

# Being born small or stress during pregnancy can lead to greater disease risk in mothers

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Low birth weight or stress during pregnancy can lead to long-term health problems in women, according to a study published today in *The Journal of Physiology*.

The study found that stress during pregnancy leads to long-term [health](#) issues in mothers, affecting adrenal, metabolic and cardio-renal health after pregnancy.

Jean Ni Cheong, from The University of Melbourne, and the PhD student leading the study, said it was known that being born of [low birth weight](#) or experiencing stress during pregnancy increased the risks of pregnancy complications.

"We know that women born with a low [birth weight](#) do not adapt as well to pregnancy and have higher risks of developing various complications, and experiencing stress can also induce these complications," Ms Cheong said.

"But little is understood about how experiencing stress during pregnancy and having been born with a low birth weight affect mothers for the rest of their lives."

Previous research has shown that a low maternal birth weight and exposure to stress are very common during pregnancy and can lead to poor health outcomes in children. Ms Cheong said her research explored what these could also mean to the health of a mother post pregnancy.

The researchers used a rat model where restricting oxygen, nutrient and blood supply during pregnancy led to offspring being born with a low birth weight. When the low birth weight female rats subsequently became pregnant, researchers induced stress through common measurements performed during human pregnancy.

Long after the conclusion of pregnancy, they studied parameters in the mothers including blood pressure, renal function, stress hormone production and metabolic function.

"We found that [stress](#) and low birth weight can independently affect cardiovascular, kidney, adrenal and metabolic health of mothers long after the pregnancy," Ms Cheong said.

"Interestingly, having both risk factors did not lead to more severe outcomes."

She said the findings indicated researchers should pay more attention to the role complicated pregnancies have on the health of the women after

pregnancy.

"By identifying individuals at higher risk of developing complications during pregnancy and therefore long-term diseases, appropriate interventions can be implemented to improve outcomes."

University of Melbourne Professor Mary Wlodek, Professor of Physiology and lead investigator of the study, said the findings highlight the long-term health implications for women born small or who endured a stressful pregnancy.

"More research is required to further explore why a low birth weight and a stressful pregnancy causes [pregnancy complications](#) and adversely harms the health of these mothers," Professor Wlodek said.

"By understanding these pathways, appropriate interventions and advice can be given to women who were born small or had a stressful [pregnancy](#) ."

**More information:** Jean N. Cheong et al, Adrenal, metabolic and cardio-renal dysfunction develops after pregnancy in rats born small or stressed by physiological measurements during pregnancy, *The Journal of Physiology* (2016). [DOI: 10.1113/JP272212](https://doi.org/10.1113/JP272212)

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