

## **Cardiovascular Risk in Youth with Type 1 Diabetes Linked Primarily to Insulin Resistance**

***Youth with Type 1 diabetes have now been found to have abnormal insulin resistance. Having abnormal insulin resistance appears to negatively affect heart, blood vessel and exercise function in this population.***

Type 1 diabetes often begins in childhood and patients with Type 2 diabetes have their insulin resistance measured routinely, but this is currently not common practice in treating patients with Type 1 diabetes -- especially those with normal weight. Because insulin resistance is known to contribute to cardiovascular disease in Type 2 diabetes researchers in this study investigated whether insulin resistance has a similar effect on adolescents with Type 1 diabetes.

In this study, researchers measured insulin sensitivity and heart, blood and exercise function in 12 adolescents with Type 1 diabetes and compared these measurements with measurements from 12 control patients without diabetes, but similar in age, pubertal stage, activity level and body mass index. They found that insulin resistance may affect long-term cardiovascular outcomes in Type 1 diabetes as is found in people with Type 2 diabetes. Specifically, results indicate that insulin resistance is directly related to decreased heart and vessel function and appears to impair capacity to exercise.

"Cardiovascular disease is the major cause of death in adults with diabetes, but until now, little was known about the effects of Type 1 diabetes on cardiovascular health in youth," said Kristen Nadeau, MD, of the University of Colorado Denver, and lead author of the study. "Our data suggests that while youth with Type 1 diabetes may not present conditions typical of insulin resistance, such as obesity, insulin resistance is present and may affect long-term cardiovascular outcomes in this population."

"Our study is one of the first definitive studies showing the presence of insulin resistance in youth with Type 1 diabetes and this may have significant implications for the cardiovascular health of these patients," said Nadeau. "Increasing our understanding of the mechanisms underlying insulin resistance in adolescents with Type 1 diabetes will direct future research and therapeutic interventions. If insulin resistance is addressed early in the care of patients with Type 1 diabetes, it may be possible to decrease cardiovascular morbidity and mortality in this population."

*The article, "A Unique Phenotype of Insulin Resistance in Adolescents with Type 1 Diabetes: Implications for Cardiovascular Function," will appear in the February 2010 issue of JCEM.*