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Hello, I'm Steve Kopecky, professor of medicine, department of cardiovascular diseases at Mayo Clinic in Rochester, Minnesota. Today we'll be talking about from the University of Minnesota research to present studies. What is heart health nutrition, and why is it so hard to define. My disclosures-- I do research on foods that actively help our cardiovascular health. Our objectives today are understand the components of a heart healthy nutrition, gain insights into why low fat diets may not be the healthiest, and learn which diet is best for heart health. The Minnesota study came out recently showing that a diet of low saturated fat enriched with corn oil while it reduced cholesterol 14% versus 1% in the control group, it did not cause a reduction in cardiovascular death.

So why did it fail? Well, let me ask you a question first. What is harder for you to figure out-- what you should and shouldn't eat to be healthier, or how to do your own income taxes? This question was recently posed to Americans, and 52% of Americans said it was harder for them to know how to eat healthy than it was to do their own income taxes. We found that time and time again. Now, why do we hear that? Well this is a list-- a graph of some standard diets that we hear about all the time-- showing the macronutrient profiles of popular diets. On the left, you can see the Ornish diet. On the right is the Atkins diet. In yellow is the fat, white is the carbs, and red is the protein. Now, the three diets that really been shown to reduce cardiovascular mortality or at least reduce atherosclerosis is the Ornish, the Dash, and the Mediterranean.

And you can see they're quite different diets. The Ornish is a high carb, very low fat. The Mediterranean is pretty high fat. And the Atkins is very high fat but low carbs. And if you look further at these diets, the typical fatty acid profile of popular diets is shown here. And you can see that on the right, the Atkins diet has a lot of saturated fat. The Mediterranean right next to it-- the second highest fat diet of all the common ones-- is very high in monounsaturated fats. So that's a key difference we'll talk about in just a moment. But if you look at these low carb diets, is there a mortality effect? And clearly there is. If you look at all cause mortality, it's increased by about 12% by any low carb diet.

But specifically, if you eat an animal low carb diet-- so you get a hamburger, you throw away the bun, but eat the burger. That'll increase your mortality by about 23% and your cardiovascular mortality by 14%. However, if you eat a vegetable low carb diet, meaning you get a veggie burger-- throw away the bun, but eat the veggie burger-- that will actually lower your cardiovascular mortality and your total mortality. So a high animal low carb diet increases the total and cardiovascular mortality, a vegetable low carb diet decreases the total and the cardiovascular mortality, and that's key.

Now, the DART study-- the Diet Reinfarction Trial-- was finished in 1989. So over 25 years ago, 2000 men. It was a secondary prevention trial, and they had three groups. They looked at low total fat intake and high polyunsaturated to saturated fat ratio, high fish consumption, and high cereal fiber intake. As you can see, the one arm actually lowered the cholesterol by about 3.6%, but overall, there was no change in the reinfarction rate or the cardiovascular disease rate at two years. But the fish arm actually had a 29% reduction in two year all cause mortality. Now, this is the first study that really recommended food groups. Up to that point, they were trying to recommend certain types of foods like polyunsaturated saturated and it got very confusing for people.

So dietary recommendations have been around for over 50 years, and they recommend decreasing saturated fats in dietary cholesterol and increasing polyunsaturated fats. That's been difficult to achieve. It does decrease cholesterol levels, but not cardiovascular disease. So the newer approach is to increase or decrease certain food groups-- that's what people understand best. This has been successful in preventing cardiovascular disease in both primary and secondary prevention trials. And if you look at the food groups shown to decrease the risk of coronary heart disease in prospective studies, you can see nuts, vegetables, legumes, fish as we just discussed, high fiber, olive oil is the main fat, fruits, vegetables, whole grain, very moderate alcohol, and poultry. This really sounds like a Mediterranean diet, doesn't it?

So the Seven Country Study came out decades ago, and it was done in many countries-- some in the US, a lot in Greece and Italy, and different parts of Europe. And they found that the Mediterraneans had the lowest rate of coronary heart disease, and the conclusion was because they consume diets low in saturated fat. And that's where the saturated fat hypothesis really came from and all the studies that had been recommending low saturated fat. However, at the time it was noted that the argument of several scientists from the Mediterranean countries that the diet of their region was more than just a low saturated fat diet.

And it actually had implications for diseases other than heart disease, and that was lost in the wider scientific community. For instance, if you look at the mean daily per capita intake of lipids and olive oil in that era in the 50s to 70s, you can see certain European countries-- most of them in the north, Belgium, Ireland-- had very low olive oil intake. But a couple of countries like Greece, Crete, Italy, Spain have very high olive oil intake. And smoking was actually unusually high in the Mediterranean region at that time, but the adult life expectancy was generally higher. And many of the people there-- the Mediterraneans-- actually felt it was due to the olive oil and the diet they ate.

So if you look at the Mediterranean diet and lifestyle, they were shaped by climatic conditions. By the things that would grow there-- poverty, hardship-- rather than by intellectual insight or wisdom. And olive oil remained in the shadow of the polyunsaturated fat and cholesterol debate. So that's where we really have gotten more of this saturated fat information over the years. And what you can see monthly was red meat, weekly have some fruits and vegetables-- three or four a day, every week, every day of the week. Maybe some eggs very sparsely, lots of fruits and vegetables, a little bit of alcohol, and certainly be active.

Now, the PREDIMED Study was a very interesting study that was for secondary-- or primary prevention. The secondary prevention study-- the Leon Heart trial-- had been done 15 years earlier and showed benefit. But the PREDIMED was a primary prevention study, and what they had was three arms. One was the control diet which is essentially the American Heart low fat diet. Had a diet high in-- the Mediterranean diet high in nuts. And another Mediterranean diet high in extra virgin olive oil. And the data and safety monitoring board actually stopped the study early because the two Mediterranean diet arms were doing so much better.

MI, stroke, and cardiovascular death was reduced with a Mediterranean diet. And you can see at these survival curves, it actually separated very, very early within the first few months of going on the diet. And this wasn't a weight loss diet, it wasn't a lower your cholesterol diet. It was a have less heart attacks, strokes, and cardiovascular death. But clearly the greater the adherence to the diet, the greater the reduction in the events. Now what were the benefits in addition to what I just mentioned? In addition, they had less cancer, less diabetes, less Alzheimer's, dementia, less arthritis, Parkinson's disease was also decreased. And then erectile dysfunction-- and also this is the first diet ever shown to reduce female sexual dysfunction from the MEDITA study as referenced here.

So clearly there are a lot of benefits primarily revolving around probably the anti-inflammatory benefits that you see with this diet. Now, this is a sheet we actually give patients. It's a quiz-- how did they eat. We ask them questions, they fill it out, they take it home. All three of the questions are about olive oil. They are basically 10 do's, four don't's. Olive oil, fruits, vegetables, nuts, fish-- trying to get them not to eat much red meat, and remember red meat includes pork, it includes any meat that-- or even white meat chicken that has the skin on it or certainly dark meat chicken. Less dairy, less things that are made out of a box or a mix. Certainly very few Cola's in a day and they do get a little bit of wine.

Now, one question that comes up for many patients is, gee doc, can I take a statin so I can just eat whatever I want? Well how beneficial is healthy eating when taking a statin? This shows a study looking at the modified alternative healthy eating index, which is basically an index of Mediterranean style diet. And the primary outcome was cardiovascular death, MI, stroke, or heart failure. As you can see, the quintile one was the unhealthiest diet and quintile five the healthiest. So when patients were on statins-- they were taking in about 20,000 patients-- when they had the most unhealthy diet. You can see that the confidence intervals here of these cardiovascular events crosses one indicating that here probably at least 20% of patients eating an unhealthy diet actually derive no benefit from the statin whatsoever. So if you're not eating healthy, the benefits of the statin are significantly lessened.

So we need to get our patients to think differently. I tell them every time you eat or drink, you're either fighting disease or you're feeding it. Thank you very much for your attention. I appreciate you taking the time to listen.