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



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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.  
  
Academics from The University of Nottingham’s School of Psychology, Division of Psychiatry and Department of Academic Radiology took part in the study, together with researchers from Korea University in Seoul.

The paper’s full title is ‘Compensatory Neural Reorganisation in Tourette Syndrome’.  
  
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**Notes to editors:** The University of Nottingham, described by The Sunday Times University Guide 2011 as ‘the embodiment of the modern international university’, has award-winning campuses in the United Kingdom, China and Malaysia. It is ranked in the UK's Top 10 and the World's Top 75 universities by the Shanghai Jiao Tong (SJTU) and the QS World University Rankings. It was named ‘Europe’s greenest university’ in the UI GreenMetric World University Ranking, a league table of the world’s most environmentally-friendly higher education institutions, which ranked Nottingham second in the world overall.  
The University is committed to providing a truly international education for its 40,000 students, producing world-leading research and benefiting the communities around its campuses in the UK and Asia.  
  
More than 90 per cent of research at The University of Nottingham is of international quality, according to the most recent Research Assessment Exercise, with almost 60 per cent of all research defined as ‘world-leading’ or ‘internationally excellent’. Research Fortnight analysis of RAE 2008 ranked the University 7th in the UK by research power.  
  
The University’s vision is to be recognised around the world for its signature contributions, especially in global food security, energy & sustainability, and health.  
  
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