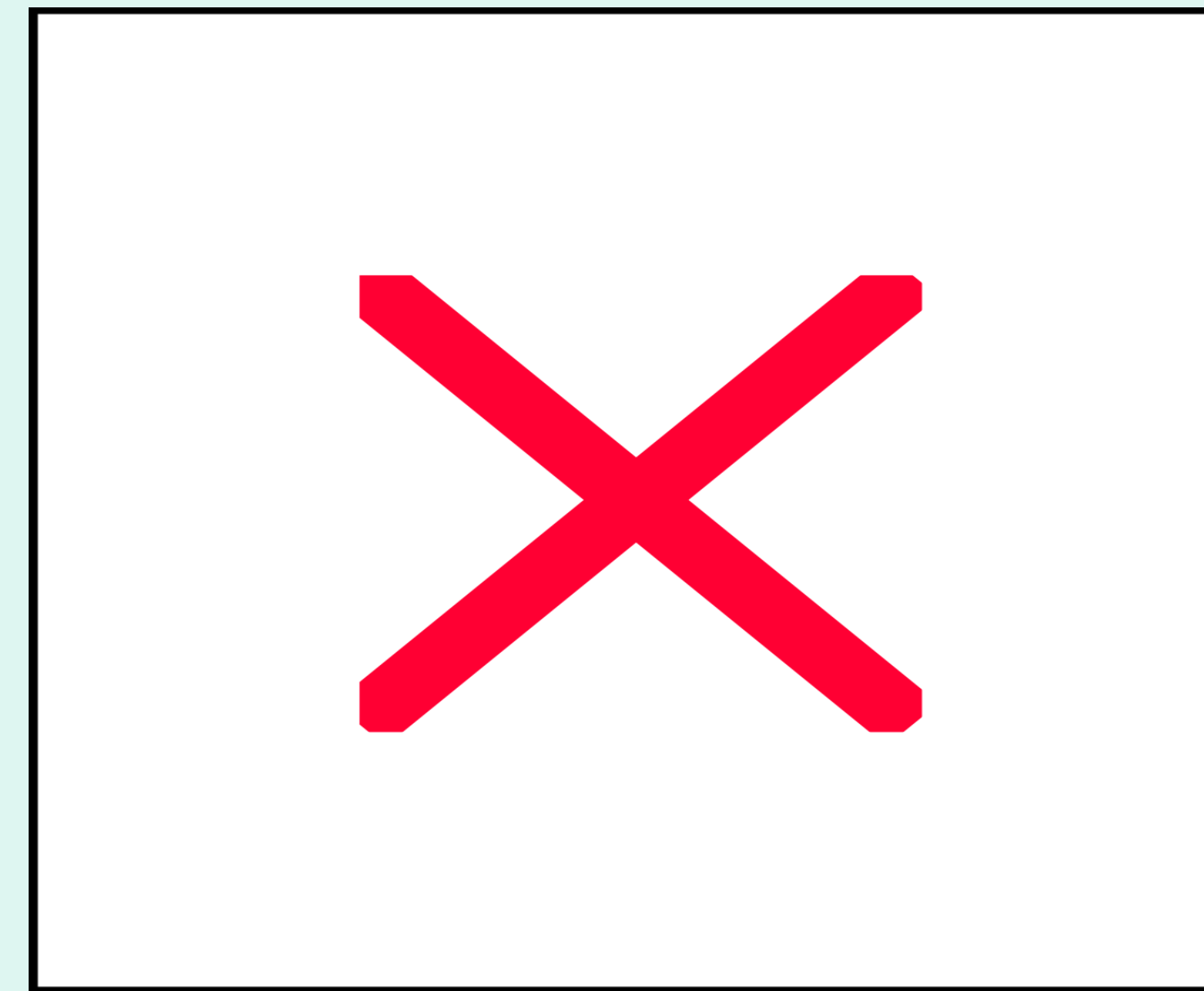


Figure 1 -- Coronary angiograms of the distal left anterior descending artery before (left) and after (right) 32 months of a plant-based diet without cholesterol-lowering medication, showing profound improvement.

Chart 2: Coronary arteries in individuals before and after switching to a low cholesterol diet

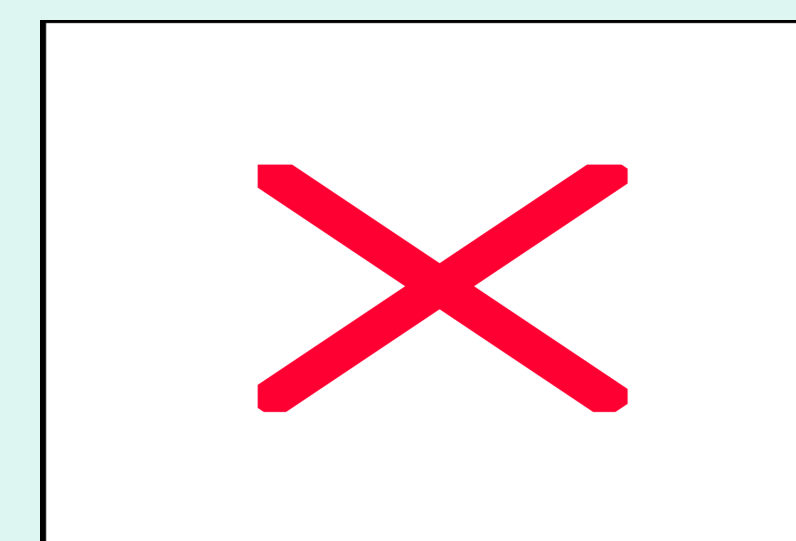


Figure 2 -- Coronary angiograms of the circumflex artery before (left) and showing 20% improvement (right) following approximately 60 months of a plant-based diet with cholesterol-lowering medication.

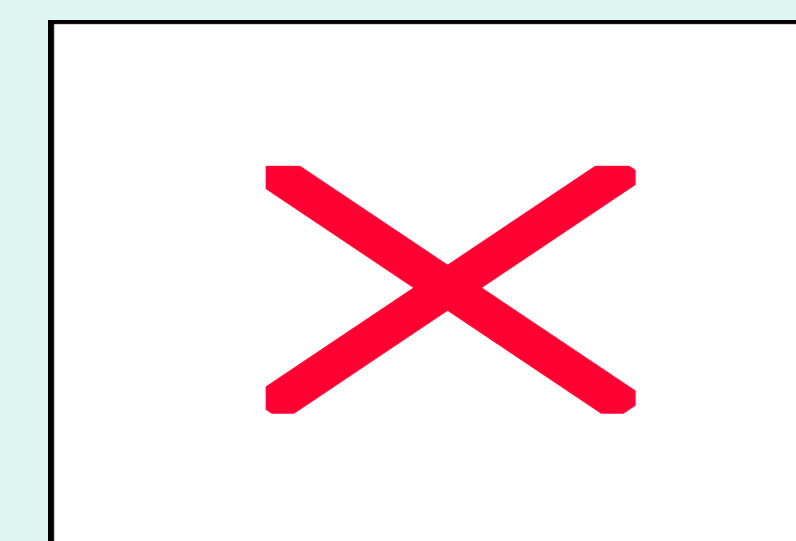


Figure 3-- Coronary angiograms of the proximal left anterior descending artery before (left) and showing 10% improvement (right) following approximately 60 months of a plant-based diet with cholesterol-lowering medication.

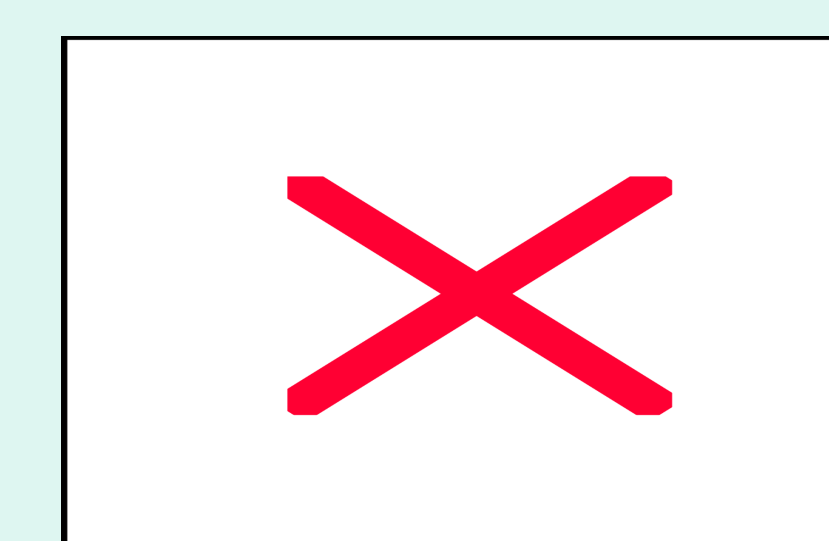


Figure 4--Coronary angiograms of right coronary artery before (left) and showing 30% improvement (right) following approximately 60 months of a plant-based diet and cholesterol-lowering medication.

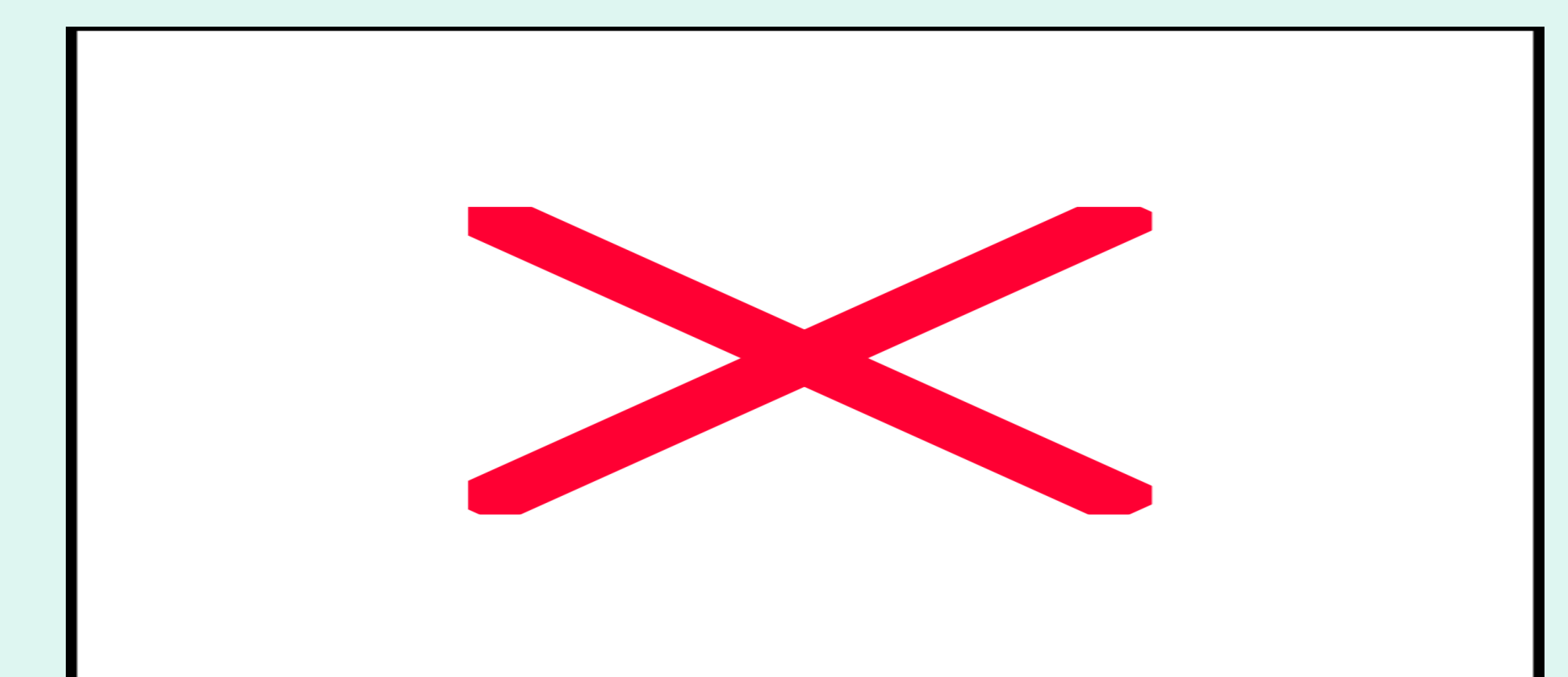
Results

Twenty-two patients with angiographically documented severe coronary artery disease found that it was not immediately life threatening. These patients took cholesterol-lowering drugs and followed a diet that derived no more than 10% of its calories from fat. Disease progression was measured by coronary angiography and quantified with the percent diameter sclerosis and minimal lumen diameter methods. Serum cholesterol was measured biweekly for 5 years and monthly thereafter. Of the 22 participants, 5 dropped out within 2 years, 17 maintained the diet, and 11 completed a mean of 5.5 years of follow-up. All 11 of these participants reduced their cholesterol level from a mean baseline of 246 mg/dL to below 150mg/dL. Lesion analysis by percent sclerosis showed that of 25 lesions, 11 regressed and 14 remained stable. Mean arterial sclerosis decreased from 53.4% to 46.2%. Analysis by minimal lumen diameter of 25 lesions found that 6 regressed, 14 remained stable, and 5 progressed. Mean lumen diameter increased from 1.3 mm to 1.4 mm. Disease was clinically arrested in all 11 participants, and none had new infarctions. Among the 11 remaining patients after 10 years, six continued the diet and had no further coronary events, whereas the five dropouts who resumed their pre-study diet reported 10 coronary events. To obtain a diet with only 10% of calories from fat, a plant-based diet excluding meat is a convenient goal.

Discussion

Based on the following evidence, there is valuable information on how to reverse plaque-build up leading to heart disease. By following a strict plant-based diet, and in this case study, using statins, patients with arteriosclerosis reduced their cholesterol levels and lowered their amount of lesions (abnormal area of the body due to injury or disease). The patients who remained on this diet not only reduced their plaque, but also had no further coronary events. There are many types of heart disease and thus following a plant-based diet only cures coronary thrombosis (deadliest type of heart disease) obtained by the buildup of plaque. However, the diet can be helpful no matter what kind of disease you have, even if it will not cure all. So, although it will not cure every form of heart disease, a plant-based diet does indeed cure the one that is the main cause of death. We are fortunate to have knowledge on how to prevent, arrest, and selectively reverse this disease.

Table 3: Amount of Fat in Various Diets



References

- Esselstyn C.B., 2001 Homepage. < <http://www.heartattackproof.com>> Accessed 2006 Oct. 6
- Wikipedia modified 29 Oct. 2006. Search: Heart Disease: <http://en.wikipedia.org/wiki/Heart_Disease> Accessed 2006 Oct. 6
- Blankenhorn, David H., "The influence of Diet on the Appearance of New Lesions in Human Coronary Arteries" JAMA March 23/30, 1990-Vol 263, No.12
- Strong, Jack P., "Prevalence and Extent of Atherosclerosis in Adolescents and Young Adults" JAMA February 24, 1999-Vol. 281, No.8
- Braunwald, Eugene, "Shattuck Lecture -- Cardiovascular Medicine at the turn of the Millennium: Triumphs, Concerns, and Opportunities."

Photo Credits

- Science Bob. Picture of Heart. Available at: <http://www.sciencebob.com/lab/bodyzone/heart.jpg> Found Nov 7, 2006.
- Esselstyn C.B. <http://www.heartattackproof.com> Pictures from Article: "Resolving the Coronary Artery Disease Epidemic through Plant-Based Nutrition." 2001.