

# Could 'training the brain' help children with Tourette syndrome?

March 24 2011

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Children with Tourette syndrome could benefit from behavioural therapy to reduce their symptoms, according to a new brain imaging study.

Researchers at The University of Nottingham discovered that the brains of [children](#) with [Tourette syndrome](#) (TS) develop in a unique way — which could suggest new methods of treating the condition.

The study, published in the journal *Current Biology*, found that many children with TS experience a 'reorganisation' of the brain structure in their teens, as their brain compensates for the condition and allows them to gain control over their symptoms and tics.

Researchers believe that 'training' the brain to encourage this process — through the use of behavioural therapy — could help young people gain control over their symptoms more quickly and effectively. Effective behavioural therapies could involve habit reversal therapy.

The findings have significant implications because they suggest an alternative to drug-based therapies, which can have unwanted side-effects including weight gain and depression.

Study authors Professor Stephen Jackson and Professor Georgina Jackson used brain imaging and behavioural techniques to study a group of children with TS compared to a control group.

Stephen Jackson, Professor of Cognitive Neuroscience in the School of Psychology, said: "We had previously shown, somewhat paradoxically, that children with Tourette syndrome have greater control over their motor behaviour than typically-developing children of a similar age, and we had speculated that this was due to compensatory changes in the brain that helped these children control their tics.

"This new study provides compelling evidence that this enhanced control of motor output is accompanied by structural and functional alterations within the [brain](#). This finding suggests that non-pharmacological, 'brain-training', approaches may prove to be an effective treatment for Tourette syndrome."

Tourette syndrome is an inherited neurological condition that affects one school child in every hundred. The key feature of TS is tics — involuntary and uncontrollable sounds and movements such as coughing, grunting, eye blinking and repeating of words.

Across the UK as a whole, TS affects more than 300,000 children and adults. The syndrome tends to be first identified around the ages of six to seven, with tics reaching their maximum level at the age of 12; for about half of children with TS, symptoms continue into adulthood.

Provided by University of Nottingham

Citation: Could 'training the brain' help children with Tourette syndrome? (2011, March 24) retrieved 23 April 2024 from

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