

Genetic health risks in children of assisted reproductive technology

February 21 2010

More than three million children have been born as a result of assisted reproductive technologies since the birth of the first "test tube baby" in 1978. While the majority of these children are healthy and normal, as a group they are at greater risk of certain kinds of birth defects and being low birth weight, which is associated with obesity, hypertension and type 2 diabetes later in life.

Carmen Sapienza, a geneticist at Temple University School of Medicine, studies the impact of the environment on [genes](#) by comparing one type of chromosome modification, called "DNA methylation" between children conceived in the traditional fashion with children born as a result of assisted reproduction.

"We found that 5-10 percent of these chromosome modifications were different in children born through assisted reproduction, and this altered the expression of nearby genes," he said. "But we have not yet distinguished whether this is caused by assisted reproductive technologies or other factors such as the couple's infertility."

Because some of the affected genes are involved in the development of fat tissue and the metabolism of glucose, Sapienza believes it will be important to monitor these children long-term to determine whether they have higher rates of obesity or diabetes.

He notes that even though there were measurable differences in DNA methylation and [gene expression](#) between the two groups, only a small

fraction of the assisted reproduction children were found to be outside the "normal" range.

Provided by Temple University

Citation: Genetic health risks in children of assisted reproductive technology (2010, February 21)
retrieved 4 May 2024 from

<https://medicalxpress.com/news/2010-02-genetic-health-children-reproductive-technology.html>

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