

Researchers explore how mothers' blood sugar levels influence child fat

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Researchers from Manchester have begun a new study to determine whether blood sugar levels during pregnancy, lower than the level used to diagnose gestational diabetes, influences later levels of body fat in children and development of diabetes in mothers after giving birth.

The team from The University of Manchester and Central Manchester NHS Foundation Trust are trying to trace mothers and children who took part in an earlier research project 12 years ago.

The original study, the Hyperglycemia and Pregnancy Outcomes (HAPO), looked at 2400 mothers from Manchester who were part of 23,316 mother-child pairs worldwide. They found that a mother's <u>blood</u> sugar levels, even short of diabetes, were associated with how heavy or fat her baby was.

Avni Vyas, from The University of Manchester's Institute of Human Development, said: "We know that heavy babies are more likely to become overweight as children. The medical world has known for over a decade that obesity is rising at an alarming rate. However, we are still surprised when we see the above figures headlining in newspapers on a regular basis. Increasing tax on unhealthy foods and now sweet drinks- is not the way forward. The problem stems from people not believing in the <u>increased risk</u> of ill health and early death from obesity and secondly not knowing or not wanting to know if they are at risk.

"We know that mothers with poor health and early signs of diabetes in



pregnancy are at increased risk of having adverse outcomes at delivery such as; shoulder dystocia, caesarean sections and babies that are overweight and possibly hyperglycaemic. These children then go on to become unhealthy in later life and the cycle is perpetuated."

The Manchester researchers join experts funded by the National Institute of Health in the United States led by Professor Boyd Metzger, who plan to determine whether elevated blood sugar during pregnancy, a less severe condition than <u>gestational diabetes</u>, influences later levels of body fat in children and development of diabetes in mothers after giving birth. The research will also take place in the United States, Toronto, Barbados, Hong Kong, Israel and Belfast.

Known as the HAPO-Follow-up Study (HAPO-FUS), they seek to recruit 800 of the original HAPO mothers and their children from Manchester for a single visit to the Wellcome Trust Clinical Research Facility. Mothers and their children (now aged 8 to 12 years) will have their height, weight, blood pressure, <u>body fat</u>, blood sugar, insulin, and blood fats measured.

Dr Michael Maresh, Obstetrician at St Mary's Hospital, Manchester, said: "The original study has helped us to better understand the relationship between blood sugar levels in pregnancy and whether they are related to increased risk for the mother having complications during delivery or her baby having problems. As a result of this important study, medical and public health opinion regarding healthy blood sugar levels in pregnancy is changing. It is now becoming common practice to aim to have lower <u>blood sugar levels</u> during pregnancy than was originally accepted."

Professor Peter Clayton, Paediatric Endocrinologist at the Manchester Children's Hospital and Professor of Child Health and Paediatric Endocrinology at The University of Manchester, added: "If we can



determine risk factors for obesity early in life, then we have the opportunity to do something about it. This could help to prevent some of the later life consequences of obesity, such as heart disease and diabetes.

The US funded original HAPO study was initially conducted at 15 centres across nine countries between 2000 and 2006. HAPO sought to determine whether high sugar levels, less severe than diabetes, were associated with adverse pregnancy and birth outcomes. The women underwent an oral glucose tolerance test between 24 and 32 weeks of pregnancy.

In the original HAPO study, researchers found that women with higher glucose levels also had an increased risk of needing a caesarean section. These results were found across all the clinical centres and led an international panel of experts to recommend new diagnostic criteria for gestational diabetes (2010), a form of <u>diabetes</u> that develops during pregnancy.

Provided by University of Manchester

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