

Clinical Lipidology Roundtable Discussion

Roundtable discussion: Dietary fats in prevention of atherosclerotic cardiovascular disease



Tracy Severson, RD, LD, Penny M. Kris-Etherton, PhD, RD, FNLA, CLS,
Jennifer G. Robinson, MD, MPH, John R. Guyton, MD*

Center for Preventive Cardiology at Oregon Health and Science University, Portland, OR (Dr Severson); Department of Nutritional Sciences at Pennsylvania State University, State College, PA (Dr Kris-Etherton); Departments of Epidemiology and Medicine and the Division of Cardiology at the University of Iowa, Iowa City, IA (Dr Robinson); and Division of Endocrinology, Metabolism, and Nutrition, Department of Medicine, Duke University Medical Center, Durham, NC (Dr Guyton)

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Atherosclerotic
cardiovascular disease

Abstract: This roundtable discussion on dietary fats was inspired by a recent Presidential Advisory from the American Heart Association giving recommendations about dietary fats for prevention of atherosclerotic cardiovascular disease. The Advisory clarifies a long-held position that saturated fat should be reduced in the American diet. New studies and meta-analyses have questioned the adverse role of saturated fat. The Advisory adds a crucial clarification based primarily on 4 randomized controlled diet trials, each conducted over 4 to 8 years during the 1960s extending to the 1970s. In each trial, saturated fat was reduced and replaced by vegetable oil rich in polyunsaturated fat (PUFA). Meta-analysis showed 29% reduction in major coronary events in the groups receiving PUFAs. Randomized clinical trials provide the best kind of evidence. Replacing saturated fat with PUFA reduces cardiovascular events. Replacing saturated fats with carbohydrates or *trans* fats does not reduce cardiovascular events. Cardiovascular risk reduction has also been seen in randomized trials with monounsaturated fat in the context of whole food diets, mostly plant based (Mediterranean diets). In this discussion, we additionally cover some of the roller-coaster history of recommendations concerning dietary fat and provide advice for practical counseling.

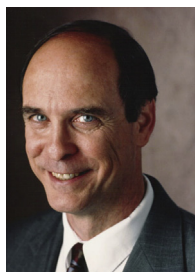
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Dr Guyton: A remarkable Presidential Advisory from the American Heart Association (AHA) was published in *Circulation* last July giving recommendations about dietary fats for prevention of atherosclerotic cardiovascular disease (CVD). The recommendations amended a long-held position of the AHA that saturated fat should be

reduced in the American diet—a stance that dates back as far as 1961. Now recent studies and meta-analyses have questioned the adverse role of saturated fat. The new Advisory adds a crucial clarification based on 4 randomized controlled diet trials, each conducted over 4 to 8 years during the 1960s extending into the 1970s. In each trial, saturated fat was reduced and replaced by vegetable oil rich in polyunsaturated fat (PUFA). Meta-analysis showed 29% reduction in major coronary events in the groups receiving PUFAs.

* Corresponding author. Box 3510, Duke University Medical Center, Durham, NC 27710, USA.

E-mail address: john.guyton@duke.edu



Dr Guyton

ments of Epidemiology and Medicine and the Division of Cardiology at the University of Iowa. In addition, Tracy Severson brings practical experience as the Registered Dietitian with the Center for Preventive Cardiology at Oregon Health and Science University.



Dr Robinson

been 4 good quality trials, as you mentioned, which all showed a reduction in cardiovascular events after reducing saturated fat intake by replacing it with polyunsaturated oils. Randomized trials are the only way you can really prove causality, because the only thing that should be different between your treatment groups is the dietary fat intervention. In an observational study, there are lots of other things going on other than just the level of fat intake—we call them confounders—so it's not entirely clear if that one factor is a causal factor, although it may be associated with an endpoint.



Ms Severson

highlighting the positive aspects of his or her current diet because a lot of times patients come in following specific diets that they believe are heart healthy. Often times, they're misguided, such as with current popular fad diets that promote high saturated fat intake. By focusing on the positive changes they have made, such as eating more vegetables or reducing intake of highly-processed foods, it is easier to build their trust as I explain the role of saturated fats in promoting atherosclerosis. Many patients do a lot of online research on nutrition, albeit on somewhat dubious websites that aren't always evidence based, so many are

This was a clear example of scientific review of older studies, which actually met rigorous criteria for evidence-based medicine. Today I am joined by 2 of the authors of that Presidential Advisory—Dr Penny Kris-Etherton of the Department of Nutritional Sciences at Penn State University and Dr Jennifer Robinson of Depart-

Dr Guyton: I'll begin by asking Dr. Robinson: What's the best evidence that diet can play a large role in the prevention of atherosclerotic disease?

Dr Robinson: The key question is "What is the role of dietary fat in cardiovascular events?" The best way to tell is in a randomized controlled clinical trial. There have

Dr Guyton: So the randomized trials of diet, just as with lipid drugs, give the best evidence and generally convince the physicians, nutritionists, and other care providers. But when you have a patient in front of you, how do you begin to convince the patient that diet can play a big role? I'll direct this to Ms Severson.

Ms Severson: I would begin by

open to discussing research and understanding the effects of different types of fats. Once the understanding is there, we work on how to replace saturated fats in their diet with PUFA and monounsaturated fats (MUFAs) and how to choose more minimally processed plant foods. I try to give really practical food-based recommendations so that they can understand how to translate the recommendations into their daily lives.

Dr Guyton: This makes me think of a great case presented here at the National Lipid Association meeting by Dr Neil Stone of a patient who had been advised by her personal trainer to go on a diet loaded with saturated fat in the form of coconut oil as well as any kind of meat that she wanted to eat, the fatter the better. Her low-density lipoprotein (LDL) cholesterol shot up over 200 mg/dL. The patient didn't want to go on a statin, and she opted to get that saturated fat out of her diet and replace it with PUFA and MUFA. Her LDL cholesterol fell below 140 mg/dL. The most convincing data for the patient sometimes is the result that happens with marked dietary change.

Dr Robinson: A trial with N of 1, right?

Dr Guyton: And you know, when the endpoint can be clearly shown for the individual patient, thinking about LDL cholesterol here rather than overall cardiovascular risk, the N of one trial is actually at the top of the hierarchy of evidence. What happens to the patient can be very convincing, but you have to encourage them to make the effort.



Dr Kris-Etherton

I want to turn to Dr Kris-Etherton. Can you give us an overview? Because you've looked broadly at this as you have trained dietitians and taught all of us as well.

Dr Kris-Etherton: Well, we have strong evidence, as described in the AHA Presidential Advisory led by Frank Sacks, from 4 key

clinical trials that reducing saturated fat, replacing it with PUFA decreases the risk of CVD to about 30%. A key point is that we want to try to reduce LDL cholesterol as much as we can. We can do that with diet, specifically decreasing saturated fat, and replacing it with PUFA, which lowers LDL cholesterol and reduces CVD events.

Dr Guyton: I agree. The importance of those randomized clinical trials must be emphasized. But you know that it will be difficult to perform trials like that today. One was performed in a mental hospital, and we no longer keep people in mental hospitals for years. One trial was conducted in a VA domiciliary; the veterans were healthy, but they could actually live on the premises for a decade or more, where you had total control of what they ate. We're going to need epidemiologic research as well because long-term diet trials have become more difficult to carry out. So what has epidemiology been able to tell us about diet and atherosclerosis? What can we learn from epidemiology in an ongoing manner?

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