Sperm May Show If a Man's Offspring Will Be Born With Autism

Children are more likely to develop autism if their father has certain biomarkers in his sperm.

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Dads are more often linked to autism transmission than mothers, according to results from previous studies. That may be because men with specific biomarkers (biological molecules) in their sperm are at greater risk of fathering children with autism, proposes a new study published in the journal Clinical Epigenetics by researchers at Washington State University (WSU).

For the investigation, researchers looked at sperm epigenetics—the molecular processes that affect gene expression—in 13 men who fathered sons with autism and 13 who had children without the disorder. In particular, scientists examined DNA methylation, a chemical modification that occurs when a methyl group attaches to a DNA strand, enabling genes to turn on or off.

Researchers identified 805 different DNA methylation regions that could serve as epigenetic biomarkers associated with whether a man might father a child with autism. Researchers tested their theory by trying to pinpoint dads who did or did not reproduce children with autism based solely on their sperm samples.

Scientists used blind tests of 18 men and were able to correctly identify all those fathers of kids born with autism, except for two false negatives, for an accuracy rate of nearly 90%.

According to Michael Skinner, PhD, a professor of biological sciences at WSU and corresponding author on the study, this finding may help scientists devise a medical tool to check for this possibility before a man decides to have kids as well as identify factors that promote autism.

Researchers are currently conducting a more thorough investigation of more than 100 men. Skinner said further research of the biomarkers could also help scientists trace how epigenetic changes initially happened.

"We found out years ago that environmental factors can alter the germline, the sperm or the egg, epigenetics," Skinner said. "With this tool, we could do larger population-based studies to see what kinds of environmental factors may induce these types with epigenetic changes."

For related coverage, read "Men Have a Ticking Biological Clock Too" and "Brain Scans Taken at

an Early Age May Help Predict Autism in Babies.”
