Controversial saturated fat

The phrase "artery clogging saturated fats" has been in common usage for many years. In fact the notion that saturated fats cause heart disease had it's genesis in research conducted by Ancel Keys, a University of Minnesota Physiologist. I'll have Henry Blackburn, MD, Mayo Professor Emeritus of Public Health at the University of Minnesota, begin this story of how saturated fat came to be regarded as a major dietary health hazard.

"Ancel Keys at Minnesota, and his colleagues in seven countries, posed the hypothesis that differences among populations in the frequency of heart attacks and stroke would occur in some orderly relation to physical characteristics and lifestyle, particularly composition of the diet, and especially fats in the diet.

To test this idea we carried out surveys from 1958 to 1970 in populations of men ages 40-59, in eighteen areas of seven countries, with follow-up for deaths in the cohorts up to the present day. The formal surveys were undertaken after successful pilot experiences in Finland, Italy, and Greece in 1956 and 1957. Most of the areas were stable and rural and had wide contrasts in habitual diet. In those days, we did not consider involving women because of the great rarity of cardiac events among them, and the invasiveness of our field examinations."

Note the remark about "the great rarity of cardiac events" among women. This is significant. One would think that if saturated fat were the most important factor contributing to heart attacks, women and men would fare about the same.

"The Seven Countries Study, more than any other cardiovascular disease study, has directed attention to the causes of population rates of disease...and it demonstrated

the degree to which composition of the diet — particularly levels of saturated fatty acids and mean serum cholesterol levels — predict present and future population rates of coronary heart disease" (1).

To conclude Dr. Blackburn remarks , "Ancel Keys...by the boldness of his concepts, the vigor of his pursuits, and the rigor of his methods...has had a major impact on the thinking of the medical profession and the scientific community, particularly in the food sciences and exercise science. He has had a major influence on the public, its food choices and eating patterns" (2).

Indeed he has. Thanks to Keys and his *Seven Countries* study, the notion that saturated fat is the primary cause of clogged arteries has become firmly entrenched in the minds of the vast majority of health professionals throughout the world. For at least four decades, this doctrine has enjoyed the enthusiastic support of academia, the public health sector, the edible oils industry, sugar producers, the food manufacturing industry, and vegetarian activists. But all this time a controversy over the role of saturated fat in coronary artery disease has simmered in the background of scientific debate. For example, in 1971 Roger J. Williams, PhD wrote, "No discussion of heart disease would be complete without mention of the question of saturated fats. It has come to be almost an orthodox position that if one wishes to protect oneself against heart disease, one should avoid eating saturated (animal) fats. While this idea may not be entirely in error, it is misleading in its emphasis. The evidence shows that high fat consumption, when accompanied by plenty of the essential nutrients which all the cells need, does not cause atherosclerosis or heart disease (3).

Twenty six years later, in correspondence published in the *European Heart Journal*, Dr. Laura Corr noted, "Ask almost any member of the general public about a diet which would reduce their chance of heart disease and the reply is the same: "a low fat diet". On closer questioning, this means a diet with a reduction in cholesterol and saturated 'animal' fats, i.e. less meat, butter, milk and cheese. Most national and international recommendations for the prevention of heart disease, whether for primary prevention of or for patients who have developed the clinical manifestations of coronary heart disease, have made dietary restriction of total and saturated fats and of cholesterol the primary advice and often the sine qua non in

relation to all other forms of management. To this extent they are to be congratulated that the message seems to be so universally accepted. Unfortunately, the available trials provide little support for such recommendations and it may be that far more valuable messages for the dietary and non-dietary prevention of coronary heart disease are getting lost in the immoderate support of the low fat diet" (4).

The saturated fat controversy briefly surfaced in 2002 with publication of an article by Gary Taubes in the *New Your Times Magazine* entitled "What if its all been a Big Fat Lie?" (5) The article begins, "If the members of the American medical establishment were to have a collective find-yourself-standing-naked-in-Times-Square-type nightmare, this might be it. They spend 30 years ridiculing Robert Atkins, author of the phenomenally-best-selling *Dr. Atkins' Diet Revolution* and *Dr. Atkins' New Diet Revolution*, accusing the Manhattan doctor of quackery and fraud, only to discover that the unrepentant Atkins was right all along...in 1972, Americans were just coming to terms with the proposition that fat — particularly the saturated fat of meat and dairy products — was the primary nutritional evil in the American diet. Atkins managed to sell millions of copies of a book promising that we would lose weight eating steak, eggs and butter to our heart's desire, because it was the carbohydrates, the pasta, rice, bagels and sugar, that caused obesity and even heart disease. Fat, he said, was harmless."

A firestorm of criticism and protest followed but the article produced a book deal for Taubes that eventually resulted in the publication of *Good Calories, Bad Calories* in 2007. Criticism of the new book has been muted (6), mostly consisting of arguments against a supposed metabolic advantage associated with high fat intake (7).

In between the 2002 article and the 2007 book J. Bruce German and Laura Dillard submitted an article entitled "Saturated fats: what dietary intake?" to the *American Journal of Clinical Nutrition* (8). In the Abstract the authors noted, "Public health recommendations for the US population in 1977 were to reduce fat intake to as low as 30% of calories to lower the incidence of coronary artery disease. These recommendations resulted in a compositional shift in food materials throughout the agricultural industry, and the fractional content of fats was replaced principally with carbohydrates. Subsequently, high-carbohydrate diets were recognized as

contributing to the lipoprotein pattern that characterizes atherogenic dyslipidemia and hypertriacylglycerolemia. The rising incidences of metabolic syndrome and obesity are becoming common themes in the literature. Current recommendations are to keep saturated fatty acid, trans fatty acid, and cholesterol intakes as low as possible while consuming a nutritionally adequate diet. In the face of such recommendations, the agricultural industry is shifting food composition toward lower proportions of all saturated fatty acids. To date, no lower safe limit of specific saturated fatty acid intakes has been identified. This review summarizes research findings and observations on the disparate functions of saturated fatty acids and seeks to bring a more quantitative balance to the debate on dietary saturated fat. Whether a finite quantity of specific dietary saturated fatty acids actually benefits health is not yet known. Because agricultural practices to reduce saturated fat will require a prolonged and concerted effort, and because the world is moving toward more individualized dietary recommendations, should the steps to decrease saturated fatty acids to as low as agriculturally possible not wait until evidence clearly indicates which amounts and types of saturated fatty acids are optimal?"

In the Conclusions section of the report the authors note that "Twenty years ago, government guidelines recommended that all persons consume a low-fat diet, with the advice being to 'avoid too much fat, saturated fat, and cholesterol'...At the time the 1980 guidelines were established, there was no solid basis for understanding what the consequences of such overall dietary changes would be for most persons. The recommendation to lower saturated fat intake was based on a single marker of health outcome—a correlation between dietary saturated fat and the incidence of CAD, with blood cholesterol being the indicator of potential disease. Now, the most recent published recommendations are for all persons to reduce the saturated fat content of their diet (10% of total calories), although it was stated in the Dietary Guidelines Advisory Committee report that '...no lower limit of saturated fat intake has been identified.' The summary report by the Institute of Medicine takes this recommendation one step further by clearly stating that '...there is no intake level of saturated fatty acids...at which there is no adverse effect.' This nutritional rhetoric is driving the food industry to respond to governmental and public demands to decrease the amounts of all saturated fats from the food supply. The agricultural enterprise will continue to lower saturated fatty acids by every means possible."

Once again a Dietary Guidelines Advisory Committee is examining current nutritional wisdom in light of what science has learned since the last revision of the Guidelines in 2005 (9). Sally Fallon Morell of the Weston A. Price Foundation submitted a comment on 10/22/09 which began, "Current USDA dietary guidelines are based on the flawed notion that cholesterol and saturated fat are unhealthy. They are unrealistic, unworkable, unscientific and impractical; they have resulted in widespread nutrient deficiencies and contributed to a proliferation of obesity and degenerative disease, including problems with growth, behavior and learning in children. The US government is promoting a lowfat, plant-based diet that ignores the vital role animal protein and fats have played in human nutrition throughout the ages"(10).

Suspicion that conventional wisdom does not serve the interests of public health appears to be growing among students. For example on the American Society for Nutrition Website student blogger Bobban S. wrote, "Truly, I am neither an obesity researcher nor a public health policy expert. But I do read material on this issue every now and then, and recently, I asked myself, why? United States is blessed with enormous research resources, facilities and funding, but still why can't we address the issue of obesity?"(11).

Another student blogger, Jovana K. in an earlier blog at least partially answered the question. She wrote, "Over the past decade the use of low fat milk has become more prominent than the use of whole milk because there is substantial scientific evidence that consumption of foods high in fat causes weight gain and increases the risk of heart disease and cancer. However, there is some controversy over whether processed low-fat pasteurized milk can meet the needs of developing offspring and whether it should be consumed during pregnancy and development."

Several paragraphs later:

"According to a cohort study of 12,829 US children aged 9 to 14 years, weight gain is associated with excess calorie intake and consumption of low fat or skim milk, but is not associated with drinking whole milk products. This finding although surprising is consistent with some animal findings. Pigs fed reduced-fat milk gain weight easily while pigs fed whole milk stay lean. Male rats fed whole milk had significantly

lower concentrations of plasma triglycerides, very low-density lipoproteins and apolipoprotein B than rats fed low fat milk. The effects of whole milk on lipid profile and body composition are not well understood, but the process of removing fat from milk may in part be responsible for some of the observed effects. Milk is an emulsion of butterfat globules and water-based fluid. Butterfat contains unique nutrients that support thyroid function and help the body develop muscle rather than fat…"(12).

If butterfat supports thyroid function and helps the body develop muscle, one wonders why official government policy has American school children consuming low-fat milk laced with sugar-sweetened flavorings.

It's also important to note that the Dietary Guidelines for Americans form the basis for public health nutrition policy throughout the developed and developing world. For example, In New Zealand Dr Rod Jackson, Professor of Epidemiology at the School of Population Health, University of Auckland, has this to say about butter: "We have a health tax on alcohol and cigarettes and there should be a health tax on butter. It's the most poisonous commonly consumed food in New Zealand. It's about the purest form of saturated fat you can eat and it has no protein and no calcium. Butter has had all the good things taken out and just left the poison"(13).

Shedding the notion that saturated fat is bad may face stiff opposition from special interests. In 2001 a New Zealand biotech firm, ViaLactia, screened millions of bovines in search of a cow that would produce low-fat milk. They found one and named her Marge because butter made from her milk is spreadable straight from the fridge, rather like margarine (14).

Perhaps at this point it would make sense to inquire as to the actual cause of coronary artery disease. Back in the 60s Ancel Keys took steps to suppress a competing hypothesis. Here's what Dr. John Yudkin wrote about the matter on page 193 of *Sweet and Dangerous*. "I have already mentioned Dr. Ancel Keys and his pioneer work in relation to diet and heart disease. A year or so ago he wrote a memorandum, which he sent to a large number of scientists in this field, and which, with very few changes, has now been published in a medical journal, *Atherosclerosis*. It consists entirely of a strong criticism – I nearly said virulent criticism – of the

work I have published from time to time on the theory that sugar is the main dietary factor involved in causing heart disease.

The publication contains a number of quite incorrect and unjustified statements; for instance: that we had never tested our method for measuring sugar intake; that no one eats the amounts of sugar that we and others have used in our experiments; that it was absurd of me in 1957 to use international statistics of forty-one countries as evidence for the relationship between sugar and heart disease (exactly the same statistics that Dr. Keys had previously used for only six selected countries to show the relationship between fat and heart disease).

He ends by triumphantly pointing out that both sugar and fat intakes are related to heart disease, but that the cause must be fat, not sugar, because he had just found in 1970 that fat intake and sugar intake are themselves closely linked..."

One wonders what would have happened had Keys been less aggressive and more honest.

Despite massive support for the Keys hypothesis, I have hopes that the saturated fat controversy will finally be resolved. Research over the past six years has confirmed Dr. Yudkin's view that sugar *isSweet and Dangerous*. I urge all who read this little essay to listen to Dr. Robert Lustig's lecture entitled
Sugar: The Bitter Truth (15).

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