Universität Zürich
Psychologisches Institut

**Klinische Psychologie
und Psychobiologie**

Binzmühlestrasse 14 / Box 8
CH-8050 Zürich
www.psychologie.uzh.ch/psychobio
www.socialbehavior.uzh.ch

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The foetal androgen theory of neural sex differences and autism

Prof. Dr. Simon Baron-Cohen, Autism Research Centre,
Cambridge University

Autism (a condition leading to social and communication difficulties) affects males much more often than females. The explanation for this must either lie in diagnostic practice, hormones, or genetics, or a mix of all three. In this paper I summarize work from our lab investigating the role of foetal testosterone (FT) in post-natal typical behavioural sex differences (e.g., in social and communication development), and in the development of autistic traits. The study uses amniocentesis, the timing of which coincides with the surge in FT production, and is a longitudinal follow-up. Whilst this methodology does not rule out the role of genes, it suggests FT is a key factor underlying some key sex differences in the mind and brain, and may be related to the number of autistic traits an individual has. Converging evidence for the link between testosterone and autistic traits comes from two other sources: rare medical conditions where FT is elevated (such as Congenital Adrenal Hyperplasia) and the timing of puberty in autism (which is under the influence of androgens). The discussion ties these different lines of evidence together, and considers how FT has its effects in the developing brain.

Baron-Cohen S, Knickmeyer RC & Belmonte MK (2005). Sex differences in the brain: implications for explaining autism. *Science, 310 (5749),* 819-23.