Biannual Dietary Counseling Improves Pediatric Outcomes

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Giving families of infants and children individualized dietary counseling twice a year reduced the children's intake of fat and improved their insulin sensitivity by age 9 in a long-term randomized study.

The ongoing Special Turk Corin Risk Factor Intervention Project for Children, a Finnish study, randomized healthy 7-month-old infants in 1999 to an intervention (940 infants) or a control group (522 infants). The control group received the basic health education provided at well-baby clinics.

A physician and a dietitian provided individualized dietary counseling to the intervention group. Twice a year, families recorded what the child consumed for 4 consecutive days (including a weekend) within 3 weeks of the follow-up visit. The dietitian reviewed the list and suggested any changes needed to pursue a healthy diet low in saturated fat and cholesterol. Clinicians recommended that white bread aged 3 and older get 55%–60% of energy from carbohydrates, 10%–15% from protein, and 30% from fat (with 10% or less as saturated fat), reported Dr. Tuuli Kaitosaari of the University of Turku (Finland) and associates.

When the children reached age 7, the investigators took detailed laboratory measurements of a subset of 200 children seen consecutively for follow-up visits; of these, 167 also had blood samples taken at their 9-year follow-up visit. The 9-year-olds (78 in the intervention group and 89 in the control group) make up the current study population.

The children in the intervention group consumed significantly less saturated fat and less saturated fat than those in the control group. Scores on the homeostasis model assessment of insulin resistance (HOMAIR) index at age 9 were lower in the intervention children, indicating better insulin sensitivity compared with controls (Diabetes Care 2006;29:781-785).

Multivariate analyses indicated "that our finding of low HOMA-IR in intervention children is to a large extent due to their lower saturated fat intake," Dr. Kaitosaari and associates said. Other factors, including weight problems in 11 women previously they had shown that fiber consumption enhances colonic fermentation. The breast tests suggested that four women did not adhere to the study diet.

For the 17 women as a whole, 3 days of fiber-enriched bread significantly improved whole-body glucose disposal, equivalent to an 8% improvement in insulin sensitivity. Eating insulin concentrations tended to be reduced after the days of fiber, an effect that might have been significant in a larger study, the investigators noted.

A sub-analysis that excluded the four women who probably did not ingest the test meals found a highly significant improvement in insulin sensitivity 24 hours post-3 days of fiber-fortified bread, equivalent to a 13% improvement in insulin sensitivity.