

# Moderately Low-Carb Diet Helps Insulin Resistance

BY TIMOTHY F. KIRN  
Sacramento Bureau

LAS VEGAS — Dieting and losing weight will help patients with insulin resistance, but it should be a moderately low-carbohydrate diet, Dr. Tracey McLaughlin emphasized at the Fourth World Congress on the Insulin Resistance Syndrome.

That recommendation runs counter to those made by the American Heart Association and the American Diabetes Association,

which recommend a diet that has less than 30% of calories consumed from fat. But the evidence bears it out, said Dr. McLaughlin, of the division of endocrinology at Stanford (Calif.) University. A diet a little lower in carbohydrates than in fat can result in equal weight loss, a better lipid profile, and lower insulin levels.

The lipid profile of someone with insulin resistance tends to be one with high triglycerides and low HDL cholesterol. In fact, a ratio of those two parameters is a good

easy screen for insulin resistance—it should be 3.0 (or 1.8 in SI units), according to one study (*Ann. Intern. Med.* 2003;139:802-9). A diet higher in fat will improve both those parameters, she said. And a number of studies have suggested that a high carbohydrate diet for persons with insulin resistance can worsen those parameters.

Dr. McLaughlin performed one of the recent studies. She and her colleagues randomly assigned 57 obese, insulin-resistant individuals to either a diet of 60% carbo-

hydrate, 25% fat, and 15% protein, or one of 40% carbohydrate, 45% fat, and 15% protein, for 16 weeks (*Am. J. Clin. Nutr.* 2006;84:813-21). One aim of the study was to use diets that were not too extreme in their restrictions on carbohydrate or fat because such diets, often effective in the short run, are difficult for individuals to sustain.

Average weight loss over the 16 weeks was slightly better in the higher fat diet, though not significantly so (6.9 kg vs. 5.7 kg). But the study found daylong insulin levels dropped an average 32% in those on the higher fat diet, compared with 13% in those on the higher carbohydrate diet. Daylong triacylglycerol dropped an average 25% with the higher fat diet, compared with 7% with the higher carbohydrate diet.

LDL cholesterol went up 12% in the subjects on the higher fat diet, and was unchanged in the subjects on the higher carbohydrate diet. However, the ratio of total cholesterol to HDL did not change in the subjects on the higher fat diet, which suggests that the lipid profile was not harmed by this increase in LDL, Dr. McLaughlin said. The study also found the more weight lost, the greater the improvement in insulin sensitivity. ■

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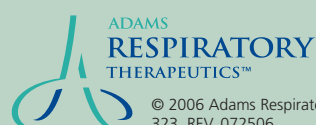
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## Insulin Resistance May Be Rooted In Adolescence

LAS VEGAS — Adolescents can be insulin resistant and have the risk factors of early heart disease, Dr. Alan Sinaiko said at the Fourth World Congress on the Insulin Resistance Syndrome.

Dr. Sinaiko has followed a cohort of about 400 Minnesota children from age 11 years to 23 years. In the study, he used an insulin clamp technique in which glucose and insulin are infused together to measure the glucose's uptake by muscle.

He has found that at 13 years, 2% of the patients have insulin resistance and the metabolic syndrome, and by 19 years, 9% do, according to adult standards. The percentage is higher (9% at age 15) if one uses the more lenient standards for children.

Insulin resistance in childhood predicts resistance as an adult, said Dr. Sinaiko, a professor of pediatrics at the University of Minnesota, Minneapolis. Weight makes a difference, worsening cardiovascular risk factors, but weight and insulin resistance seem independent of each other. An increase in body mass index seems worst.

Insulin resistance appears differently in children than in adults. In pediatrics, it is hard to judge resistance by fasting insulin, because the values vary greatly and children experience a reduction in insulin sensitivity as they progress through the Tanner stages. The sensitivity normalizes after puberty. Insulin sensitivity falls in males after puberty during their teens, but not in females. Males also have greater increases in blood pressure and triglycerides and a dip in HDL cholesterol, showing they accumulate heart disease risks at a young age.

—Timothy F. Kirn