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Atkins? South Beach? Ornish?

How did the Atkins, South Beach, and Ornish diet affect cardiovascular health? You're listening to ReachMD XM157, The Channel for Medical Professionals. Welcome to The Clinician's Roundtable. I am Susan Dolan, your host, and with me is Dr. Michael Miller. Dr. Miller is the Director of Preventive Cardiology at the University of Maryland Medical Center in Baltimore, Maryland.

### SUSAN DOLAN:

Dr. Miller, welcome to the Clinician's Roundtable.

### DR. MICHAEL MILLER:

Thank you very much, Susan, pleasure to be here.

### SUSAN DOLAN:

Describe the three diets you studied.

### DR. MICHAEL MILLER:

Well, Susan, these are popular diets that our clinicians are likely quite familiar with based on some of the patients they see. The diets included the high-fat, low-carb Atkins diet, so one extreme of the high-fat, high-protein diet; a moderate diet, the South Beach diet, which is moderate in fat, about 30% fat versus about 16-17% fat in the South Beach, and then at the lower extreme the Ornish diet which is a very low fat, about 10% fat and a high-carb diet.

### SUSAN DOLAN:

Was there a particular clinical profile for the participants in your study?

**DR. MICHAEL MILLER:**

Well, the clinical profile was that they were predominantly healthy men and women who were medical house officers so we wanted to start off and examine the healthy individuals before perhaps looking at clinically obese individuals with a healthy cohort.

**SUSAN DOLAN:**

What methods were used?

**DR. MICHAEL MILLER:**

Well, the methods included traditional dietary methods where we had our patients randomized for a 4-week period on each of the diet, so each participant enrolled in all three diets at randomly different times, so they all had one month diet followed by a one-month washout phase and then going on a second diet followed by the washout phase followed by the third diet. Now, in addition at the end of the dietary phase, we collected a 72-hour food records that were analyzed by our dietitians. We also wanted to maintain weight so that they could proceed smoothly from one dietary phase to the next and really to evaluate dietary macronutrient composition and how that fared between these specific diets and so blood was collected after each dietary phase. We monitored weight throughout the study. Food records were collected and we performed studies to evaluate the endothelium. So there were several components in order to highlight various areas that we thought may represent important parameters to evaluate vascular health.

**SUSAN DOLAN:**

What were the results?

**DR. MICHAEL MILLER:**

Well, the results indicated that the Atkins diet which is associated with increases in LDL or the bad cholesterol by about upwards of approximately 7% whereas both the South Beach diet and the Ornish diet were both associated with reductions in LDL cholesterol. Now, the Ornish diet was associated with higher triglycerides and lower levels of the good cholesterol, this is traditional with the high-carbohydrate diet, so the fact that we saw these results, provided some reassurance that the results were on par with what we expected. We then looked at the results of the endothelium. We found that compared to the low-fat, high-carb Ornish diet, though during the Atkins phase, the participants demonstrated reduced endothelial vasoreactivity. This is traditional measure where we put a blood pressure cuff on the upper arm and then look at how the endothelium responds one minute after we release the blood pressure cuff and we found that there was a reduction in the Atkins diet compared to the Ornish diet. South Beach was fairly neutral. No significant difference, but that to suggest that there may be some endothelial dysfunction on the Atkins phase compared to the Ornish phase and then we also looked at biomarkers of inflammation and found that the Atkins diet fared the worst; that was increased expression in several inflammatory biomarkers. So there appeared to be some differences between these dietary phases.

**SUSAN DOLAN:**

Did any of the findings surprise you?

**DR. MICHAEL MILLER:**

Well, I think perhaps the most surprising finding was the differential effect between these three diets in the absence of weight loss. Remember, we maintained weight throughout the study to try to tease out the differences that would be purely representative by macronutrient dietary composition as opposed to the confounding effect of weight loss which may have negated some of these results.

**SUSAN DOLAN:**

How do you summarize your findings?

**DR. MICHAEL MILLER:**

Well, I think the basic premise here is that if one goes on a diet and they are beyond on the period of weight loss, so now they have lost the weight and they have on a stabilizing or maintenance phase of a diet, the Atkins is probably not a good diet to go on. We would recommend diets that are lower in saturated fat, which appeared to have a concerning effect on pro-atherothrombosis.

If you're just joining us, you're listening to The Clinician's Roundtable on ReachMD XM157, The Channel for Medical Professionals. I am Susan Dolan, your host, and joining me is Dr. Michael Miller, the Director of Preventive Cardiology at the University of Maryland Medical Center in Baltimore, Maryland, discussing his recent research on how the Atkins, South Beach, and Ornish diets affect cardiovascular health.

**SUSAN DOLAN:**

Doctor, how do your findings compare to what the diets advertise in terms of health benefits?

**DR. MICHAEL MILLER:**

Well, Susan, remember that the diets are really focused in on weight losing effect so as you know most of these diets have an induction phase to establish rapid weight loss and so I think their priority is really to identify weight loss, which diet is the most effective in weight loss as well as how many patients are able to stick to it for a period of time. Our study did not focus in at all on these variables. Rather, we were more interested to look at the effect of changing macronutrient composition and how lipids, the endothelium, and atherothrombotic biomarkers are effective.

**SUSAN DOLAN:**

Did the participants report how they felt on the different diets?

**DR. MICHAEL MILLER:**

Yes, in some cases it was hard because we try to maintain weight and in some of the cases such as in the low-fat Ornish diet, they would have to consume more calories from carbs to maintain weight and being a very low fat diet, it was a little bit more difficult. Similarly, it was a bit more difficult compared to what the South Beach; I would say the average fat composition before these participants participated in the study was more aligned with the South Beach or Mediterranean diet, so if they went to the one extreme where it was very low fat, Ornish, or the other extreme high-fat Atkins, some of them did complain of some, you know, mild side effects, but by and large, our participants were able to complete the study.

**SUSAN DOLAN:**

How did you determine that a 4-week timeframe was adequate?

**DR. MICHAEL MILLER:**

Well, the 4-week timeframe has been looked at in a number of other studies to show clear effects on lipids and lipoprotein. There are less data in regard to the endothelium, but they do exist, so we believe that this was certainly a sufficient period of time. The atherothrombotic biomarkers have not been looked at to our knowledge, but we believe that we would expect to see something after a month where these are the parameters were affected.

**SUSAN DOLAN:**

What feedback have you received about your research findings?

**DR. MICHAEL MILLER:**

So far, it's been positive at our meeting at the American Heart Association. The former president of the American Heart Association, Dr. Robert Eckel, basically said that the findings presented in our study extended results that had been noted from recent studies, although again we used an isocaloric diet, so it was a little bit different, but all went together fairly well with the recommendation that a high-saturated protein diet is probably not the way to go.

**SUSAN DOLAN:**

Are you planning any followup studies?

**DR. MICHAEL MILLER:**

Well, we are considering doing additional studies where we would look at a group of less healthy individuals, those individuals perhaps that have a metabolic syndrome and then perhaps allowing them to lose weight and then seeing after a given period of weight loss whether there are differences in some of these parameters.

**SUSAN DOLAN:**

What research projects are you working on now?

**DR. MICHAEL MILLER:**

Well, we are doing several; our focus really is on understanding the relationship between the blood fat, triglycerides and good cholesterol. We are also interested in gathering a better handle as to the effects of emotions in heart disease, so we have some studies that are ongoing all within the umbrella of cardiovascular prevention.

**SUSAN DOLAN:**

Summarize the study regarding emotions on cardiovascular health.

**DR. MICHAEL MILLER:**

Right, well the study is basically one that we've been interested for several years and it's an out take of the knowledge that negative emotions often have a negative impact on the heart, so that we know that mental stress, it's been very hard to quantify because stress is so objective and it's not really stress since we all deal with stress on a daily basis. I should say we all receive stress, but how we deal with it might be different between individuals, but our study here wants to look at positive emotions and so our most recent study looked at differentiating between negative induced and positive emotions on the endothelium so we had volunteers again most of the medical personnel who came in and watched a movie. They watched a movie on one day that was designed to stimulate, I suppose, feelings of anxiety and mental stress, and on another day (these were randomized) another movie was shown to stimulate the positive emotions and designed for them to laugh. The movies that caused laughter included Something About Mary and Kingpin whereas the movie designed to induce mental anguish was the opening segment of Saving Private Ryan. So again, in this study, the same individuals watched both movies on different days and they watched about 15 to 20 minutes worth. After this period of time, we

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