

Sex of baby drives response to pregnancy stress

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University of Adelaide research is showing that the sex of the baby determines the way it responds to stressors during pregnancy and its ability to survive pregnancy complications.

Male and female babies during pregnancy show different growth and development patterns following stressors during pregnancy such as disease, cigarette use or psychological [stress](#).

The research is being carried out by the Robinson Institute's Pregnancy and Development Group, based at the Lyell McEwin Hospital and led by Associate Professor Vicki Clifton.

"What we have found is that male and female babies will respond to a stress during pregnancy by adjusting their growth patterns differently," said Associate Professor Clifton.

"The male, when mum is stressed, pretends it's not happening and keeps growing, so he can be as big as he possibly can be. The female, in response to mum's stress, will reduce her growth rate a little bit; not too much so she becomes growth restricted, but just dropping a bit below average.

"When there is another complication in the pregnancy - either a different stress or the same one again - the female will continue to grow on that same pathway and do okay but the male baby doesn't do so well and is at greater risk of pre-term delivery, stopping growing or dying in the [uterus](#)

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Associate Professor Clifton said this sex-specific growth response had been observed in pregnancies complicated by asthma, pre-eclampsia and cigarette use but was also likely to occur in other stressful events during pregnancy such as [psychological stress](#).

She said this sex-specific growth pattern was a result of changes in placental function caused by the stress hormone [cortisol](#).

In female babies, increased cortisol produces changes to the placental function which lead to the reduction in growth, but the increased cortisol levels in a mother carrying a male baby doesn't produce the same changes in placental function.

Associate Professor Clifton said this research could lead to sex-specific therapies in pre-term pregnancies and premature newborns. It was also important in helping obstetricians more accurately interpret growth and development of the fetus in at-risk pregnancies.

"We are looking at what events during [pregnancy](#) cause changes in how the baby grows, what's behind this and ways in which we can improve the outcomes for pregnant women and their [babies](#)," she said.

Provided by University of Adelaide

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