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Birth order linked to increased risk of diabetes, metabolic disorders

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–Long a source of sibling rivalry, birth order may raise the risk of first-born children developing diabetes or high blood pressure, according to a recent study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (JCEM).

First-born children have greater difficulty absorbing sugars into the body and have higher daytime blood pressure than children who have older siblings, according to the study conducted at the University of Auckland's Liggins Institute in New Zealand. The study was the first to document a 21 percent drop in insulin sensitivity among first-born children.

"Although birth order alone is not a predictor of metabolic or cardiovascular disease, being the first-born child in a family can contribute to a person's overall risk," said Wayne Cutfield, MBChB, DCH, FRACP, of the University of Auckland.

With family size shrinking in many countries, a larger proportion of the population is made up of first-born children who could develop conditions like type 2 diabetes, coronary artery disease, stroke and hypertension. The research findings may have significant public health implications for nations like China, where the one-child policy has led to a greater segment of the population being composed of first-born children.

The study measured fasting lipid and hormonal profiles, height, weight

and body composition in 85 healthy children between the ages of 4 and 11. The 32 first-born children who participated in the study had a 21 percent reduction in insulin sensitivity and a 4 mmHg increase in blood pressure.

The good news for oldest and only children? The study found they tended to be taller and slimmer than their later-born counterparts, even after the height and body mass index of their parents was taken into account.

The metabolic differences in younger siblings might be caused by physical changes in the mother's uterus during her first pregnancy. As a result of the changes, nutrient flow to the fetus tends to increase during subsequent pregnancies.

For this study, researchers focused on children because puberty and adult lifestyle can affect insulin sensitivity.

"Our results indicate first-born children have these risk factors, but more research is needed to determine how that translates into adult cases of diabetes, hypertension and other conditions," Cutfield said.

Other researchers working on the study include: A. Ayyavoo, T. Savage, J. Derraik and P. Hofman of the University of Auckland.

The article, "First-born Children Have Reduced Insulin Sensitivity And Higher Daytime Blood Pressure Compared To Later-born Children," appears in the March 2013 issue of JCEM.

Provided by The Endocrine Society