

# Eliminating Heart Disease

*Caldwell Esselstyn, Jr., MD, Cleveland Clinic*

*This major review article appeared in the fall 2001 issue of Preventive Cardiology.\* Dr. Caldwell Esselstyn, an eminent surgeon, who turned into a lifestyle interventionist, is now a preventive cardiology consultant at the well-known Cleveland Clinic. He not only reviews the evidence for a needed change in our national diet, but he also provides angiographic evidence that even those who already have coronary artery disease can reverse this disease by just making some simple dietary changes. (\*Gratefully used with permission from the publisher)*

—the Editor

## Resolving the Coronary Artery Disease Epidemic Through Plant-based Nutrition

### **SUMMARY**

The world's advanced countries have easy access to plentiful high-fat food; ironically, it is this rich diet that produces atherosclerosis. In the world's poorer nations, many people subsist on a primarily plant-based diet, which is far healthier, especially in terms of heart disease. To treat coronary heart disease, a century of scientific investigation has produced a device-driven, risk factor-oriented strategy. Nevertheless, many patients treated with this approach experience progressive disability and death. This strategy is a rear-guard defensive one. In contrast, compelling data from nutritional studies, population surveys, and interventional studies support the effectiveness of a plant-based diet and aggressive lipid lowering to arrest, prevent, and selectively reverse heart disease. In essence, this is an offensive strategy. The single biggest step toward adopting this strategy would be to have United States dietary guidelines support a plant-based diet. An expert committee purged of industrial and political influence is required to assure that science is the basis for dietary recommendations.

### **Western Lifestyle Disease**

I have drawn two compelling observations from my service as the program director of two national cholesterol conferences and my participation in three others over the past decade. First, a great deal is known about what factors are responsible for causing coronary artery disease (CAD) and what populations are vulnerable. Second, the present

emphasis on identifying risk factors and those who are particularly vulnerable to atherosclerotic disease will not resolve the cardiovascular epidemic, which currently threatens one of every two Americans and is predicted to become the number one global disease burden by the year 2020.(1)

Autopsy data from the conflicts in Korea(2) and Vietnam,(3) the Bogalusa study,(4) and the Pathological Determinants of Atherosclerosis in Youth study(5) all testify to the ubiquitous nature of the disease in young Americans. Recently, intra-arterial ultrasonography confirmed that “normal” segments in patients with CAD also have diffuse symmetric atherosclerosis, which is not yet disfiguring the intraluminal diameter and thus is invisible on angiography.(6) This work is further confirmation of the Roberts autopsy data,(7) which demonstrate that essentially all CAD patients have triple-vessel involvement.

However, CAD is virtually absent in cultures that eat plant-based diets, such as the Tarahumara Indians of northern Mexico,(8) the Papua highlanders of New Guinea,(9) and the inhabitants of rural China (10) and central Africa.(11) Hundreds of thousands of rural Chinese live for years without a single documented myocardial infarction.(12)

Modern North Americans and Europeans pride themselves on having the world’s most advanced medical care. What are these health care systems doing about CAD?

## **MANAGEMENT STRATEGIES**

The present strategy focuses on interventional procedures and risk factor modification. This approach is strictly defensive. It is pressing the limit of what society can afford. Our present cardiology budget exceeds one quarter trillion dollars per year.(1) Millions of symptomatic patients—generally, those with arterial stenosis of more than 70%—have had interventions, such as bypass, angioplasty, stenting, or atherectomy.(13) Unfortunately, these interventions are accompanied by significant morbidity, mortality, and expense, provide only temporary benefit, and do nothing for patients at greatest risk for myocardial infarction, namely those with juvenile plaques of 30% to 50% stenosis, which are the ones most prone to rupture.(14) As Forrester states, “Angiography does not identify and interventional strategies don’t treat those lesions most likely to cause a heart attack.”(15)

Therapies involving diet and lipid-lowering medication are not ignored by our health care leaders, but sadly, their recommendations are clearly inadequate. The American Heart Association (AHA) and the National Cholesterol Education Program (NCEP) recommend consumption of not more than 30%

**“Our stop-gap, device-driven approach isn’t working because it doesn’t address our toxic food environment, which is responsible for our epidemic.”**

dietary fat and desirable blood cholesterol levels below 200 mg%. Numerous studies confirm that people who adhere to these recommendations do not experience arrest and reversal of their heart disease. Instead, they experience continued disease progression.(16) These recommendations then expose millions to disease development and progression. However, because of the general respect commanded by the AHA and the NCEP, many physicians and patients believe that following their recommendations will protect against heart disease.

### **Rear-guard Approach**

The newer NCEP clinical guidelines, known as the Adult Treatment Panel III, suggest broadening the identification of those at risk. This will mandate that millions of Americans take cholesterol-reducing drugs as well as make some dietary and physical activity adjustments. This is a rear-guard, after-the-fact approach. It tacitly acknowledges that our food environment is so toxic that millions will become at risk and develop disease. Would it not be better and wiser to advise the public to avoid the categories of food that cause atherosclerotic disease?(17)

### **“Normal” Cholesterol**

The National Research Council, in its 1989 report *Diet and Health*, recommended an upper limit of dietary cholesterol intake of 200 mg and no more than 30% fat in the diet, even though “...a number of the scientists felt that a greater reduction would confer additional health benefits.” (18) The committee, however, felt that setting the cut-off too low would merely frustrate the public. The council also surmised, incorrectly, that if the upper level for dietary cholesterol intake were set at 200 mg/day then most Americans would achieve a total cholesterol level of 150 mg% or less.(18) That has not happened. Most Americans and their physicians feel “safe” with a blood cholesterol levels of 200 mg%, where up to 240 mg% is considered “borderline.” But these levels and goals are not safe. In the Framingham study, 35% of CAD occurred in patients with blood cholesterol levels between 160 and 200 mg%.(19)

**“Surgical interventions provide only temporary benefit.”**

In the Cholesterol and Recurrent Events (CARE) study, the average blood cholesterol level in patients with a history of heart attack was 209 mg%.(20) In contrast, the American Cancer Society recommends no more than 20% of the calories from fat, oil and grease,(21) and the World Health Organization prefers no more than 15%.(22)

### **“Ideal” Cholesterol**

Dr. Scott Grundy, chairman of the NCEP, proclaimed some 14 years ago

(23) that 90% of heart attacks could be prevented if the population's blood cholesterol levels were 150 mg% or less—a figure identical to that hoped for by the National Research Council in 1989. However, neither the National Research Council, the American Heart Association, nor the NCEP is on record to show precisely what kind of a diet will achieve the blood cholesterol goal of 150 mg%. The basic diet favored by these groups contains not only grains, legumes, vegetables, and fruit, but it also contains oil, low-fat milk and dairy products, butter, cheese, poultry, lean meat, and fish. I am unaware of any research proving that by eating such a diet one can achieve a more ideal blood cholesterol level of 150 mg% or avoid CAD.

**“No studies of monounsaturated oils have shown them to arrest and reverse CAD.”**

### **Mediterranean Diet**

The so-called Mediterranean diet and mono-unsaturated oils have become unjustifiably popular because of the Lyon Diet Heart Study.(24) This approach is difficult to accept. No studies of monounsaturated oils have shown them to arrest and reverse coronary disease. The Lyon study did show a slower rate of progression, but this is hardly an acceptable goal. In a study of patients with coronary disease, Blankenhorn actually showed the reverse: coronary artery disease progressed as rapidly in patients on a monounsaturated diet as it did in those on a saturated fat diet.(25) Rudel and co-workers demonstrated a similar result in African green monkeys over a 5-year period.(26) Particularly compelling was his finding that disease in the two groups was equivalent, even though the monounsaturated group had higher levels of high-density lipoprotein (HDL), lower levels of low-density lipoprotein (LDL), and a more favorable LDL-to-HDL ratio. He recently replicated the results in rodents.(27)

**“Our stopgap, device-driven, risk-factor-oriented approach is not working.”**

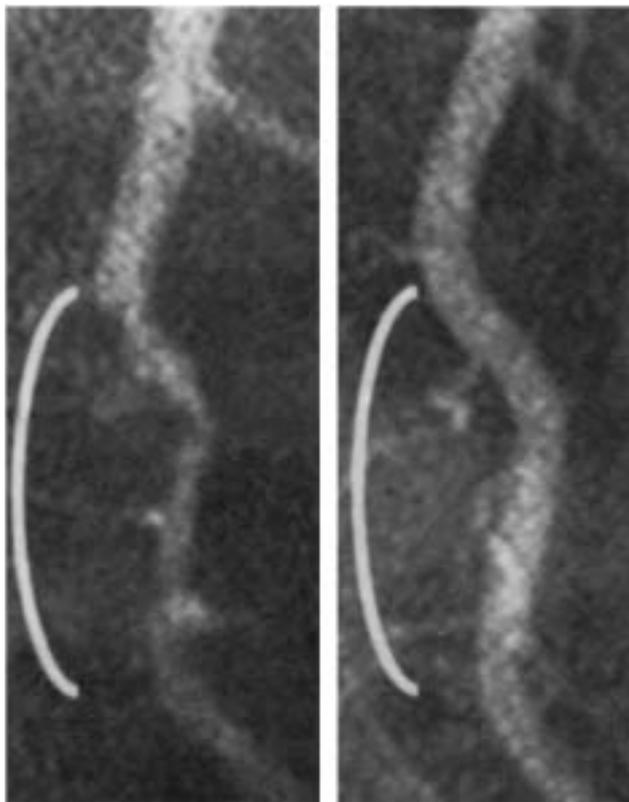
### **The Crux**

The number of heart attacks continues to increase every year.(28) Although the age-adjusted death rate for heart disease has declined, the decline may be artifactual.(24) Stamler found that deaths from cardiovascular disease approached 40% of all deaths in a group of 80,000 young men, with follow-up ranging from 16 to 34 years.(29) The data confirmed a continuous, graded relationship of serum cholesterol level to long-term risk of coronary heart disease, cardiovascular disease, and all-cause mortality. There was also substantial absolute risk and increased excess risk of coronary heart disease and cardiovascular disease death for younger men with elevated cholesterol levels and, conversely, a longer estimated life

expectancy for younger men with favorable lipids. Our stopgap, device-driven, risk factor-oriented approach is not working. Why? Because it fails to address our toxic food environment, which is responsible for the disease. It is focused only on those who are already ill or whose elevated lipids reflect an inability to detoxify their American diet. What are the alternatives?

### TAKING THE OFFENSIVE

As I have reported earlier a plant-based diet in conjunction with cholesterol-reducing medication eliminated progression of CAD over a 12-year period in patients with triple-vessel CAD.(30,31) Most of the 18 patients had experienced failure of previous bypass surgeries or angioplasties. All patients with good diet maintenance achieved the cholesterol goal of less than 150 mg%, and over the next 12 years, none experienced recurrent coronary events. At five years, angiography was repeated in most cases. By analysis of the stenosis percentage, none of the participants showed progression of disease and 70% had selective regression.(30) These data are compelling, especially when one considers that the same group had experienced more than 49 coronary events during the eight years before this study while being treated at the cardiology department of the Cleveland Clinic.(30)



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

### Telling Case

A recent case is particularly telling. During September and October of 1996, a 44-year-old surgeon experienced occasional chest discomfort, yet neither electrocardiography, stress echocardiography, nor thallium scanning found evidence of disease. Eating the typical American diet, his total cholesterol was 156 mg% and his LDL 97 mg%. He was lean, nondiabetic, and normotensive; he did not smoke and had no CAD family history. His lipoprotein(a) and homocysteine levels were normal. On November 18, 1996, after his surgical duties, he became acutely ill with pain in the left arm, jaw, and chest. Immediate coronary catheterization found all vessels to be normal except for the left anterior descending artery, the distal third of which was diseased. Enzyme tests confirmed a myocardial infarction. No intervention, however, was deemed appropriate.

This patient was aware of my ongoing study. Curious for more information, he and

his wife consulted me for an in-depth review of the plant-based diet and techniques of this coronary disease arrest and reversal study. He became the personification of commitment to the plant-based diet. Over the next 32 months, without cholesterol-lowering drugs, he maintained a mean total cholesterol of 89 mg% and an LDL of 38 mg%. The repeat angiogram 32 months after his infarction showed that the disease was completely reversed.

### The Prescription

Even though many people might find a plant-based diet initially difficult to follow, every patient with the diagnosis of CAD should at least be offered the option of this potentially curative arrest and reversal approach. As this young physician's case illustrates, our plant-based diet approach can achieve total disease arrest and selective regression even in advanced cases.

This approach is particularly compelling because patients can take control over the disease that was destroying them. If traditional interventional cardiology is a rear-guard action, our arrest and reversal therapy can be likened to a military offensive against atherosclerosis.

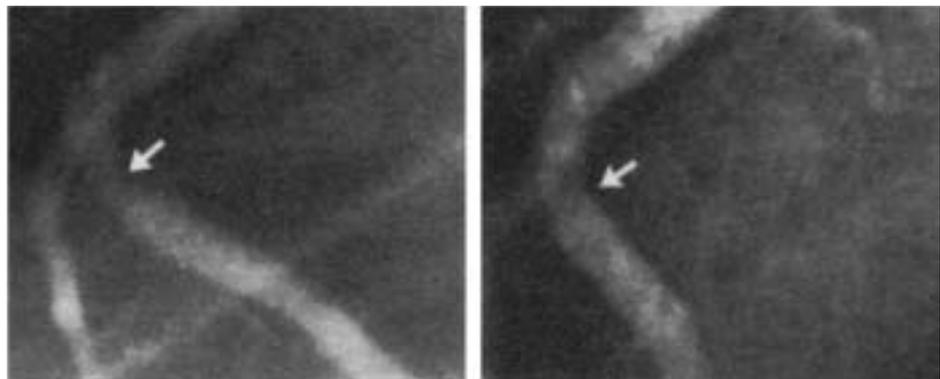
Limitations of this study are its modest number of participants and lack of comparable controls. Nevertheless, its size permitted the caregiver an opportunity for frequent patient encounters. These interactions enabled 75% of participants to achieve their dietary goals associated with profound lipid reduction and relief of symptoms, which continued to improve throughout the study's 12-year duration. Patients essentially served as their own controls, often achieving dramatic angiographic reversal of disease, as reviewed in the angiographic core laboratory.

**“Compelling data support the effectiveness of a plant-based diet to prevent, arrest, and reverse heart disease.”**

### NEW RECOMMENDATIONS

The expert faculty at the First National Conference on the Elimination and Prevention of Coronary Artery Disease has issued a new set of four recommendations(32):

1. Present nutritional guidelines of governmental and national health organizations do not provide a maximal opportunity either to arrest or to



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

prevent coronary artery disease.

2. The optimal diet consists of grains, legumes, vegetables, and fruit, with <10%-15% of its calories coming from fat. This diet minimizes the likelihood of stroke, obesity, hypertension, type 2 diabetes, and cancers of the breast, prostate, colon, rectum, uterus, and ovary. There are no known adverse effects of such a diet when mineral and vitamin contents are adequate.
3. Children and adolescents require major attention to develop early habits of optimal nutrition. Schools should assume a significant leadership role in achieving this goal.
4. Speculation about the degree of public compliance with such a more natural diet must not alter the accuracy of the recommendations.

At the 1999 National Cholesterol Summit Meeting, Dr. William Castelli was asked what he would do to reverse the CAD epidemic if he were omnipotent. His answer: "Have the public eat the diet of the rural Chinese as described by Dr. T. Colin Campbell," an author of the Cornell China study. A recent prospective study of diet quality and mortality in more than 40,000 women confirms the benefits of consuming a diet high in fruits, vegetables, and grains.<sup>(34)</sup> Women consuming the greatest level of recommended foods had a 30% lower risk of mortality than those at the lowest level during 5 years of observation.

At the recently held national meeting on hypertension, the original DASH diet study<sup>(35)</sup> was updated.<sup>(36)</sup> It was found that a diet emphasizing grains, vegetables, and fruit (and including low-fat dairy products and lean meat), with particular attention to reducing sodium intake, resulted in blood pressure reductions equivalent to those produced by antihypertensive drugs.<sup>(36)</sup>

In addition, Dr. Dean Ornish and colleagues have reported both 1- and 5-year data that support a plant-based approach to controlling CAD.<sup>(16)</sup>

### **New Food Pyramid Needed**

An integral part of this offensive must be to eliminate the toxic food environment. Consider the so-called Food Guide Pyramid, the familiar geometric symbol used to promote the recommendations of the US Department of Agriculture (USDA) and the Department of Health and Human Services (HHS). It is laden with dairy products, animal products, and with fats and oils, which are the essential building blocks of CAD. In addition, from a design standpoint, the choice of a pyramid is potentially confusing and misleading. Some viewers may be led to believe that the foods at the top (meats, sweets, and fatty foods) are the most helpful, when in fact they are

the most harmful.

### **Power Politics**

When dietary recommendations are issued with the stamp of approval from the US government, the public should be able to trust that these recommendations accurately guide them to foods that are unlikely to cause disease and away from those that are known to cause harm. Thus, any group promoting dietary guidelines for the public should base its decisions on science. However, the USDA has been subjected to intensive industry lobbying, which compromises its capacity to be fair and objective.(37) At the least, neither the experts who testify before the committee nor the committee members themselves should have relationships, financial or otherwise, to the food industry. These same rules regarding conflict of interest should apply to scientists who lead or are members of the NCEP and the Food and Nutrition Section of the American Heart Association.

As recently as October, 2000, the Physicians Committee for Responsible Medicine successfully litigated the USDA to ascertain the compensation sources of the US Dietary Guidelines Committee. Six of the 11 committee members, including the chairman, had relationships with the meat, dairy, or egg industry.(38) Such conflict insures a perception that the American public and school children will not receive an unbiased recommendation of what constitutes the healthiest food choices. The USDA, by definition a protector of the agriculture industry, should disqualify itself from this responsibility, which more correctly may belong to the Centers for Disease Control and Prevention.

### **CONCLUSION — Call to Action**

**The present device-driven, risk factor-identification, rear-guard strategy diagnoses disease after the fact and offers no promise of preventing disease or controlling its progression. We are fortunate to possess the knowledge of how to prevent, arrest, and selectively reverse this disease. However, we are not fortunate in the capacity of our institutions to share this information with the public. The collective conscience and will of our profession is being tested as never before. Ties to industry and politics result in conflict within our private and governmental health institutions, compromising the accuracy of their public message. This is in total violation of the moral imperative of our profession. Now is the time for us to have the courage for legendary work. Science—not the messenger—must dictate the recommendations.**

**“Our ties to industry and politics compromise the accuracy of our public message. This is in total violation of the moral imperative of our profession.”**

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