

Breaking the link between ADHD and addiction

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Dr Melanie White

Adult sufferers of ADHD are two to three times more likely to experience substance abuse or dependence, but a research project which will map the genetic markers of the condition will help sever ties with addiction and could lead to customised treatments.

Dr Melanie White from QUT's Institute of Health and Biomedical Innovation (IHBI) said testing for specific genes associated with actions of the reward centre of the brain involving dopamine - a neurotransmitter which plays a major role in reward-motivated behaviour - would give a better understanding of how the brain works in

those with ADHD (Attention Deficit Hyperactivity Disorder).

"I'm looking at [genetic markers](#) of symptoms of ADHD in adulthood as well as whether people have used a range of different types of substances, and the interaction between these genetic markers and aspects of the environment," Dr White said.

"Given ADHD medication is typically a stimulant, I'll be investigating whether it improves their symptoms in the short term and the role of this medication in future substance use or symptoms."

Dr White, who was awarded a Churchill Fellowship to progress her research, said most children diagnosed with the neurodevelopmental disorder carried it into adulthood.

While symptoms, which include restlessness in work and relationships and impulsivity, can be adapted to fit in with the demands of life, the link between ADHD and substance abuse is impossible to ignore.

"One theory is that people are using substances to redress the chemical imbalance in their brain, or that the reward centre and dopamine activity is wired differently in those with ADHD versus the rest of the population," Dr White said.

"However, the theory I'll be investigating is whether early stimulant medication use when the brain is still developing, results in the brain responding differently when exposed to substance use later in life.

"There are diagnostic differences in terms of whether your symptoms are predominantly inattentive or hyperactive-impulsive, but I have no doubt there are several different genes that might lead to susceptibility to [substance abuse](#) on top of the risk for these ADHD symptoms."

Dr White carried out research at the Federal University of Rio Grande do Sul in Brazil, which has studied the largest group of adults with ADHD in the world. However, she is looking for expressions of interest from Australian adults with ADHD for future studies.

"Hopefully in the future, this type of information will enable us to make customised plans based on people's specific genetic profile amongst other characteristics, often called 'personalised medicine'," she said.

"We hope to be able to effectively say 'this medication would be more effective for you because of your genetic makeup', or conversely 'we don't believe this medication would be a good idea because it may increase some risks for you down the track'."

Provided by Queensland University of Technology

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