

Stress hormone during pregnancy may improve early language development in children

High levels of the stress hormone cortisol during the third trimester of pregnancy may improve speech and language skills in the first 3 years of a child's life, according to research presented at the 25th European Congress of Endocrinology in Istanbul. The findings help researchers further understand the role cortisol plays in both fetal and child development.

Language development during early childhood can indicate how well a baby's nervous system was developed in the womb. Prenatal exposure to cortisol – a steroid hormone that helps the body respond to stress – directs the growth of a fetus and also affects its brain development. However, the effects cortisol has on early language development remain unknown.

In this study, researchers from the Odense University Hospital analysed data on the cortisol levels of 1,093 Danish women during their third trimester of pregnancy and on the speech and language skills of 1,093 Danish children aged 12-37 months, from the Odense Child Cohort. They found that boys exposed to high cortisol levels in the womb could say more words at ages 12-37 months, while girls were better at understanding more words at the age of 12-21 months.

“To our knowledge, this is the first study to investigate the association between maternal cortisol levels and language development in children over time, also taking offspring sex and maternal educational level into account,” said Dr Anja Fenger Dreyer, who was involved in the study.

She added: “We have had access to a large study cohort, high-quality methods of analysis and relevant covariates, making our study an important contribution to the physiological understanding of prenatal cortisol exposure in fetal maturation and child development.”

The team will next assess whether children exposed to high cortisol in the womb are more likely to have higher intelligence quotient (IQ) scores. Except for the data on maternal cortisol levels and early language development, the Odense Child Cohort also has data on intelligence tests carried out by children aged 7 years old. “Early language development in children is known as a predictor for cognitive function later in life, such as attention, memory and learning, so we want to investigate whether prenatal cortisol exposure is also associated with IQ scores of children aged 7 years old,” said Dr Fenger Dreyer.

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Notes for Editors:

1. For further information about the study, and to arrange an interview with the authors, please contact the ESE press office:

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2. The poster **“Maternal cortisol levels in 3rd trimester and early language development, a study of 1,093 mother-child pairs from Odense Child Cohort”** will be presented on Saturday 13 May 2023 at the European Congress of Endocrinology at the Halic Congress Center in Istanbul, Turkey.
3. The 25th European Congress of Endocrinology (ECE) is held at the Halic Congress Center in Istanbul, Turkey, on 13-16 May 2023. See the full scientific programme [here](#).
4. The [European Society of Endocrinology](#) (ESE) provides a platform to develop and share leading research and best knowledge in endocrine science and medicine. By uniting and representing every part of the endocrine community, we are best placed to improve the lives of patients. With over 5,000 individual members and through the 51 National Societies involved with the ESE Council of Affiliated Societies (ECAS), ESE represents a community of over 20,000 European endocrinologists. We inform policy makers on health decisions at the highest level through advocacy efforts across Europe.