Common genetic influences for ADHD and reading disability

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Attention Deficit Hyperactivity Disorder (ADHD) and developmental reading disability (RD) are complex childhood disorders that frequently occur together; if a child is experiencing trouble with reading, symptoms of ADHD are often also present. However, the reason for this correlation remains unknown.

A new study reported in the latest special issue of *Cortex* (http://www.sciencedirect.com/science/journal/00109452), dedicated to "Developmental Dyslexia and Dysgraphia", has suggested that the disorders have common genetic influences, which may also lead to slow processing speed – the brain taking longer to make sense of the information it receives.

The researchers looked at 457 pairs of twins from the Colorado Learning Disabilities Research Center (CLDRC) twin study – an ongoing study of the causes of reading disabilities, ADHD, and related disorders. Dr Erik Willcutt and colleagues compared groups of participants with and without RD and ADHD, using a variety of tests to measure general cognitive ability, processing speed, reading and language skills, and then analysed results from pairs of twins within those groups to determine the genetic causes of any correlations. The use of identical twins, who share all their genes, and non-identical twins, who share only half their genes, allowed the researchers to distinguish between genetic and environmental influences on the participants' cognitive abilities.

The findings showed that both RD and ADHD are complex disorders,

influenced by many factors; ADHD on its own was associated with a reduced ability to inhibit responses to stimuli, while reading disabilities were associated with various weaknesses in language and memory. However, both disorders were associated with a slow processing speed and the twin-analyses further revealed a significant genetic correlation between RD and ADHD, i.e., a participant with one of the disorders was more likely to show symptoms of the other. The authors of the study suggest that processing efficiency may therefore be a useful marker to look for in future studies of the connection between the two disorders.

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