

# Stress during pregnancy related to infant gut microbiota

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Women who experience stress during pregnancy are likely to have babies with a poor mix of intestinal microbiota and with a higher incidence of intestinal problems and allergic reactions. This could be related to psychological and physical problems as the child develops. (Psychoneuroendocrinology).

Stress during pregnancy is often linked to physical and psychological problems in the child. But why is this? Could the infant's [gut microbiota](#) be an underlying mechanism? An initial study of the correlation in humans has shown that [babies](#) born to mothers who experience stress have a poorer mix of intestinal microbiota.

For the purposes of this study, the stress and anxiety levels of pregnant women were measured by means of questionnaires and testing the levels of the hormone cortisol in saliva. In addition, faeces samples from 56 babies were tested from 7 days until 4 months after birth. A correlation was found between the mothers who reported high stress levels and presented [high cortisol levels](#) and the variety of microbiota in the babies' guts, even when the analyses took breastfeeding and postnatal stress into account.

## Different mix of bacteria

Mothers who reported high stress levels and presented high cortisol readings had babies with more Proteobacteria and fewer [lactic acid bacteria](#) and Actinobacteria in their microbiota. This represents a poor mix of microbiota, which was also reflected in the relationship between the presence of these microbiota and a higher incidence of intestinal problems and [allergic reactions](#) among the babies in this research group.

## Mechanism

'We think that our results point towards a possible mechanism for health problems in children of

mothers who experience stress during pregnancy. Giving other bacteria would probably benefit these children's development,' says Carolina de Weerth, professor of developmental psychology in the Behavioural Science Institute of Radboud University Nijmegen, and corresponding author of the article that is in press in Psychoneuroendocrinology.

**More information:** Zijlmans, M.A.C., Korpela, K., Riksen-Walraven, J.M., de Vos, W.M., de Weerth, C., "Maternal Prenatal Stress is Associated with the Infant Intestinal Microbiota," *Psychoneuroendocrinology* (2015), [dx.doi.org/10.1016/j.psyneuen.2015.01.006](https://doi.org/10.1016/j.psyneuen.2015.01.006)

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