

# Lifestyle Changes Key To Metabolic Syndrome

BY MIRIAM E. TUCKER  
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COLUMBUS, OHIO — For patients with metabolic syndrome, the focus should be on the two “L” words: lifestyle and LDL.

That was the message from a talk given by former American Heart Association president Dr. Robert H. Eckel at a meeting on diabetes sponsored by Ohio State University. The term “metabolic syndrome” has become controversial since the September 2005 publication of a joint statement from the American Diabetes Association (ADA) and the European Association for the Study of Diabetes that called into question whether classifying the entity as a “syndrome” adds any clinical utility beyond its individual components (Diabetes Care 2005;28:2289-304).

With that debate still ongoing, Dr. Eckel authored a “call to action” from the ADA and the American Heart Association (AHA) in which both organizations expressed their strong commitment to prevention of cardiovascular disease and type 2 diabetes, and urged all health care providers to assess patients—especially those who are overweight or obese—for their CVD risk factors (Diabetes Care 2006;29:1697-9).

“The metabolic syndrome wasn’t meant to be a global risk predictor for heart disease. It was meant to identify a cluster of risk factors that can be best modified initially by lifestyle,” said Dr. Eckel, professor of medicine and the Charles A. Boettcher II Chair in Atherosclerosis at the University of Colorado, Denver.

Although data conflict somewhat as to whether metabolic syndrome does in fact increase the risk for CVD and death, a recent meta-analysis of 43 cohorts in 37 longitudinal studies comprising 172,573 patients found that metabolic syndrome conferred an independent relative risk of 1.54 after adjusting for all known cardiovascular risk factors (J. Am. Coll. Cardiol. 2007;49:403-14).

The data overwhelmingly support the benefits of lifestyle modification in patients with metabolic syndrome. Interventions that improve the quality of the diet, increase physical activity, and reduce weight often lead to improvements in a long list of cardiovascular risk factors, including reductions in waist circumference (a surrogate for visceral fat deposition), triglycerides, blood pressure, glucose, and inflammatory markers, along with increases in HDL cholesterol.

Still, diet specifics remain controversial. While it is clear that the key to weight reduction is simply to expend more energy than is consumed, there is still debate as to the importance of the carbohydrate/protein/fat ratio to the equation. Many people believe that low-carbohydrate diets such as Atkins produce superior weight loss, but Atkins fared no better at 1 year than did the low-fat, high-fiber Ornish regimen or other popular diets such as the Zone diet and Weight Watch-

ers when compared in a head-to-head study. All of the diets modestly reduced body weight and several cardiovascular risk factors, but adherence to all was low (JAMA 2005;293:43-53).

In a recent study that is not yet published, Dr. Eckel and his associates found that LDL cholesterol levels increase during active weight loss in people on the Atkins diet, probably related to the fact that free fatty acids stay elevated because of the diet’s high saturated fat content and because its low carbohydrate intakes results in lower levels of insulin secretion. “The Atkins diet concerns me,” he remarked.

A much better bet is the American Heart Association’s “No Fad Diet,” now in its second printing and available in hardcover or paperback at major book retailers. “This one is evidence-based. You can trust it,” he said.

Data supporting the medical benefits of lifestyle modification include an analysis of the landmark Diabetes Prevention Program. That study found that weight loss achieved via lifestyle modification was the predominant predictor of reduced diabetes incidence among 1,079 program participants aged 25-84 years. For every kilogram of weight loss, there was a 16% reduction in risk, adjusted for changes in diet and activity (Diabetes Care 2006;29:2102-7). And in the first year of the Look AHEAD (Action for Health in Diabetes), intensive lifestyle modification resulted in an average 8.6% weight loss in 5,145 patients with type 2 diabetes, which was associated with a reduction in CVD risk factors and a reduced need for medication (Diabetes Care 2007;30:1374-83).

Yet, despite such evidence, an AHA survey of physicians found that fewer than 15% of family physicians even ask patients about their current diet and physical activity levels, let alone spend much time encouraging improvement in them.

The weight loss drugs orlistat and sibutramine also reduce waist circumference, glucose, triglycerides, and C-reactive protein. Statins lower LDL cholesterol and also reduce triglycerides and raise HDL cholesterol, and the glucose-lowering drug pioglitazone also has been associated with reductions in triglycerides and increased HDL.

While data strongly support blood pressure and glucose as primary targets of therapy beyond lifestyle in people with metabolic syndrome, the strongest data are those that support LDL lowering in patients with and without diabetes. In the Treating to New Targets study of over 10,000 patients with clinically evident coronary heart disease—including more than 5,000 patients with metabolic syndrome—major cardiovascular events were significantly reduced among those taking 80 mg vs. 20 mg/day of atorvastatin (13% vs. 9.5%) during a mean follow-up of almost 5 years (Lancet 2006;368:919-28).

“Let’s not lose the importance of focusing on LDL lowering in patients with metabolic syndrome, even though it’s not a part of the clustering of components,” he said. ■

# Combat ‘Diabetes’ With Color-Coded Nutrition Advice

BY BETSY BATES  
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LA JOLLA, CALIF. — “Diabetes,” as Dr. David Heber calls type 2 diabetes, is a lifestyle disease, not a diagnosis that necessarily requires heavy lifting of the prescription pad.

Too many physicians begin and end the conversation by saying, “You have diabetes and I have a drug for you,” he said at Perspectives in Women’s Health, sponsored by FAMILY PRACTICE NEWS, OB.GYN. NEWS, and INTERNAL MEDICINE NEWS.

Obesity, which packs proinflammatory adipocytes around the heart, liver, and intestines, stands as the greatest threat to women’s health in the modern world, said Dr. Heber, professor of medicine, and director of the University of California at Los Angeles Center for Human Nutrition.

It costs \$130 billion in the United States each year, impacting nearly every organ system in the body, including the reproductive system (Dr. Heber calls polycystic ovary syndrome “diabetes of the ovary”), musculoskeletal system, and the hepatic system, rapidly becoming a leading cause of liver transplantation.

Dr. Heber emphasized that judging patients by appearance alone, or even body mass index, will miss many women at increased risk for cardiovascular disease and diabetes because of abdominal fat.

“Women have higher body fat than men at every BMI,” he said, quoting one study that found that 45% of women with normal BMIs had excess internal fat.

In his office, he uses a bioelectrical impedance meter to measure skeletal muscle versus fat tissue mass, from which calculations can be made for the number of calories per day required to reduce weight in a certain period of time. The devices cost about \$500, and provide an excellent opportunity for patient education as well as an accurate assessment of diabetes risk, he said.

The next step is to discuss with patients the need for lifestyle modification to preserve health in a way that they can envision. For example, he explains, “It takes a lot of exercise to make up for a little dietary indiscretion.” To burn off 2 ounces of potato chips, it takes a 3-mile run in 30 minutes. Drinking two regular sodas instead of diet sodas is fine, as long as you want to bicycle 3 miles in 30 minutes.

While most people can be convinced to institute 30 minutes a day of exercise, they certainly won’t want to sign up for 90 minutes a day to account for a bag of chips and a couple of sodas.

Unfortunately, both emotions and nature work in opposition to weight loss, since “psychology trumps physiology every time. You eat when you are not hungry. Nature wants you to hold onto calories.” Diabetes, he said, “is great genes in the wrong century.”

For many people, then, a whole restructuring of views about food must counteract impulses and a food industry that has conditioned us to crave foods

that are sweet, bland, oily, and creamy “so that you can consume a large amount of food without realizing it,” Dr. Heber said.

Focusing on fruits and vegetables, whole grains, fish, spices, and nuts in a color-coordinated diet (see box) can provide fewer calories and fewer proinflammatory foods, as described in Dr. Heber’s book for lay audiences, “What Color is Your Diet?” (New York: HarperCollins Publishers, 2001).

Replacing two meals a day (one per day for weight maintenance after weight loss) with high-protein, low-calorie, meal replacement shakes makes the transition even easier.

Drinking thick shakes for two meals makes people want chewy, crunchy, colorful foods for snacks and the third meal of the day, he explained. Fruits and vegetables fit that bill.

The strategy also helps patients learn to self-monitor their eating and to better gauge portion sizes and estimate calories. Planning just one meal a day reduces the amount of food brought into the home and simplifies the task of preparing a healthy, attractive meal.

The payoff, he promised, can be immense, not only because patients will pay cash for supervised weight loss, but also because the health benefits are profound.

Controlled studies document that modest weight reduction modifies every element of the metabolic syndrome and can prevent conversion to type 2 diabetes in people who are glucose intolerant.

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## Color Palette for Healthy Eating

Dr. Heber encourages his diabetes patients to eat from the following color groups of fruits and vegetables:

- **Red.** Tomato products, soups, sauces, juices (contain lycopene).
- **Red/purple.** Red wine, grapes, berries, plums (contain anthocyanins, ellagitannins).
- **Orange.** Carrots, mango, apricot, sweet potato (contain  $\beta$ -carotene/ $\alpha$ -carotene).
- **Orange/yellow.** Citrus fruits, papaya, peaches (contain citrus flavonoids).
- **Yellow/green.** Spinach, corn, avocado, green beans (contain lutein/zeaxanthin).
- **Green.** Broccoli, Brussels sprouts, cabbage (contain glucosinolates, indoles).
- **White/green.** Garlic, onions, chives, asparagus (contain allyl sulfides).

Dr. Heber tells his patients to avoid white and beige foods, such as white bread.