

Prenatal testosterone linked to increased risk of language delay for male infants, study shows

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New research by Australian scientists reveals that males who are exposed to high levels of testosterone before birth are twice as likely to experience delays in language development compared to females. The research, published in *Journal of Child Psychology and Psychiatry*, focused on umbilical cord blood to explore the presence of testosterone when the language-related regions of a fetus' brain are undergoing a critical period of growth.

"An estimated 12% of toddlers experience significant delays in their language development," said lead author Professor Andrew Whitehouse from the University of Western Australia. "While language development varies between individuals, males tend to develop later and at a slower rate than females."

The team believed this may be due to prenatal exposure to sex-steroids such as testosterone. [Male fetuses](#) are known to have 10 times the circulating levels of testosterone compared to females. The team proposed that higher levels of exposure to prenatal testosterone may increase the likelihood of language development delays.

Professor Whitehouse's team measured levels of testosterone in the umbilical cord blood of 767 newborns before examining their language ability at 1, 2 and 3-years of age.

The results showed [male infants](#) with high levels of testosterone in cord blood were between two-and-three times more likely to experience language delay. However, the opposite effect was found in female infants, where high-levels of testosterone in cord blood were associated with a decreased risk of language delay.

Previous smaller studies have explored the link between [testosterone levels](#) in amniotic fluid and language development. However, this is the first large population-based study to explore the relationship between umbilical cord blood and language delay in the first three years of life.

"Language delay is one of the most common reasons children are taken to a Paediatrician," concluded Professor Whitehouse. "Now these findings can help us to understand the biological mechanisms that may underpin language delay, as well as language development more generally."

More information: Whitehouse. A, Mattes. E, Maybery. M, Sawyer. M, Jacoby. P, Keelan. J, Hickey. M, "Sex-specific associations between umbilical cord blood testosterone levels and language delay in early childhood," Child and Adolescent Mental Health, Wiley-Blackwell, January 2012, DOI: 10.1111/j.1469-7610.2011.02523.x .
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