

Stress during pregnancy can affect fetal development

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Pregnancy test. Credit: public domain

Stress hormones in the mother can affect foetal development, according to a study published today in *The Journal of Physiology*.

To test whether high [stress levels](#) in pregnant mice had an impact on their offspring, pregnant mice received the natural glucocorticoid corticosterone at different times during pregnancy, either from day 11 to 16 (20 females), from day 14-19 (31 females), or not at all (74 control females).

Researchers found that increased levels of glucocorticoid [stress](#)

[hormones](#) in [pregnant mice](#) caused the mother to eat more but reduced the ability of the [placenta](#) to transport glucose to her foetus.

Dr Owen Vaughan, lead author of the study explained: "Together with previous work, the findings show that maternal glucocorticoids regulate foetal nutrition. Higher glucocorticoid hormone levels in the mother (as seen in stressful conditions), can reduce glucose transport across the placenta and lead to a decrease in foetal weight.

"Glucocorticoid levels in [pregnant women](#) may determine the specific combination of nutrients received by the foetus and influence the long-term metabolic health of their children as a result. This could have implications for women stressed during pregnancy or treated clinically with glucocorticoids, if the mechanisms are similar in humans.

"Our research showed that under stress, certain genes in the placenta were modified. One of the genes shown to be altered in the placenta by maternal stress hormones was *Redd1*. This gene is believed to signal availability of other substances, like oxygen, and to interact with intracellular pathways regulating growth and nutrient uptake in other tissues of the body. Future studies may prove this molecule is important in the placenta, in linking environmental cues to the nutrition of the foetus."

Provided by Wiley

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