

NEWS

Cognition and behavior: Oxytocin linked to brain connections

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Production nub: The hypothalamus (yellow), which regulates production of oxytocin, has weak connections with nearby regions in people who have an autism-linked genetic variant.

An autism-linked variant in the receptor for oxytocin may alter connections in the brain, according to a study published 17 May in *Neuroimage*¹.

Oxytocin is both a chemical messenger and a hormone known for its role in social behavior. It is **linked to monogamy** in one species of prairie vole and may enhance feelings of trust in people. Researchers are looking to see if oxytocin can be used as a **treatment for autism**, perhaps as a way to aid social learning.

The link between oxytocin and autism is not clear. People with autism have normal levels of oxytocin, but some studies have found that a common genetic variant in oxytocin's receptor (**OXTR**) is **more prevalent in people with autism** than in controls. In 2010, a larger study of 436 people **was not able to replicate** this association, however.

People with this variant of OXTR may also have a small hypothalamus, the brain region that regulates the production of oxytocin and the related hormone vasopressin². The same is true of **some children with autism**, according to a 2011 study.

In the new study, the researchers performed magnetic resonance imaging on 270 typical adults,

190 of them with the autism-linked OXTR variant, while they rested in the scanner. Such '**resting-state' scans** may reveal which brain areas are linked together in neural circuits.

The participants with the variant have fewer connections between the hypothalamus and nearby regions, the study found. This is especially true in men, which is interesting as autism is much **more common in men than in women**.

In particular, men with the autism-linked variant have weak connections between the hypothalamus and the left dorsolateral prefrontal cortex. The latter brain region is involved in attention, memory, language and social behavior.

References:

1: Wang J. *et al. Neuroimage* **81C**, 199-204 (2013) [PubMed](#)

2: Tost H. *et al. Proc. Natl. Acad. Sci. USA* **107**, 13936-13941 (2010) [PubMed](#)