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FINAL NAILS FOR THE CHOLESTEROL COFFIN?

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As emphasized in previous Newsletters, the widespread belief that a high fat diet raises blood cholesterol, which in turn causes coronary heart disease, has been shown to be completely fallacious. Dr. George Mann, a respected researcher, called this **"the worst fraud ever perpetrated on the American public".** Few have done more to dispel this deceptive doctrine than Uffe Ravnskov, so it is not surprising that he was awarded the 2007 LEO Prize for Independent Thinking. He had previously received the 1999 Skrabanek Award from Trinity College of Dublin for original contributions in the field of medical skepticism and the 2003 Integrity In Science Award from The Weston A. Price Foundation.

The LEO Prize of approximately $25,000, established by Gösta Walin, Professor Emeritus of Oceanography at Göteborg University, was designed "to reward independent research in the natural sciences and medicine, particularly when the results of such research are in conflict with conventional wisdom." Dr. Ravnskov was selected as this year's recipient because of his **"sharp scientific criticism of alleged relationships between cholesterol and cardiovascular diseases as the basis for medication and diet recommendations."** As the organizers explained:

> The politicization of science has created widespread acceptance of highly questionable ideas in certain areas of natural sciences and medicine. This phenomenon is obviously greatly harmful to science, but even more so for society which suffers substantial damage from questionable or incorrect advice emanating from the scientific community.

ALSO INCLUDED IN THIS ISSUE

The reason for this unlucky development is the acceptance of premature scientific results, ideas or hypotheses whenever such are found attractive by leading forces in society. Clearly it is a task for scientists to scrutinize and when necessary reject such ideas. It is also an important obligation for media to objectively communicate the results of such efforts to the public and decision makers.

> One reason among others is that scientists undertaking this difficult critical examination invariably find themselves in trouble; trouble with funding, trouble with publications, trouble with media and trouble to get relevant response from the administration."

They went on to explain how the media distorts information that challenges current dogma because of damage to powerful vested interests. These and other background details relevant to this year's recipient can be found at ww.leoprize.org. Uffe Ravnskov received his M.D. from the University of Copenhagen in 1961 and a Ph.D. in Clinical Chemistry and Nephrology in 1973 from the University of Lund. He specialized in internal medicine and nephrology and served as an associate professor of nephrology at the University of Lund Hospital before leaving to devote his time to private investigations. These culminated in the 1997 publication of *The Cholesterol Myths*: *Exposing the Fallacy that Saturated Fat and Cholesterol Cause Heart Disease*, which provided a comprehensive and objective analysis of the influence of dietary fat and elevated blood cholesterol on health, as well as the development of atherosclerosis and coronary heart disease. It was painstakingly referenced with citations to convincingly demonstrate that a high fat diet does not cause either an elevated cholesterol or coronary disease. In addition, it showed that **high cholesterol has little to do with accelerated coronary atherosclerosis in humans and actually confers protective benefits, especially in the elderly.** Ravnskov's conclusions were so contrary to the prevailing dogma that he was severely berated by the bureaucracy and his book was burned on a Finnish TV program by cholesterol crusaders. Critics could only resort to such *ad hominen* personal attacks because they were unable to refute any of his claims.

The LEO Award conference program, entitled "Dietary Fats and Cholesterol - Facts and Myths", was held prior to the award ceremony on April 24 in Göteborg. It consisted of the following physicians and their presentations; Paul Rosch - *A Short History Of The Cholesterol Campaign*; Richard Feinman - *The Epidemic Of Type 2 Diabetes - Its Cause And How To Stop It*; Michel de Lorgeril - *Sudden Cardiac Death And Dietary Fats - A Forgotten Issue*; Peter Langsjoen - *Statin Treatment - Do The Benefits Outweigh The Risks?* and Uffe Ravnskov - *Cholesterol - Friend Or Foe?* By way of background, Richard Feinman is professor of Biochemistry at the SUNY Downstate Medical Center in New York, editor of the journal *Nutrition and Metabolism* and one of the pioneers of the successful treatment of type 2 diabetes with a low-carbohydrate, high-fat diet. Michel de Lorgeril is a French cardiologist and Director of the world-renowned "Lyon Diet Heart Study". Over a decade ago, he demonstrated that a diet rich in omega-3 fatty acids could prevent coronary heart disease and sudden cardiac death without lowering blood cholesterol. Peter Langsjoen, a well-qualified practicing cardiologist, is active at a private research institute in Texas that focuses on the prevention and treatment of heart failure and other adverse statin effects with coenzyme Q10. The program was skillfully chaired by Tore Scherstén, professor emeritus of Surgery at Göteborg University and a member of the Swedish Royal Academy of Sciences.

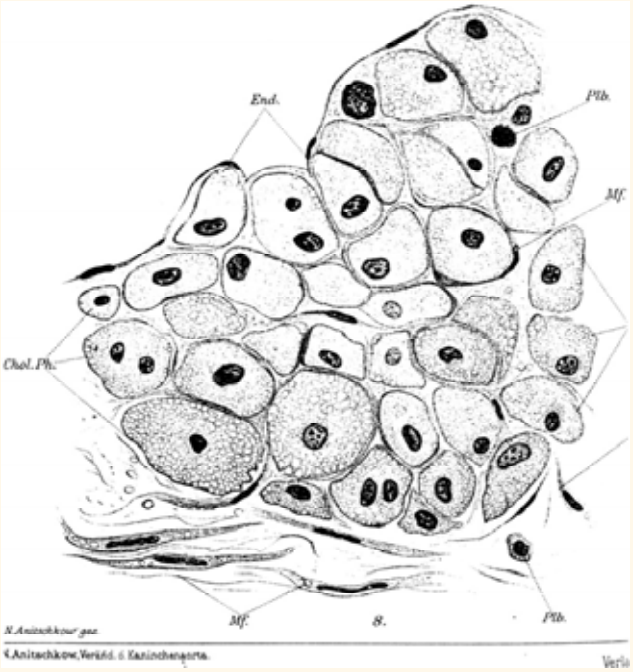
A Short History Of The Cholesterol Campaign

Dr. Ravnskov selected the speakers and the titles of their presentations and I felt flattered to have been asked to start things off. However, I had serious concerns about being able to complete my assigned topic in 30 minutes since there was so much to cover. As a result, I decided to emphasize a few highlights and summarize my own involvement in what I considered to be much more of a religious crusade than a mere publicity campaign. Although the cholesterol controversy really started in the 1950's, it had its roots in observations made 100 years previously by the famous pathologist Rudolph Virchow. Cholesterol, from the Greek *chole* (bile) and *stereos* (solid), was discovered in its solid form in gallstones in 1784, but it was not identified in blood until 1833. The presence of cholesterol in atheroma, from the Greek *ather* (gruel or paste) and *oma* (lump), was first described by Virchow in 1856. He termed this *endarteritis deformans* to indicate that atheroma resulted from an inflammatory

process or injury to the intimal lining of arteries. He believed that the cholesterol deposits came later and were the result rather than the cause of these lesions. Atherosclerosis - from the Greek *sclerosis* (hard) - is a term introduced by Felix Marchand in 1904 to describe a hardening process of this lump of paste that started in the inner lining of arteries. What seems to have been overlooked by many is that **these early investigators viewed atherosclerotic plaque in humans as a response to injury or inflammation - not cholesterol deposits.**

Nobody paid much attention to this until over a half century later, when there were a series of mysterious deaths in a Russian battalion during the war between Russia and Japan. The only clue was that this unit had received a shipment of meat that had gone bad. The problem was investigated by A.I. Ignatowski, a Professor of Internal Medicine working at the Imperial Military Medical Academy in St. Petersburg. He fed tainted meat to some rabbits and although none died, autopsies showed an increase in fatty deposits in several vessels including the lining of the coronary arteries. He thought this was consistent with the theory of Ilya Mechnikov, a Nobel Prize recipient who had previously proposed that an excess of dietary protein somehow accelerated hardening of the arteries and other aspects of aging process. Ignatowski fed rabbits a protein-rich diet of large amounts of meat, eggs and milk that caused lesions resembling those of human atherosclerosis and seemed to confirm Mechnikov's "protein toxicity" theory. Ignatowski published his results in 1909 and they made a deep impression on Nikolai Anitschkow who had just graduated from the same St. Petersburg Medical Academy. In 1910, Adolf Windaus showed that intimal atheromas contained 6 times as much free cholesterol and 20 times as much esterified cholesterol as a normal arterial wall.

Anitschkow decided to work on an experimental model of atherosclerosis with Semen Chalatov, who was still a medical student at the Academy. In a series of studies, they demonstrated that the identical vascular damage Ignatowski described could be induced without proteins by simply feeding the rabbits purified cholesterol obtained from egg yolks. In their 1913 paper, they reported that the earliest lesions appeared in the aortic arch and had vacuolated cells containing cholesterol.



At the time, cholesterol was called cholesterin. Anitshchkow was the first to describe a macrophage with fat droplets (*cholesterinesterphagozyten*). These cholesterol phagocytes (Chol. Ph.) shown to the left, are now called foam cells. In addition, he also identified the other cells types found in atherosclerotic lesions:

End. - endothelial cells;
Plb. - lymphoid wandering cells;
Mf. - smooth muscle cells of the aortic wall.

This drawing is from a lesion in a rabbit fed a total of 82.7 g of pure cholesterol in sunflower oil over a period of 5 months.

The problem was that rabbits don't eat meat, eggs or cholesterol rich foods and attempts to reproduce atheromatous lesions in other experimental animals that did failed completely. In addition, nobody cared. Coronary heart disease was not a major problem since many people

didn't live long enough to die from it. Moreover, since cholesterol is a large, inert molecule, it was difficult to understand how it could infiltrate the inner lining of a coronary artery to incite an inflammatory response.

Few physicians or researchers in the U. S. knew anything about Anitschkow or his hypothesis but one exception was John Gofman who took it very seriously. He began his research on coronary heart disease after graduating from medical school in 1946 and by developing special flotation ultracentrifugal techniques; Gofman's group demonstrated the existence of diverse low-density lipoproteins (LDL) and high-density lipoproteins (HDL). They subsequently showed that low-density lipoprotein cholesterol was associated with the rapid progression of atherosclerosis in humans and that that high LDL (bad cholesterol) levels as well as low HDL (good cholesterol) levels increased risk for coronary heart disease. This work produced an avalanche of research into cholesterol-induced atherosclerosis in the mid-1950s that turned the relatively obscure Anitschkow into an international celebrity. In 1958, Dr. William Dock, chairman of the department of pathology at Stanford University Medical School, wrote in an *Annals of Internal Medicine* editorial, "Thus the early work of Anitschkow bears comparison with that of Harvey on the circulation and of Lavoisier on the respiratory exchange of oxygen and carbon dioxide" and compared the significance of his research to the discovery of the tubercle bacillus by Robert Koch.

The Seven Countries, Framingham, MRFIT, AND MONICA Studies

Anitschkow also got a big boost from Ancel Keys, who chaired the first conference of the Food and Agriculture Organization of the UN held in Rome in 1951. He asked the audience about diet as it related to the new heart attack epidemic in middle-aged men sweeping the United States. **Prior to the 1920s, heart disease caused no more than 10 percent of all U.S. deaths but by the 1950s this had escalated to over 30 percent.** A University of Naples professor told him that there was no heart attack problem in his or nearby cities. Keys later visited Naples, where he indeed found almost no coronary heart disease in patients under the age of 60. The only exception was a small class of wealthy people who dined on meat daily. In contrast, the general population only had meat once a week or less and mostly ate simple pasta, fruits and vegetables. Average cholesterol levels were also low, save for the upper class. Keys concluded that there was an association between a high fat diet, serum cholesterol and coronary heart disease.

He subsequently embarked on his famous **Seven Countries Study** in healthy middle-aged men, which demonstrated a remarkable straight-line relationship between saturated fat consumption, serum cholesterol and deaths from coronary disease. In East Finland, where serum cholesterol averaged over 260, the number of fatal heart attacks per 1,000 men over a 10-year period was about 70. In contrast, Japan had less than 5 such deaths, which Keys attributed to the fact that their average cholesterol was about 160. The contribution of saturated fats to total daily caloric intake in Finnish men was over 20%, almost ten times higher than the 2.5% for Japanese men. This allegedly confirmed his theory that risk of fatal heart attacks was proportional to the blood cholesterol level, which, in turn, was proportional to saturated fat intake and was widely heralded as definitive proof of these causal links. As one leading authority triumphantly proclaimed, "**No other variable in the mode of life beside the fat calories in the diet is known which shows such a constant relationship to the mortality rate from coronary or degenerative heart disease".**

Association Never Proves Causation. The truth is that although he had data from 22 countries, Keys had cherry picked only seven in order to prove his theory: the U.S., Japan, Eastern Finland, Greece, Italy, Yugoslavia and The Netherlands. Had all the countries been included, the results would have been quite different. **Figures from Israel, Sweden, Germany and France would have led to the opposite conclusion, namely, that the more saturated fat and cholesterol that was consumed the lower the incidence of**

coronary heart disease deaths! The so-called "French Paradox" is a prime example. Some critics were vehement in their objections. The psychologist and statistician, Russell H. Smith, who later reviewed over 2000 references on the link between dietary cholesterol and health, wrote, "The word 'landmark' has often been used to describe Ancel Keys' Seven Countries study, commonly cited as proof that the American diet is atherogenic. . . . the dietary assessment methodology was highly inconsistent across cohorts and thoroughly suspect. In addition, careful examination of the death rates and associations between diet and death rates reveal a massive set of inconsistencies and contradictions. **It is almost inconceivable that the Seven Countries study was performed with such scientific abandon. It is also dumbfounding how the NHLBI/AHA alliance ignored such sloppiness in their many "rave reviews" of the study. . . In summary, the diet-CHD relationship reported for the Seven Countries study cannot be taken seriously by the objective and critical scientist."** Gary Taube's subsequent 2001 *Science* article showed quite clearly that serum cholesterol levels of 200 to 240 were normal and posed no increased coronary mortality risk for males. **Women with cholesterols over 240 actually had a decreased risk for coronary deaths.**

Keys was featured on the cover of the January 13, 1961 issue of *Time* magazine, was referred to in the media as "Mr. Cholesterol", and the tremendous publicity given to his conclusions stimulated numerous low fat dietary attempts to reduce coronary disease. The Anti-Coronary Club Project launched in 1957 compared two groups of New York businessmen 49 to 59 years old. One group followed a "Prudent Diet" with corn oil and margarine instead of butter, cold cereal rather than eggs, and chicken and fish instead of beef. A control group ate eggs for breakfast and meat three times per day. The results published a decade later revealed that cholesterol levels of those on the Prudent Diet averaged 30 points lower than the control group eating eggs and meat. However, **there were eight deaths from heart disease in the Prudent Dieters compared to none in the high fat control group**. In a final effort to prove his point, Keys fed middle-aged men a very high cholesterol diet but found that their blood cholesterol was no different than a control group who consumed less than half as much. Twenty years later, he was forced to admit, **"There's no connection whatsoever between cholesterol in food and cholesterol in blood. And we've known that all along. Cholesterol in the diet doesn't matter at all unless you happen to be a chicken or a rabbit."**

The Framingham Study has had more of an impact on coronary heart disease research than any other epidemiological project. It was initiated by the NIH in 1950 to validate the high fat diet→cholesterol→heart attack hypothesis by following 28,000 residents of Framingham, a small manufacturing town near Boston. It allegedly provided the first "solid evidence" that people with high cholesterols were at greater risk for heart attacks and that smoking and hypertension were also "risk factors" that had an additive effect. George Mann was involved early on to develop a nutritional survey to evaluate the effect of diet on cholesterol. An extensive analysis of the results had been completed by 1960 but was never published. This was likely due to the fact that it found participants had widely varying cholesterol levels and that **"something explains this inter-individual variation, but it is not diet."** William Kannel, Director of the Framingham Study during the 1960's, never referred to this but told the press that the Framingham results essentially proved that cholesterol was a powerful predictor of CHD.

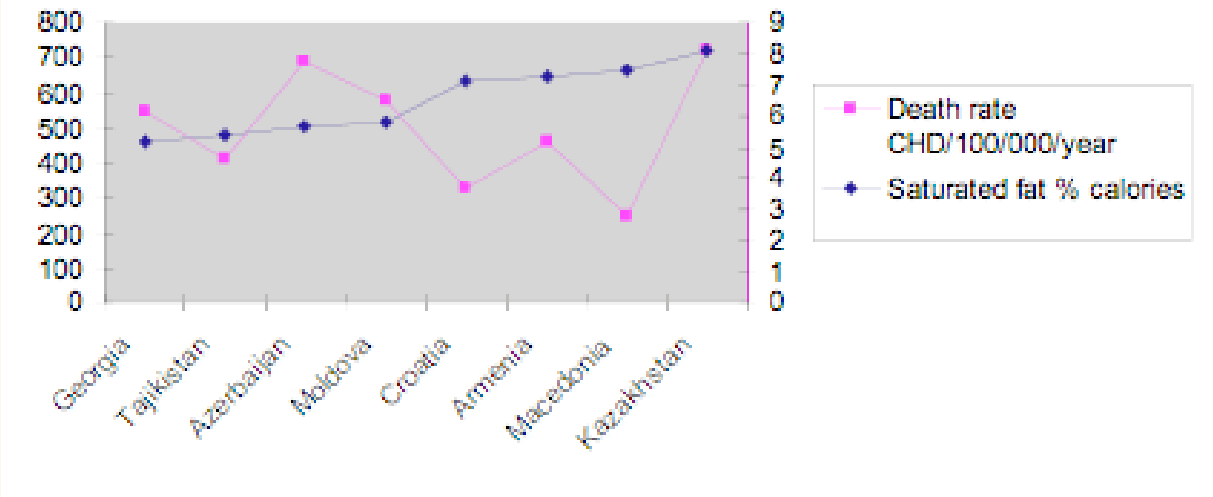
This was contradicted by a later study showing a **direct association between falling cholesterol levels over the first 14 years of the study and increased mortality rates over the following 18 years.** A 1987 30-year follow-up report revealed that **those whose cholesterol had decreased spontaneously over 30 years were at greater risk of dying from heart disease than those whose cholesterol had increased. "For each 1% mg. drop in cholesterol there was an 11% increase in coronary and total mortality."** Although the study showed that a drop in cholesterol was associated with increased coronary deaths, it was cited as **supporting** the cholesterol-coronary link! What the public read *The*

Cholesterol Facts, a joint 1990 AHA-NIH publication, was, **"The results of the Framingham study indicate that a 1% reduction in cholesterol corresponds to a 2% reduction in CHD risk."** The follow-up report also stated "The most important overall finding is the emergence of the total cholesterol as a risk factor of CHD in the elderly". No data was presented to support this false claim that high cholesterol is dangerous in the elderly. The fact is that **for men over 47, those with low cholesterol had mortality rates greater than those with high cholesterol.** The real truth about diet and cholesterol finally came out in a 1972 *Archives Of Internal Medicine* article stating **"The more saturated fat and the more cholesterol people ate, the lower their serum cholesterol was. In addition, people who ate the most cholesterol and the most saturated fats weighed the least and were the most physically active."** The author was William Castelli, Director of the Framingham study at the time. In a 1996 article in *Arteriosclerosis*, Castelli also admitted that a 26-year follow-up had found that **50% of coronary heart disease occurred in people with below average cholesterol.**

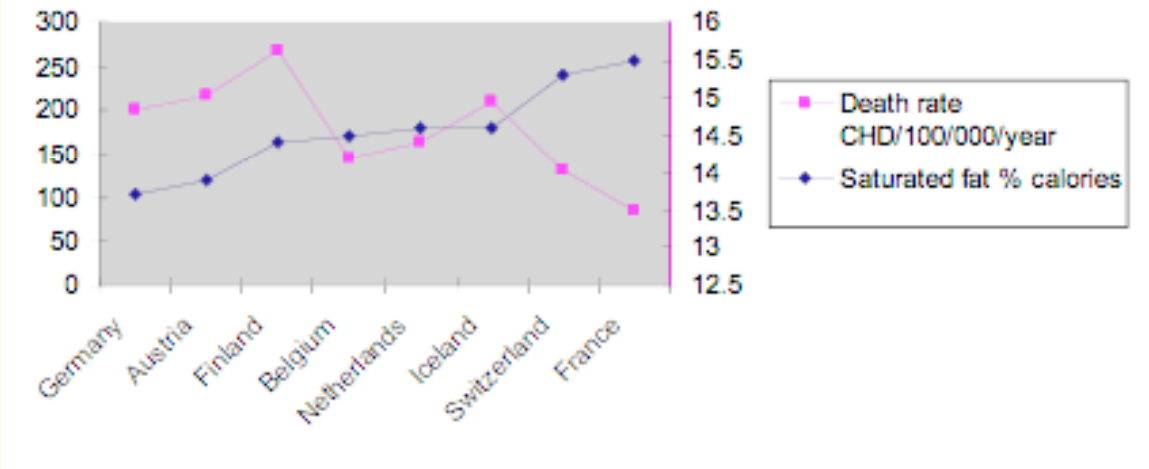
The MRFIT (Multiple Risk Factor Intervention Trial) was the largest and most serious effort to prove the links between diet, cholesterol and heart disease based on Framingham risk factors. Between 1973 and 1976, researchers carefully screened over 350,000 men at high risk for heart disease because they had elevated cholesterol, hypertension and smoked cigarettes. From this group, 12,866 healthy men aged 35 to 57 with no history or evidence of heart disease were enrolled in the study and randomly assigned to either an intervention group that were treated for all risk factors or a control group that received usual care. In the treatment group, cholesterol consumption was cut by 42 percent, saturated fat consumption by 28 percent and total calories by 21 percent. After ten years, those adhering to this fat restriction regimen had slightly lower heart disease death rates. However, this was far outweighed by significantly increased total death rates, especially from hemorrhagic stroke, cancer, suicide, accidents and violence. After 7 years, no difference in mortality was seen in the special intervention group that had reduced their risk factors and the usual care patient group. Indeed, the highest mortality rates were seen in a subset of hypertensives treated with diuretics, possibly due to low potassium that contributed to fatal disturbances in heart rhythm.

The World Health Organization's **MONICA (Monitoring of Trends and Determinants in Cardiovascular Disease),** an enormous epidemiological study, monitored more than seven million men and women aged 35 to 64 years in 21 countries for ten years. MONICA also failed to find a link between coronary disease and either Framingham risk factors or fat consumption. As illustrated below, **all the countries in the top eight for saturated fat consumption had lower rate of deaths from heart disease than all of the eight countries that consumed the least fat!**

EIGHT LOW FAT CONSUMPTION COUNTRIES



EIGHT HIGH FAT CONSUMPTION COUNTRIES

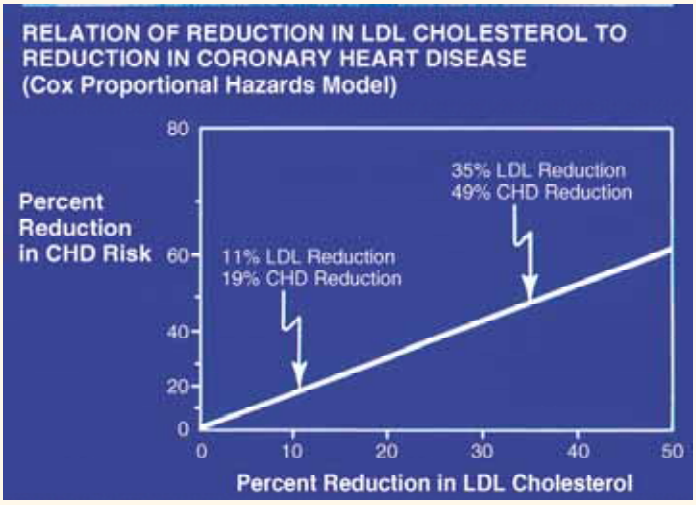


The French consumed three times as much saturated fat compared to Azerbaijan but had one-eighth the rate of heart disease. Although a relationship between fat consumption and coronary mortality was found when Western and Far Eastern countries were compared, no such correlation could be demonstrated between European nations. The heart disease death rate in Finland was four times greater than in Switzerland even though the amount of fat consumed in the two countries was essentially the same. Researchers also noted that an impressive rise and subsequent fall in coronary mortality rates had occurred in various countries during the last fifty years. The reasons for this were not clear, **but there was again no correlation with changes in diet, or Framingham risk factors of cholesterol, smoking and hypertension.**

The Important Distinctions Between Relative Risk, Absolute Risk And NNT

What the cholesterol crusaders desperately needed was something to prove that it was lowering cholesterol that reduced heart attacks. In 1984, their prayers seemed to be answered with the Lipid Research Clinics' Coronary Primary Prevention Trial (LRC-CPPT) report. It claimed that cholestyramine could reduce major coronary events in half of all men with high cholesterols. In addition, 1984 was a bonanza because the NIH Consensus Conference on Lowering Blood Cholesterol to Prevent Heart Disease declared that **lowering blood cholesterol should be a public health goal for everyone.** The NIH also established the National Cholesterol Education Program (NCEP) to teach physicians and patients how to diagnose and deal with high cholesterol. All of this was trumpeted in a massive media blitz about the LRC-CPPT triumph that promised to significantly reduce coronary deaths. The lead article in one cardiology journal was "The Lipid Hypothesis Is Proven" and the cover of *Postgraduate Medicine* proclaimed, "Coronary Disease Prevention: Proof of the Anticholesterol Pudding."

George Mann, Professor of Biochemistry at Vanderbilt and an early Framingham researcher, was particularly appalled at all the hoopla and recommendations and had this to say about the CPPT panel, "They have held repeated press conferences bragging about this cataclysmic break-through which the study directors claim shows that lowering cholesterol lowers the frequency of coronary disease. They have manipulated the data or reached the wrong conclusions. . . . The managers at NIH have used Madison Avenue hype to sell this failed trial in the way the media people sell an underarm deodorant." What George was referring to was that treatment with cholestyramine, a bile acid binding resin, seemed to reduce major coronary events by 19 per cent. But many men stopped taking it almost after the first day and very few were able to take the full 24 grams daily. Although there were fewer heart attack deaths, there was no decrease in total mortality, especially from accidents, homicide, suicide and cancer. In addition, only 35-59 year old men with extremely high cholesterols were included. **There was no indication that lowering cholesterol in women and men in other age groups without high cholesterols would provide any benefits, or be safe.**



A 1% fall in cholesterol causes a 2% fall in heart disease

However, the projection that half of all men with these very high cholesterol levels would benefit was based on the same flawed conclusions of other studies cited, namely, that for every 1% fall in cholesterol there would be a 2% reduction in coronary disease. You can't prove a statistic by using another statistic. In addition, this really refers to **reduction in relative risk rather than absolute risk or NNT.** These are important distinctions that require some explanation, especially since this deceptive ploy continues to be exploited by statin manufacturers in their promotional campaigns.

As Harry Truman once said, "If you can't convince them, confuse them", and statin advertising excels in this. For example, you could be told about a new statin drug that is very safe and if you take it every day for the next five years, it will **"significantly reduce your risk of having a heart attack."** Would you be apt to take the drug based on the following studies?

1. Over five years, patients on this statin had 34% fewer heart attacks than controls taking a placebo. This is a **relative risk reduction of 34%**, which makes it appear appealing.
2. Over five years, 2.7% of patients on this statin had a heart attack, compared to 4.1% taking a placebo. This means that the **absolute risk reduction is only 1.4%** (4.1% minus 2.7%), which is not very attractive.
3. **NNT** (Number Needed to Treat) **If this drug is taken by seventy-one people every day for five years, it will prevent one person from having a heart attack - but it is not known if that person will be you.** This statistic is more likely to be a deterrent.

All these three statements are quite correct, even though they come from the same study! It's just that the statistics are presented differently. Unfortunately, the only one that patients and doctors see are those for **relative risk**, which is usually abbreviated to **"reduce the risk".** The major conclusion of the NIH Consensus Panel published in *JAMA* in 1985 that is widely referred, to was, "It has been established beyond a reasonable doubt that lowering definitely elevated blood cholesterol levels (specifically, blood levels of low density [LDL] cholesterol) will **reduce the risk of heart attacks** caused by coronary heart disease." **Note that it did not say that it would reduce heart attacks.** Ads for statin drugs use the same deceptive language and up until a few years ago, Canadian and U.S. **regulators mandated a disclaimer stating, "Lipitor has not been shown to prevent heart disease or heart attacks." "Crestor has not been shown to prevent heart disease or heart attacks."** Although usually hidden in fine print, statin manufacturers were successful in having this removed even although it is still accurate.

As someone noted, "Statistics are a highly logical and precise method for saying a half-truth inaccurately. And, as Ancel Keys proved, "Figures don't lie but liars can figure." Statistics are like expert witnesses since they can be used to testify for either side. If you have enough statistics, they can be manipulated to prove almost anything, e.g.,

- The Japanese eat very little fat, drink very little red wine and have fewer heart attacks than the British or Americans.
- The French eat lots of saturated fat and drink excessive amounts of red wine, as do the Italians, and both have fewer heart attacks than the British or Americans.
- The Germans consume huge quantities of beer, eat lots of sausages and fats and also suffer fewer heart attacks than the British or Americans.

Conclusion: Eat and drink whatever you like. **It's speaking English that apparently causes heart attacks.**

Is Cholesterol A Cause Or An Association? A Risk Factor Or Risk Marker?

My involvement in the debate about the contribution of diet and cholesterol to heart attacks dates back several decades. It stemmed from my interest in the role of stress in coronary disease and the importance of distinguishing between risk factors that might have some causal influence, and risk markers that merely reflected a statistical association. In a 1983 *Lancet* letter I wrote, "The ongoing polemic dealing with diet and ischaemic heart disease and the relative significance of various risk factors continues to confuse correlation with causation." I pointed out that although the MRFIT study showed no benefit from lowering cholesterol, blood pressure or cigarette consumption, "two other studies conducted during the same period proved so successful that they were halted prematurely so that controls would not be denied the benefits of intervention. One was designed to reduce type-A coronary-prone behaviour and the other was treatment with propranolol. The cardioprotective effect in both instances is most probably related to lowering the effects of stress-related catecholamine secretion, known to produce cardiac damage and sudden death. . . . **Why we smoke, eat rich foods, have raised blood pressures and serum cholesterol levels may be much more important than the mere observation of such stress-related statistics**."

At our 1993 International Montreux Congress on Stress, we devoted a full day and another half day to various facets of this topic that emphasized the role of stress in coronary disease. I had asked Ray Rosenman, Vice President of The American Institute of Stress, who with Mike Friedman first described Type A behavior, to chair a morning session on "Relationships Of Neurogenic And Psychological Factors To Serum Lipids And Variability." Ray emphasized that during the epidemic of heart attacks that peaked in the late 1950's, their incidence was greatest in Northeast manufacturing states **and lowest in Mid West farming and dairy states where fat consumption was the highest**. In addition heart attacks in Americans were least likely to occur in places where they took their vacations. **People in Honolulu with the same high levels of standard risk factors were over 60% less likely to die of heart disease over the next two years than Framingham controls.** Other presentations and speakers who demonstrated that stress had far more of an effect on cholesterol than dietary fat included *Psychological Influences on Serum Cholesterol in Humans* (Richard H. Rahe), *Effect of Life and Changes on Variability of Serum Cholesterol* (Stewart Wolf), *Stress, Relaxation and Blood Fats: The Effect of Stress on Endogenous Hyperlipedemia* (Malcom Carruthers) and *Autonomic Nervous System Effects on Variability of Serum Cholesterol* (Joel E. Dimsdale).

I chaired the afternoon session on "Diet, Cholesterol And Coronary Heart Disease; Is There Any Causal Relationship?" This also had a star-studded cast that led off with George Mann, who had studied the Masai, a Kenyan cattle-herding tribe. He found them to be free of heart disease despite a diet consisting almost entirely of meat, blood, and milk, and where celebrations sometimes consisted of eating four to six pounds of meat per person. In a 1977 *New England Journal of Medicine* review entitled "Diet-Heart: End of an Era," he wrote that, "the dietary dogma was a money-maker for segments of the food industry, a fund-raiser for the Heart Association, and busy work for thousands of fat chemists" and that "to be a dissenter was to be unfunded because the peer-review system rewards conformity and

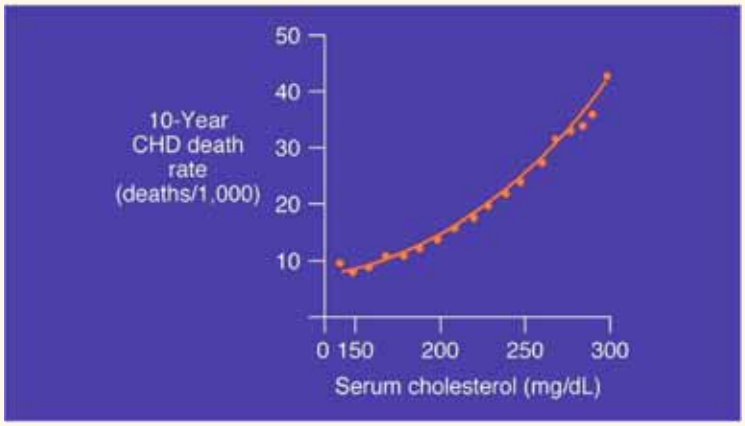
excludes criticism." He cited the lack of relationship between diet and cholesterol, the lack of correlation between trends in fat consumption and death rates in the US and the disappointing outcome of the cholesterol lowering trials. In 1991, two years before our Congress, George wanted to bring the issue before the public by organizing a conference in Washington, DC. In his invitation to prominent speakers he wrote, "Hundreds of millions of tax dollars are wasted by the bureaucracy and the self-interested Heart Association. Segments of the food industry play the game for profits. Research on the true causes and prevention is stifled by denying funding to the 'unbelievers'. This meeting will review the data and expose the rascals." When the powerful cholesterol cartel found, out they sent out false notices to everyone that the event was being canceled, participants backed out when they learned their funding would be cut off, and the Foundation that offered to back it reneged. Another example was Kilmer McCully's persecution for suggesting that homocysteine might be an important contributor to accelerated atherosclerosis. He lost all funding for his laboratory at Massachusetts General Hospital as well as his tenure at Harvard. Despite excellent qualifications, he was unable to obtain employment until a lawsuit was threatened because of evidence that the cholesterol cartel was responsible for this.

Stewart Wolf's presentation was a compelling confirmation that eggs and fresh dairy products were very healthy and might actually help to prevent atherosclerosis because of their antioxidant properties. He told us of his 1963 visit with Anitschkow, who now believed that cholesterol was probably not as important as LDL. Stewart told him he didn't think LDL was the culprit either, unless it was oxidized, and this was before most people understood what antioxidants were and many thought a "free radical" referred to someone who came to the U.S. from Russia. Around the same time, Stewart began his study of Roseto, a small Pennsylvania town whose heart attack rate was less than half of the national average or of neighboring towns with the same water supply, physicians and medical facilities. This, despite the fact that they smoked as much and had the same cholesterol levels and probably ate more fat than most Americans. What was unique was that they were almost entirely descendants of Italians who had immigrated there 80 years previously and that the traditions of their forbears had been rigidly passed on and adhered to. The family, not the individual was the unit of their society, the community was their base of operations and each inhabitant felt a responsibility for its welfare. The elderly were respected and most households contained three generations. Stewart correctly predicted that as they became Americanized, they would lose the powerful stress reduction and cardioprotective benefits of their strong social support system. His 25-year follow-up, presented at our 1988 Congress in Switzerland, revealed that during this period, **while heart attack rates were dropping all over the U.S and although Rosetans were smoking less and eating fewer fats, their rate of heart attacks doubled and strokes tripled**.

Stewart Wolf's prediction was based on the premise that rapid sociocultural change of any sort that takes a long time to adapt to is likely to produce adverse health effects. Another Founding Trustee of the AIS, Alvin Toffler, described this in his 1970 book *Future Shock*, which he defined as the individual's perception of "too much change in too short a period of time". An excellent example of this are studies showing that heart attacks soared and in some cases quadrupled in Japanese men who emigrated from the Island of Honshu to Hawaii or California, compared to controls in Honshu. The cholesterol cartel attributed this to the fact that Japanese-Americans ate more fat and had higher cholesterols. However, Japanese in Hawaii who maintained their cultural traditions were protected against heart attacks even though their cholesterol rose as much as emigrants who adopted Western ways and started to die at the same rate as Americans. Those who became "Americanized" but still ate low fat Japanese food had twice as much heart disease as those who preferred U.S. high fat foods but maintained their ancient traditions. **Indian immigrants were at even greater risk, with a fifteen-fold rise in heart attacks, despite the fact that almost half remained strict vegetarians.**

Ray Rosenman's paper was on the "Non Role of Diet in 20th Century Heart Disease" and Serge Renaud's "The French Paradox: Application to the Dietary Prevention of Coronary Heart Disease" provided one of the earliest reports of this phenomenon. My own presentation, Diet, Cholesterol and Heart Disease: Epidemiologic Illusion or Delusion?" was devoted to emphasizing that **Association Never Proves Causation**. I was able to list several hundred established "risk factors" for heart disease, such as a deep earlobe crease, premature vertex baldness and a potbelly.

Relationship Between Cholesterol And CHD Deaths



Multiple Risk Factor Intervention Trial (MRFIT)

Correcting these with plastic surgery, a hair transplant or liposuction will not reduce CHD deaths since they are **"risk markers"** that merely show some sort of statistical association. They have no causal relationship and their eradication has no influence on risk. This is also true for cholesterol. The diagram on the left showing cholesterol vs. CHD death rates in 361,662 men initially screened for MRFIT also falsely implies a similar causal effect. **The actual study showed that there was no reduction in CHD deaths in the men that reduced cholesterol and other risk factors compared to usual care controls.**

With the assistance of Bill Stehbens, I also presented a list of **"TEN CHOLESTEROL-CHD COMMANDMENTS"** illustrating various flaws in papers dealing with this topic:

1. Thou shalt not mislead, misrepresent nor subvert science by misusing such words as cause, risk factor and CHD, for language is the instrument of thought and the basis of communication, and causation must be proven by non-epidemiological means rather than assumed.
2. Thou shalt not use an imprecise and inappropriate non-pathognomonic complication (CHD) as a monitor of an indefinite degree of severity of atherosclerosis, for medicine must be a precise science and the incidence of CHD is not a satisfactory surrogate for the severity of atherosclerosis.
3. Thou shalt not use national mortality rates for scientific purposes because no knowledgeable clinician or pathologist now believes that single choices of death certificate diagnoses can indicate disease specific causes of death and that those choices can represent the actual occurrence of the specified diseases.
4. Thou shalt not extrapolate from statistical correlations with end-stage atherosclerosis or from the imprecise diagnosis of CHD in middle age or the elderly to the etiology of atherosclerosis which commences in infancy if not in utero.
5. Thou shalt not misuse fallacious and inexact dietary data nor assume that the dietary data collected over 1 to 10 days no matter how accurately assessed is representative of the dietary intake of any particular food constituent over a lifetime.
6. Thou shalt not perpetuate an ecological fallacy by assuming that population-based correlations apply without proof of validity to individuals within that population.
7. Thou shalt not include subjects with familial hypercholesterolemia and Type II hyperlipoproteinemia in epidemiological studies pertaining to atherosclerosis. The associated CHD differs from that of atherosclerosis and thou shalt not disregard selection bias (by virtue of age and familial hypercholesterolemia), diagnostic inaccuracies and the interrelationship of an age dependence of population characteristics (risk factors) in clinical investigations of coronary heart disease and atherosclerosis that are also age dependent, because sophisticated statistics cannot make a silk purse out of a sow's ear.
8. Thou shalt not ignore the many unexplained inconsistencies in epidemiological

evidence, for even one unexplained inconsistency necessitates revision of the premise on which the hypothesis stands.

9. Thou shalt not assume that any maneuver which alters the blood cholesterol level will have a corresponding beneficial or deleterious effect on atherosclerosis without proof of this action since this "substitution game" is invalid without experimental proof.
10. Thou shalt not dispense with corroborative pathological and experimental evidence, for epidemiological statistical correlations require substantiation of causality by other experimental means, and the pathology of the cholesterol-fed animal and of familial hypercholesterolemia has been misrepresented.

(Based on Stehbens WE, Limitations of the Epidemiologic Method in Coronary Heart Disease. 1991; *Int J Epidemiol* 20:818)

Space constraints preclude a detailed discussion of the other presentations in this session, where we also learned about the cardioprotective effects of peanuts, monounsaturated fats, herring, and "Why Real Men Eat Red Meat".

In recent years, my efforts have focused on the adverse effects of low cholesterol and statin therapy and why any **statin benefits are not due to lipid lowering**. The latter is very important since current therapy goals are to lower LDL to an arbitrary level that few can achieve. This only insures higher and higher doses for longer periods of time, both of which are associated with an increased incidence of serious side effects, many of which have been ignored or suppressed. I have also devoted several Newsletters and articles to deceptive advertising that promotes statin sales to senior citizens and all women, despite lack of proof of any rewards. Pfizer is currently the defendant in several class action suits for Lipitor ads making such claims. Lipitor is now the world's best selling drug and undoubtedly the most profitable, with a 4,700% markup over cost. Zocor's markup is also over 4,000%, although the price has been reduced since a generic version was introduced a year ago, and 30 tablets of the 20 mg. dose now cost around $150.00. However, compare this to less than $7.00 for the generic version, which still makes a profit. Many of these and other pertinent issues were addressed in greater detail by the other speakers and during Q&A sessions at the LEO conference. Plans are underway to publish the presentations in a peer reviewed journal – so stay tuned.

Meetings Of Interest

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