



December 15, 1981

Dr. Zhou Kiong  
Graduate Student Class of 1980  
Shandong Medical College  
Jinan, China

Dear Doctor Kiong:

You have asked for my opinions on important questions concerning atherosclerosis and its result in clinical disease. I do not like simply to state opinions. I emphasize examination of the evidence and critical consideration of the way that evidence is or is not consistent with the theories and hypotheses that have been proposed.

Obviously, it is not possible for me here to write a detailed summary of the enormous mass of relevant evidence. Instead, I am sending you separately some publications that should be helpful to you and your colleagues. When you receive the material you should make it available in your local medical school library.

You ask about the "cause" of arteriosclerosis. By this I presume you mean the etiology of that kind of arteriosclerosis termed atherosclerosis. All serious students of atherosclerosis and its clinical result agree that the "cause" is multi-factorial, that is to say several, perhaps many, factors influence pathogenesis. Outstanding among these factors are age, sex, arterial blood pressure, total serum or plasma cholesterol. Cigarette smoking is also clearly important in influencing the clinical outcome though it is still debated whether this importantly influences atherogenesis; it may be that it has a secondary role by promoting myocardial irritability in the presence of impaired coronary blood supply.

Other variables are not unanimously accepted as being independently consequential in promoting atherogenesis and the clinical outcome: relative body weight, obesity, physical activity, serum triglycerides, alpha or HDL cholesterol in the serum, "stress", whatever that is supposed to be. Family history and genetic inheritance are very important in some cases, though perhaps only in a fraction of the population.

Many of us who have studied these questions closely over many years are agreed that the diet is a major variable. Certainly the diet does influence the concentration of cholesterol in the blood and in the diet attention is centered on the lipids, notably the saturated fatty acids with 12 to 17

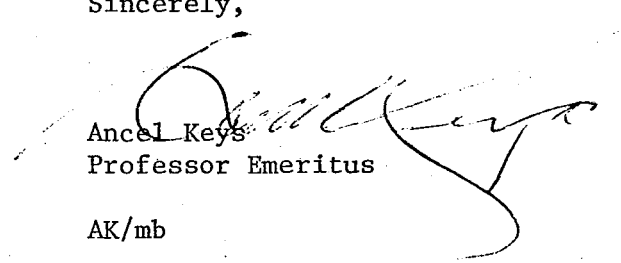
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complex polysaccharides in the diet, especially the hydrophylic substances such as pectins and various gums.

I shall be interested to know the progress of you and your colleagues in evaluating the evidence and what may be going on in China in research in this field. You should know that although I have an office here at the University of Minnesota, I spend more than half the year at my home and office in Italy, "Minnelea," 84060 Pioppi (SA), Italy, where I expect to be the first week of January until April and again from mid-May until mid-July.

With good wishes to you and all of our colleagues in China, I am.

Sincerely,



Ancel Keys  
Professor Emeritus

AK/mb