

New research identifies differences in metabolic disease markers in healthy, obese 7-to-9-year-olds

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Research led by Dr. Melinda Sothorn, Professor of Public Health and Jim Finks Endowed Chair in Health Promotion at LSU Health Sciences Center New Orleans, has found that obese 7-9-year-old children had nearly three times the liver fat and almost double the belly fat of their nonobese counterparts and that insulin resistance was more than double and insulin sensitivity less than half respectively. The study is the first to use a combination of advanced measurements in healthy obese and nonobese children in this age group prior to entering puberty. The findings are detailed in the journal, *Obesity*, online August 25, 2011.

"The amount of body fat as well as its location, particularly in the liver, appears to play a critical role in disease development," notes LSUHSC's Dr. Melinda Sothorn. "The substantial variation in biomarkers we observed in these young children suggests that obesity in this age group may disrupt normal metabolism, impairing [glucose tolerance](#) and increasing the risk for Type 2 diabetes later in life."

The researchers studied 123 children, ages 7-9, recruited from southeast Louisiana. By BMI z-score thresholds, 23.6% of the children were obese. Although a clear definition for the metabolic syndrome in children and adolescents has not yet been established, by one set of proposed criteria, 16% of participants met the definition, and 8% met the criteria by another definition.

"Our data confirm that healthy obese young children may already be predisposed to the development of [metabolic disease](#) as has been demonstrated in adult populations," said Dr. Sothern. "Our findings highlight the importance of interventions to prevent and manage obesity very early in life and suggest this is a possible means of reducing metabolic disease risk and combating the increasing prevalence of Type 2 diabetes."

Over the past 30 years, the [prevalence of obesity](#) has increased considerably. Although a recent national report indicates a leveling off of this trend, a significant portion of the pediatric population remains obese and at risk for developing metabolic diseases, particularly those related to carbohydrate metabolism. Some regions, especially areas with traditionally higher obesity prevalence rates, however, may not mirror national estimates.

Provided by Louisiana State University Health Sciences Center

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