

Testosterone levels linked to higher autistic traits

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"We found that males who scored high on the AQ sound more masculine than males who scored low on the AQ," Ms Tan says. Credit: Lance Neilson

Local researchers say foetus' exposure to high levels of testosterone in utero might explain increased autistic-like traits, according to Baron-Cohen's Extreme Male Brain theory (EMB).

Individuals with [autism spectrum disorders](#) (ASD) are four times more likely to be male than female.

To understand the link between [testosterone](#) and elevated autistic traits researchers from the University of Western Australia and Telethon Kids Institute conducted their own study to compare the EMB theory of hyper-masculinisation in males and defeminisation in females, against the androgyny (less gender typical) theory.

"In the Baron-Cohen theory autistic traits are linked to excessive exposure to testosterone," UWA psychology PhD student Diana Tan says.

"We also know that testosterone has other effects such as masculinising faces and voices.

"We looked at the differences in physical features of people who are high and low on the autism-spectrum quotient."

Between 2013-2014, 76 male and female (mean age: 17-18 years) undergraduate psychology students had their faces photographed and 47 of the students had their voices recorded.

The Autism-spectrum Quotient (AQ) questionnaire was also used to assess autistic-like traits in the participants.

"Being high on the AQ means that someone has more traits that are similar to someone who has ASD," Ms Tan says.

"We wanted to explore whether those who are high on AQ are more masculine or less masculine than those who are low on AQ to test out the two different theories."

Faces and voices considered for masculine/feminine qualities

Thirty students then rated the faces and voices for their masculinity or femininity.

"The results of our study provided support for the extreme male brain theory," she says.

"We found that males who scored high on the AQ sound more masculine than males who scored low on the AQ."

The study also found faces of females who scored high on the AQ were less feminine than females who scored low on the AQ.

"EMB theory seems to describe the physical features of the high-AQ participants better than the androgyny theory," Ms Tan says.

The study revealed that both genders are hyper

masculinised if they scored high on the AQ.

Ms Tan says more masculinised voices in males and defeminised facial features in females are associated with higher levels of [autistic traits](#), supporting the Extreme Male Brain theory.

However, further investigation into vocal and facial features is needed to understand the relationship of ASD with elevated testosterone levels in utero.

More information: "Perceived Gender Ratings for High and Low Scorers on the Autism-Spectrum Quotient Consistent with the Extreme Male Brain Account of Autism." *PLoS ONE* 10(7): e0131780. [DOI: 10.1371/journal.pone.0131780](https://doi.org/10.1371/journal.pone.0131780)

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