

Women who experienced higher levels of trauma gave birth to significantly smaller male babies

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In the first study of its kind, researchers from the Icahn School of Medicine at Mount Sinai have found significantly lower birth weights in

male infants—an average decrease of 38 grams, or approximately 1.3 ounces—born to women who had been exposed to trauma at some point in their lives and who secreted higher levels of cortisol, a hormone related to stress, in late pregnancy.

The study will be published online on Tuesday, September 18, at 12:01 am EDT in *The Journal of Pediatrics*.

Only women who had both a history of trauma and [higher levels of cortisol secretion](#) experienced lower birth weights; trauma alone was not sufficient. The association was also only seen among male babies. This is consistent with other data that shows that male fetuses are more susceptible to effects of maternal [stress](#) on intrauterine growth.

The Programming of Intergenerational Stress Mechanisms (PRISM) study provided data for the research. Information was gathered from 314 pregnant women receiving prenatal care and their children. The women provided information on their medical history and exposure to traumatic and [stressful events](#) using the Life Stressor Checklist-Revised (LSC-R), a commonly used tool to measure lifetime exposure to stressful events particularly relevant to women. At delivery, the subjects provided hair samples which were used to measure cortisol. Birth weight and sex of the infant were recorded.

While the mechanisms remain unclear, trauma-related stress, even when occurring long before the woman becomes pregnant, can have lasting effects on regulatory systems involved in her day-to-day response to stress, including processes related to cortisol production. Not everyone who experiences trauma develops disruption in their biological stress response systems but if they do, there can be health implications for both the woman and her child. Therefore, knowing about a pregnant woman's history of trauma together with [stress hormone levels](#) may identify at-risk pregnancies that may be complicated by [low birth weight](#).

"Our study highlights that experiences prior to pregnancy can shape the health of subsequent generations through altered fetal development and pregnancy outcomes," said the study's senior author, Rosalind Wright, MD, MPH, Dean for Translational Biomedical Sciences at the Icahn School of Medicine at Mount Sinai. "Given the disproportionate exposure to stressors among racial minorities and women of lower socioeconomic status, there are important implications for understanding intergenerational perpetuation of health disparities and for understanding how to intervene."

Size at birth is a determinant of lifelong function, health, and disease. Minority [women](#) and those of disadvantaged socio-economic status are more likely to have low-birthweight infants. Chronic lifetime stress contributes to this risk.

"Identifying a prior history of [trauma](#) and providing interventions, for example treatment for associated mood disturbances, could lead to improved perinatal outcomes that have lifelong implications for health of mother and baby," said the study's first author, Julie Flom, MD, MPH, fellow in the Department of Allergy and Immunology at Icahn School of Medicine at Mount Sinai.

Provided by The Mount Sinai Hospital

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