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Autism test 'could hit maths skills'



VIEWPOINT

Professor Simon Baron-Cohen

Director, Autism Research Centre, Cambridge University

The prospect of a prenatal test for autism, allowing couples to choose whether to have a baby with the condition, is coming closer. And with it also comes the possibility of a prenatal drug treatment being developed.

But in this week's Scrubbing Up, leading autism expert Professor Simon Baron-Cohen warns caution is needed to ensure associated talents, like numerical abilities, are not lost if the test or a "cure" become available.

“Males, maths and autism. On the face of it, these three things don't appear to be linked. And yet they are.

Males are much more likely to apply to university to study maths, for example.

In 2007, three quarters of applicants to read maths at Cambridge were male, as were 90% of applicants for the computer sciences degree.

Cambridge is not unique in this way. So why are males so attracted to studying maths?

And why, in over 100 years of the existence of the Fields Medal, maths' Nobel Prize, have none of the winners have ever been a woman?

Similarly, people with autism are much more likely to be male. Among those with classic autism, which includes a developmental delay in language and a risk of learning difficulties, males outnumber females by four to one.

And among those with Asperger Syndrome, males outnumber females by nine to one.

People with the condition talk at a normal age and have at least an average IQ, but share the social and communication difficulties of those with classic autism, as well as the narrow - even obsessive - interests and love of repetition.

'Male brains'

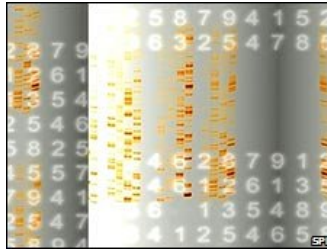
It seems as you move to the extremes of mathematical excellence, autism becomes more common.

The search to understand why led scientists to genetics. Fathers and grandfathers of children with autism are more likely to work in the field of engineering, a field that needs good attention to detail and a good understanding of systems, just like mathematics.

Siblings of mathematicians also have a higher risk of autism, suggesting the link between maths and autism is genetically mediated. And parents of children with autism show male-typical brain function in tests.

But genetics may not be the only explanation.

Research published this year showed a link between higher



An ability to understand numbers could be in DNA

“ Research is not yet at the stage where autism can be detected prenatally

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Autistic traits have been linked to levels of the male hormone

Most popular now, in detail

levels of the male hormone testosterone in the amniotic fluid surrounding a foetus and autistic traits when the child was eight.

And animal studies have shown foetal testosterone levels influence brain development, masculinising it.

'Wise to think ahead'

Research is not yet at the stage where autism can be detected prenatally using a biological test, but this may not be far off. Such a test will need to prove itself clinically in terms of whether it is highly specific (in detecting just autism).

But assuming such a test is developed, we would be wise to think ahead as to how such a test would be used.

If it was used to 'prevent' autism, with doctors advising mothers to consider termination of the pregnancy if their baby tested 'positive', what else would be lost in reducing the number of children born with autism?

Would we also reduce the number of future great mathematicians, for example?

Or if this test led to some kind of prenatal treatment, such as the use of drugs to block the effect of testosterone which is already medically possible, would this be desirable?

If reducing the testosterone in a foetus helped that baby's future social development, we would all be delighted.

But what if such a treatment reduced that baby's future ability to attend to details, and to understand systematic information like maths?

Caution is needed before scientists embrace prenatal testing so that we do not inadvertently repeat the history of eugenics or inadvertently 'cure' not just autism but the associated talents that are not in need of treatment. 🗨

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SCRUBBING UP



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Each week, you will be able to have your say

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