



Editorial



Diet and Atherosclerosis—the Evidence from Israel

Those who read the journals on nutrition and biochemistry as well as laymen reading news weeklies have found universal acclaim for the theory of the dietary origin of atherosclerosis during the past year. The readers of the *Lancet* have had presented to them a remarkable series of articles and letters dealing with the effects of diet on blood coagulation, blood lipids and coronary disease, as well as some reiterating the older view that atherosclerosis is due solely to wear and tear on the arterial wall and is unrelated to diet or plasma lipid.¹

It is now just 50 years since Ignatowski first produced experimental atherosclerosis by feeding rabbits milk or eggs. Long before this a relation of coronary disease to living conditions was apparent, and Osler taught his students that the disease spared the poor but attacked men “who eat, drink and smoke too much.” Today the student of medicine may be taught by authorities of high repute that atherosclerosis is unrelated to diet and that coronary attacks should be treated by diets based on eggs, milk, custard and ice-cream; or that the disease is due to “obesity and gluttony,” with no special food being considered harmful aside from its calorie content.

The enormous literature on experimental atherosclerosis, brought about by dietary manipulation with cholesterol and fat supplements, and on regional and social variations in coronary disease, blood cholesterol, and the dietary content of animal fat, is dismissed as irrelevant by many experienced cardiologists to whom each year hundreds of patients with coronary disease turn for advice. A recent 90-page monograph on heart disease summed up the evidence on smoking and coronary disease in two sentences, that on diet and coronary disease in three pages. But yet the reviewer

for the *Journal of the American Medical Association*, passing over everything else in the book, cited the essayist's acceptance of the view given by Osler and now supported by such overwhelming evidence, and warned that “many other cardiologists disagree with him.” It is unlikely that the conservatives will be impressed even by the data on coronary disease, plasma lipids, and dietary customs among the immigrants to Israel.^{2,3}

The Yemenite Jews lived apart from their Arab neighbors and from world Jewry for nearly 2,000 years, speaking Biblical Hebrew and adhering to a diet based on bread, vegetables, and vegetable oils. Settled in Israel, recent immigrants from Yemen adhere to this way of life, and fat (mostly olive oil or seed oils) provides less than 18 per cent of their caloric intake. In men aged 55 to 60 years the blood cholesterol level averages less than 160 mg per 100 ml; and the death rate from all arteriosclerotic diseases is below five per 10,000. However, male Yemenites who have lived in Israel and Palestine for 20 years or more have less restricted diets, with 21 per cent of calories derived from fat. They use some dairy products. Their cholesterol levels at the same age average 200 mg per 100 ml. Deaths due to arteriosclerosis are 33 per 10,000. The European Jewish immigrants have blood cholesterol levels over 240 mg per 100 ml and 86 per 10,000 die of arteriosclerosis each year. Their diets, cholesterol levels, and death rates are similar to related groups in urban United States communities.

While undoubtedly there are individual and familial differences, and perhaps even racial differences, in the effects of various diets on blood cholesterol, as well as differences in the incidence of clinical coronary disease at any

given age in men or women with similar elevations in cholesterol (or beta lipoprotein, or S₁ 10-200) levels, the important fact remains that in any population of Whites or Negroes, Mongoloids or Semitics, the average level of blood cholesterol and the incidence of coronary occlusion rises with any increase in the average daily intake of animal fat, and especially of butter fat.

Substituting corn oil for butter in New York⁴ or in Sweden,⁵ regularly lowers blood cholesterol; safflower oil is equally effective, but neither Ahrens,⁴ nor Malmros¹ found it actually more effective. Cottonseed oil has a comparable effect, but olive oil permits a slight rise from the level achieved with the other oils. No fat commonly eaten in large amounts causes so marked a rise as butter fat, and no communities have higher blood cholesterol levels or coronary death rates than those with liberal intakes of butter fat.

This year, in the many celebrations of the Harvey Tercentary, frequent references have been made to the stupid way in which most leading physicians opposed the theory of the circulation. When we recall that Harvey lived long before the dawn of the scientific era,

that his contemporaries were not impressed by experiments on embryos and snakes, that the practice of medicine and surgery was not affected by assuming a circulatory rather than a tidal flow from the heart, and that no confirmatory evidence was produced for years after Harvey's demonstrations, we can pardon his contemporaries. But how will the medical historian of the year 2207 regard the reaction of some segments of the medical profession in the last half century to the vast and concordant evidence for the dietary basis of atherosclerosis?

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