

Brain biology linked to severe teenage antisocial behaviour

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Angry face. Credit: teapics on Flickr

The onset of severe antisocial behaviour in teenagers may be more than just 'falling in with the wrong crowd'. A new study jointly funded by the Wellcome Trust and the Medical Research Council (MRC) reveals that young adults with conduct disorder display an abnormal pattern of brain activity compared with their peers without the disorder.

Conduct disorder (CD) is a psychiatric condition associated with heightened antisocial and [aggressive behaviour](#) that affects five teenagers out of every 100 in the UK. It can develop either in childhood or in adolescence. While the childhood-onset form has been linked to abnormal [brain function](#), the root of the adolescence-onset condition was previously thought to be the imitation of antisocial peers.

Scientists from the MRC Cognition and Brain Sciences Unit and the University of Cambridge used an advanced brain-scanning technique called [functional magnetic resonance imaging](#) (fMRI) to measure and analyse the [brain activity](#) of teenage boys with either childhood-onset or adolescence-onset CD while they were shown images of angry, sad and neutral faces.

Teenagers with both forms of the condition showed very similar patterns of brain abnormality compared with teenagers without the disorder. The scans showed less activity in the areas of the brain

responsible for processing emotions in both types of CD. This may explain why teenagers with CD are insensitive to the distress of others and to social signals of aggression. The scientists also found that the more severe the aggression and [antisocial behaviour](#) in the teenagers, the greater the level of brain abnormality.

Dr Andy Calder from the MRC Unit, who led the research, said: "We know it costs the government ten times as much to support a child with conduct disorder into adulthood, compared to a normal child. We also know that kids with these disorders are at far greater risk of developing a range of mental and physical health problems in later life. There are few effective conduct disorder treatments, so collaborative research like this, which really sheds light on the [brain](#) processes behind why and how these disorders emerge, is really important if we're to help sufferers and their families."

"This work breaks new ground in our understanding of the neurobiology of one of the most prevalent and difficult mental health problems in our society. The information will inform the development of early detection and intervention strategies in children at risk for antisocial behaviour," added Professor Ian Goodyer, co-author on the paper and Professor of Child and Adolescent Psychiatry at the University of Cambridge.

The study comprised 75 males aged 16-21 years old who were categorised in three groups: 27 individuals with childhood-onset conduct disorder, 25 with adolescence-onset [conduct disorder](#) and 23 healthy males as a control group.

The study appears in the latest issue of the journal '*Archives of General Psychiatry*'.

More information: Passamonti L et al. Neural abnormalities in early-onset and adolescence-onset conduct disorder. Arch Gen Psychiatry 2010.

Provided by Wellcome Trust

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