

# Study finds stress hormones fluctuate with mood during pregnancy

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(Medical Xpress) -- While pregnant, women pay particular attention to factors such as diet and exercise to ensure their babies are born healthy and develop normally. New research from the University of Calgary's Faculty of Medicine suggests another factor women should pay particular attention to while pregnant—their mood. The findings were published in this month's issue of *Psychoneuroendocrinology*.

Gerry Giesbrecht, PhD, a psychologist and member of the University's Alberta Children's Hospital Research Institute for Child and Maternal Health, was lead author on a study that analyzed how levels of the stress hormone cortisol change when mood changes in [pregnant women](#). While [cortisol levels](#) naturally fluctuate over the course of the day, the study found that as negative mood increases, cortisol levels increase as well.

These findings highlight the need to better understand how and to what extent the fetus shares its mother's experience.

"It goes without saying that depression or anxiety affects the pregnant mom but we have mostly paid attention to these effects during the post-partum period. But knowing that mood changes a woman's physiology in ways that have implications for the fetus tells us that health-care providers need to start paying attention to mood during pregnancy," he says.

Cortisol is a hormone that occurs naturally in the body in both males and females. While its primary roles are to manage blood sugar levels, to

suppress the immune system and to aid in the metabolism of specific nutrients, it also plays a unique role during pregnancy. Cortisol levels increase greatly during the final gestational weeks to ensure the baby's lungs are prepared for birth. It is also vital for fetal brain development.

“This information suggests that too little of the hormone could have developmental consequences,” he says. “It also suggests that too much of the hormone could have developmental consequences. Now that we know changing mood has a large enough consequence on cortisol that it could affect the fetus, we can start to look at how to use maternal mood to achieve good developmental outcomes for the fetus.”

Giesbrecht says while they don't currently know what the consequences are when exposed to too much of the hormone, the study has paved the way for further research on the topic.

“We have some sense of what happens when a fetus is exposed to too much cortisol, but we don't have a lot of evidence as yet,” he says. Fiona McCord participated in the study while pregnant with her son. She says her participation came from her desire to help figure out the road map to a happy and healthy baby.

“While pregnant you're constantly evaluating all your actions and are willing to do whatever it takes to ensure your baby arrives happy and healthy,” she says. “I thought by participating it might help someone like me in a few years who just wanted to make the right choices for her baby.”

The study followed 83 women, who were between six and 37 weeks gestation, by measuring cortisol levels in their saliva. Saliva collection was done at home over three consecutive days on a schedule that included upon waking, shortly after waking up and at various times throughout the day. The women completed a [mood](#) questionnaire at the

time of each collection. To ensure no outside factors affected cortisol levels, participants were asked to refrain from consuming certain food products and refrain from certain activities prior to collection. Over 1,000 saliva samples were analyzed.

The study was funded by Alberta Innovates–Health Solutions and the Alberta Children’s Hospital Research Institute for Child and Maternal Health.

Provided by University of Calgary

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