

Researchers reveal new mechanism behind more male autism

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(Medical Xpress) -- New University of Otago research into two sex hormones released by the testes of male fetuses and boys may help solve the enduring mystery of why autism is much more common in boys than girls.

Department of [Anatomy](#) researchers have discovered that variations within normal- range levels of anti-Müllerian hormone (AMH, also known as Müllerian inhibiting substance) and inhibin B (InhB) are linked with the severity of symptoms in boys with autistic spectrum disorders (ASD).

Autism spectrum disorders are developmental disorders featuring repetitive or stereotyped behaviours as well as impairments to social interaction, communication and language.

The new Otago study, which challenges current thinking that ASD simply reflects a testosterone-fuelled extreme of male biology, was carried out by Dr Michael Pankhurst and Professor Ian McLennan and is newly published in the international journal *Translational Psychiatry*.

The researchers studied blood samples from 82 boys with ASD and 16 control boys, all aged between 4.4 to 8.9 years. Measuring the levels of the two hormones, the researchers found that these were highly variable from boy to boy, but no different on average between the two groups of boys.

However, in boys with ASD, those with high InhB levels tended to have worse autistic symptoms than those with low levels of the hormone. Conversely, ASD boys with high AMH levels tended to have fewer symptoms.

Professor McLennan says the findings indicate that male hormones are important for autism, but not because autistic boys have abnormal levels.

“While it has been previously suggested that exposure in the womb to excessive levels of testosterone might be creating an ‘extreme male brain’, this does not explain why some females have autism, or why males with [autism](#) do not exhibit an extreme male physical form.

“Our data suggest that the still-elusive primary initiating cause of ASD is common to both males and females, with the condition being more frequent in [males](#) because normal levels of male hormones exacerbates the pathology,” he says.

The researchers investigated the potential role of AMH and InhB in the sex bias of ASD following their team's earlier finding that these two hormones were factors regulating the rate of child development, which on average is slower in [boys](#) than [girls](#).

Other researchers had shown that the brains of children with ASD grow atypically fast during early development, creating an infant with a large brain. Their brain development then becomes atypically slow, resulting in the size of the brain of an ASD adult being similar to that of the general population.

The researchers say that their hypothesis now needs further testing through longitudinal studies of at-risk male babies to determine whether their levels of AMH and InhB early in development can predict the breadth of autistic traits later in life.

Professor McLennan says that more broadly the team's findings highlight the importance of uncovering the basis of such sex biases, which occur in most brain disorders.

“ASD is the prime example of a male bias in the same way that anorexia nervosa is the most well known condition with a female bias. Other sex biases include Alzheimer's disease in women and motor neurone disease in men.”

More information: Pankhurst, M.W., McLennan, I.S. (2012) Inhibin B and anti-Müllerian hormone/ Müllerian Inhibiting Substance may contribute to the male bias in autism. *Translational Psychiatry*.
www.nature.com/tp/journal/v2/n.../full/tp201272a.html

Provided by University of Otago

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