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## **Too much maleness ?**

By Alanna Mitchell

Researchers have known that autism affects mostly boys, but they are only now finding out just how male the disorder really is. New research from Britain indicates that autism may be caused by too much testosterone in the amniotic fluid in the first few weeks of an embryo's life. It has the effect of poisoning the developing neural tube, the theory goes.

Consider the profile of an autistic: unable to interpret another's emotions; finds it tough to start a conversation -- or sustain one; relentlessly fascinated with machines, computers and television; not very interested in people; has trouble focusing on more than one thing at a time; compulsively collects objects such as model trains or cars; insists on routines with no discernible purpose; highly resistant to change.

As one woman, who works with an American autism organization, put it: "When you think about it intuitively, aren't autistics more like husbands than wives?"

The latest clue in the testosterone theory is contained in an article published last month in the academic journal *Developmental Medicine & Child Neurology*. The research -- conducted by J. T. Manning, a biologist at the University of Liverpool, and the renowned autism specialist Simon Baron-Cohen of the University of Cambridge -- looks for a link between the length of the ring finger and autism. And finds one.

It turns out that longer the ring finger is, compared with the index finger, the greater the likelihood of autism or Asperger syndrome, a developmental disorder similar to autism but less severe.

The study is based on a small sample size of autistics in England. But the results are dramatic. Eventually, the authors say, the length of the ring finger may prove to be a marker for the disorders.

The testosterone link is this: The length of the fingers is determined early in gestation, certainly by the 14th week. During that time, testosterone is one of the major agents of change in the amniotic fluid, though not the only one.

The male sex hormone has been suspected, for example, of having an influence on the development of the central nervous system, and slowing down growth in the creative left hemisphere of the brain, but bulking up the linear right.

This latest paper follows earlier, rather controversial, work by Dr. Baron-Cohen in which he bravely argued that autism is an extreme form of the normal male brain type. In fact, he even questioned (and largely rejected) the idea that anyone with a male brain has some symptoms of autism.

He broached the subject in a paper in the journal *Advances in Infancy Research* in 1997, layering in a bunch of caveats about how he thought this

folk wisdom ought to be used in a modern, supposedly non-gender-essentialist society.

"We are clearly in favour of the two sexes being treated as equals as regards their political rights," he writes, "but we wish to separate this from the scientific question, which is an empirical issue. After decades of research in this area, some sex differences at the psychological level are repeatedly found."

In other words, the male brain is not the same as the female brain, whatever the nature-versus-nurture crowd has to say about it. Despite that, an individual man can have a female brain and a woman can have a male brain. Either can have a brain evenly balanced between the two types.

But women, Dr. Baron-Cohen argues, are better than men (on average, he hastens to write, as a group) at language tasks, tests of social judgment, empathy and co-operation, fine-motor co-ordination, mathematical calculation tests and pretend play, among other things.

Men excel at mathematical reasoning, finding a pattern within a whole, imagining how a paper will look when it is folded, spatial skills and throwing and catching things.

His research was spawned by the fact that most autistics are male. The ratio runs at 4 to 1. When he takes out those who have a mental handicap and looks only at those of normal or high intelligence, the male-female ratio soars to 9 to 1. On the other hand, more boys than girls have all sorts of developmental and learning disorders.

The British research has important implications, said Wendy Roberts, a noted autism researcher and director of the Child Development Centre at Toronto's Hospital for Sick Children. "This is yet another strong suggestion that predisposition to developing autism starts in the first three months."

Rob Nicolson, a psychiatrist and professor at the University of Western Ontario in London, was not so enthralled by the theory. Dr. Nicolson, whose practice is made up of more than 100 autistics, all but a handful boys, favours a genetic theory to explain autism.

And he took exception to the notion that male behaviour is driven by biology, calling it "naive."

Is it sexist to think of autism as a mega-male thing? "I guess one might use that word," he said, somewhat stiffly. "I'm not sure I would use it."

His concern is that of a clinician. All too often, he said, boys do not get diagnosed as autistic as quickly as they might. Their behaviour is frequently dismissed as simply being male, he complained.

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