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## Low-carb, high-fat diets add no arterial health risks to obese

By David March, *Johns Hopkins Medicine*

Overweight and obese people looking to drop some pounds and considering one of the popular low-carbohydrate diets, along with moderate exercise, need not worry that the higher proportion of fat in such a program compared to a low-fat, high-carb diet may harm their arteries, suggests a pair of new studies by heart and vascular researchers at Johns Hopkins.

“Overweight and obese people appear to really have options when choosing a weight-loss program, including a low-carb diet, and even if it means eating more fat,” said the studies’ lead investigator, exercise physiologist Kerry Stewart.

Stewart, a professor of medicine and director of Clinical and Research Exercise Physiology at the Johns Hopkins University School of Medicine and its Heart and Vascular Institute, says that his team’s latest analysis is believed to be the first direct comparison of either kind of diet on the effects to vascular health, using the real-life context of 46 people trying to lose weight through diet and moderate exercise. The research was prompted by concerns from people who wanted to include one of the low-carb, high-fat diets such as Atkins, South Beach and Zone as part of their weight-loss program but were wary of the diets’ higher fat content.

In the first study, presented June 3 at the annual meeting of the American College of Sports Medicine in Denver, the Johns Hopkins team studied 23 men and women weighing on average 218 pounds and participating in a six-month weight-loss program that consisted of moderate aerobic exercise and lifting weights, plus a diet made up of no more than 30 percent of calories from carbs, such as pastas, breads and sugary fruits. As much as 40 percent of their diet was made up of fats coming from meat, dairy products and nuts.

After shedding 10 pounds, this low-carb group showed no change in two key measures of vascular health: finger tip tests of how fast the inner vessel lining in the arteries in the lower arm relaxes after blood flow has been constrained and restored in the upper arm (the so-called reactive hyperemia index of endothelial function) and the augmentation index (a pulse-wave analysis of arterial stiffness).

Low-carb dieters showed no harmful vascular changes but also on average dropped 10 pounds in 45 days, compared to an equal number of study participants randomly assigned to a low-fat diet. The low-fat group, whose diets consisted of no more than 30 percent from fat and 55 percent from carbs, took on average 70 days, nearly a month longer, to lose the same amount of weight.

“Our study should help allay the concerns that many people who need to lose weight have about choosing a low-carb diet instead of a low-fat one, and provide reassurance that both types of diet are effective at weight loss and that a low-carb approach does not seem to pose any immediate risk to vascular health,” Stewart said. “More people should be considering a low-carb diet as a good option,” he added.

Because the study findings were obtained within three months, Stewart says that the effects of eating low-carb, higher-fat diets versus low-fat, high-carb options over a longer period of time remain unknown.

However, Stewart does contend that an overemphasis on low-fat diets has likely contributed to the obesity epidemic in the United States by encouraging an overconsumption of foods high in carbohydrates. He says that high-carb foods are, in general, less filling and that people tend to get carried away with how much low-fat food they can eat. More than half of American adults are estimated to be overweight, with a body mass index of 26 or higher; a third are considered to be obese, with a BMI of 30 or higher.

Stewart says that the key to maintaining healthy blood vessels and vascular function seems—in particular, when moderate exercise is included—less about the type of diet and more about maintaining a healthy body weight without an excessive amount of body fat.

Among the researchers' other key findings, presented separately at the conference, was that consuming an extremely high-fat McDonald's breakfast meal, consisting of two English muffin sandwiches, one with egg and another with sausage, along with hash browns and a decaffeinated beverage, had no immediate or short-term impact on vascular health. Study participants' blood vessels were actually less stiff when tested four hours after the meal, while endothelial or blood vessel lining function remained normal.

Researchers added the McDonald's meal challenge immediately before the start of the six-month investigation to separate any immediate vascular effects from those to be observed in the longer study. They also wanted to see what happened when people ate in a single meal a higher amount of fat than recommended in national guidelines. Previous research had suggested that such a meal was harmful, but these negative findings could not be confirmed in the Johns Hopkins analysis. The same meal challenge will be repeated at the end of the study, when it is expected that its participants will have lost considerable weight despite having eaten more than the recommended amount of fat.

“Even consuming a high-fat meal now and then does not seem to cause any immediate harm to the blood vessels,” Stewart said. However, he strongly cautions against eating too many such meals because of their high salt and caloric content. He says that this single meal—with 50 grams of fat and more than 900 calories—is at least half the maximum daily fat intake recommended by the American Heart Association and nearly half the recommended average daily intake of about 2,000 calories for most adults.

All study participants were between the ages of 30 and 65 and were healthy, aside from being overweight or obese. Researchers say that in the first study, because people were monitored for the period during which they lost the same amount of weight, any observed vascular differences would be due to what they ate.

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In addition to Stewart, Johns Hopkins researchers who took part in the studies were Sameer Chaudri, Devon Dobrosielski, Harry Silber, Sammy Zakaria, Edward Shapiro and Pamela Ouyang.

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