

Older grandfathers pass on autism risk through generations

20 March 2013

Men who become fathers at 50 or older are more likely to have grandchildren with autism compared to younger grandfathers, according to a joint international study.

The study, led by the [Queensland Brain Institute](#) at The University of Queensland and King' s College London' s Institute of Psychiatry (IoP) and Karolinska Institute in Sweden, shows for the first time how risk factors for autism with older fathers may accumulate and be passed down to grandchildren.

The paper' s co-author, Professor John McGrath from the Queensland Brain Institute, said researchers used Swedish national registers and identified 5936 individuals with autism and 30,923 healthy controls born in Sweden since 1932.

" We had complete data on each individual' s maternal and paternal grandfathers' age of reproduction and details of any psychiatric diagnosis," Professor McGrath said.

The study found men who had a daughter when they were aged 50 or older were 1.79 times more likely to have a grandchild with autism than men who had children when they were aged 20 to 24.

Men who had a son when they were 50 or older were 1.67 times more likely to have a grandchild with autism.

Professor McGrath said the evidence showed the biological clock ticked for men and not just for women.

" Autism is caused by a combination of genetic and environmental factors," Professor McGrath said.

" Previous studies have shown that older paternal age is a risk factor for autism in children: fathers aged 50 or older have a more than doubled risk to have a child diagnosed with autism compared to younger fathers.

" The mechanism behind this link is unknown, but may be explained by mutations occurring in the male sperm cells.

" Sperm cells divide over time, and on each division the genome is faced by the possibility of new mutations being introduced."

Professor McGrath said the Swedish study suggested that some of these new mutations could skip a generation.

" Most genetic mutations do not result in the child developing autism," he said.

" The new findings suggest that these ' silent' mutations are passed on to the otherwise healthy child, but may influence the risk of future generations developing autism."

Co-author Dr Avi Reichenberg from King' s Institute of Psychiatry, and said the research provided evidence on how fathers' and grandfathers' lifestyle choices affected the following generations.

" This doesn't mean that you shouldn't have children if your father was old when he had you, because whilst the risk is increased, it is still small," Dr Reichenberg said.

" However, the findings are important in understanding the complex way in which autism develops."

Recent reports have also suggested that the prevalence of autism spectrum disorder could be increasing.

In Australia, about one child in 160 is diagnosed with autism, and it is four times more common in boys than in girls.

Notes to editors:

For further information, please contact
Ashley Cooper
Queensland Brain Institute
0408200190 a.cooper1@uq.edu.au

For full paper: Frans, E.M. et al. ' Autism risk develops across generations: a population based study advancing grandparent and paternal age' , JAMA psychiatry (20-mar-2013)

* Statistics taken from Autism Australia

The Queensland Brain Institute (QBI) was established as a research institute of the University of Queensland in 2003. The Institute operates from a \$63 million state-of-the-art facility and houses 33 principal investigators with strong international reputations. QBI is one of the largest neuroscience institutes in the world dedicated to understanding the mechanisms underlying brain function.

Share link:

<http://tinyurl.com/lcl4wqu>



Subscribe to the UQ News weekly newsletter



RECENT HEADLINES

[QS ranks UQ 43rd globally](#) 16

September 2014



[UQ Art Museum showcases 30 years of Lindy Lee](#) 16

September 2014

[Just following orders? Obedient zombies in the spotlight](#) 15

September 2014



[New UQ CityCat terminal takes shape](#) 15

September 2014

[More headlines](#)

[We need to talk about the sexual abuse of scientists](#)

8 September 2014

[Ghosts of 2003: US, Australia and allies face tough choices in Iraq](#)

9 September 2014

[Intelligence inheritance – three genes that add to your IQ score](#)

9 September 2014

[Does Singld Out, a gene-based dating service, pass the sniff test?](#)

9 September 2014

[Three misguided beliefs of the Group of Eight universities](#)

12 September 2014

[Read more](#) UQ articles on The Conversation

Brisbane St Lucia, QLD 4072

+61 7 3365 1111

Other Campuses: [UQ Ipswich](#),
[UQ Gatton](#), [UQ Herston](#)

[Maps and Directions](#)

© 2014 The University of Queensland

A MEMBER OF





 GROUP OF EIGHT

[Privacy & Terms of use](#) | [Feedback](#)

Authorised by: Director, Office of Marketing
and Communications
ABN: 63 942 912 684
CRICOS Provider No: 00025B

QUICK LINKS

-  [For Media](#)
-  [Emergency Contact](#)

SOCIAL MEDIA

NEED HELP?

EMERGENCY

[3365 3333](#)

EXPLORE

-  [Giving to UQ](#)
-  [Faculties & Divisions](#)
-  [UQ Jobs](#)
-  [UQ Contacts](#)
-  [Services & Facilities](#)
-  [Login](#)