**DAILY MAIL**

**'Faulty switch' which affects mind wandering identified in children with ADHD**

By [Daily Mail Reporter](http://www.dailymail.co.uk/home/search.html?s=y&authornamef=Daily+Mail+Reporter)  
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Cure

the incentive is low, then those with ADHD fail to 'switch off' brain regions involved in mind-wandering.

But when there are strong incentives, or when youngsters are taking their medication, their brain activity is the same as for a child without ADHD, according to University of Nottingham researchers.

The study, published in the Journal of Child Psychology and Psychiatry, and funded by the Wellcome Trust, involved 18 children with ADHD aged nine to 15.

Their brains were compared with those of 18 similar children without ADHD.

All the children played a computer game that involved hitting green aliens as quickly as possible while avoiding black ones.

The reward for avoiding black aliens was then increased to study the effect of incentives.

Previous studies have shown that children with ADHD have difficulty controlling the part of their brain which gives rise to wandering thoughts or daydreaming.

This part of the brain is normally suppressed when people are focussed on a specific task.

The latest research suggests that children with ADHD have difficulty suppressing this part of their brain unless they are on medication or unless incentives are high.

ADHD is thought to affect between 3 per cent and 7 per cent of school-age children.

Co-author on the study, Dr Martin Batty, said: 'Using brain imaging, we have been able to see inside the children's heads and observe what it is about ADHD that is stopping them concentrating.

'Most people are able to control their 'daydreaming' state and focus on the task at hand.

'This is not the case with children with ADHD.

'If a task is not sufficiently interesting, they cannot switch off their background brain activity and they are easily distracted.

'Making a task more interesting - or providing methylphenidate - turns down the volume and allows them to concentrate.'

Professor Chris Hollis, who led the study, added: 'The results are exciting because for the first time we are beginning to understand how, in children with ADHD, incentives and stimulant medication work in a similar way to alter patterns of brain activity and enable them to concentrate and focus better.

'It also explains why in children with ADHD their performance is often so variable and inconsistent, depending as it does on their interest in a particular task.'

The Independent

'Faulty switch' found in ADHD children

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Children with hyperactivity disorder have a faulty "off-switch" when it comes to their minds wandering, scientists have found.

Brain scans of youngsters with attention-deficit/hyperactivity disorder (ADHD) have shown for the first time why they may have difficulty concentrating.

They suggest that children with ADHD require either much greater incentives or medication (methylphenidate, often known as Ritalin) to focus on a task compared to children without the condition.

If the incentive is low, then those with ADHD fail to "switch off" brain regions involved in mind-wandering.

But when there are strong incentives, or when youngsters are taking their medication, their brain activity is the same as for a child without ADHD, according to University of Nottingham researchers.

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| The Daily Telegraph (London)  January 6, 2011 Thursday  Edition 1;  National Edition  Young **ADHD** sufferers cannot 'switch off' daydreaming brain  **BYLINE:** Richard Alleyne  **SECTION:** NEWS; Pg. 4  **LENGTH:** 415 words  CHILDREN with attention deficit disorder have brains that cannot stop daydreaming, according to a study.  Researchers found that they find it harder to switch off a "default setting" of the brain designed to pass the time when not focused on a task.  This means their thoughts are more likely to wander at random when they should be concentrating.  The study, by the University of **Nottingham,** may explain the physical process behind **ADHD** sufferers' inability to put their mind on the job at hand.  "You could say that children with **ADHD** are easily bored but this shows there is a biological basis to it," said Prof Chris Hollis, the study leader.  **ADHD** is the most common mental health disorder in childhood, affecting around one in 50 children in the UK.  Those with **ADHD** are excessively restless, impulsive and distractible, and experience difficulties at school.  The drug methylphenidate, more often known by the brand name Ritalin, is commonly used to treat the condition.  Using brain scans, researchers have shown that children with **ADHD** have dif-ficulty in "switching off" the default mode network (DMN) in their brains.  This network, which connects various parts of the brain, is usually active when we are doing nothing, giving rise to spontaneous thoughts, but is suppressed when we focus on a task.  In children with **ADHD**, however, it is thought that the DMN may be insuffi-ciently suppressed on "boring" tasks that require focused attention.  Using a video game, researchers compared brain scans of 18 children with **ADHD**, aged between nine and 15, against scans of a similar group without the condition. The children with **ADHD** were tested while they were taking their methylphenidate and when they were not.  Researchers were able to show that typically developing children switched off their DMN whenever they saw an item requiring their attention.  However, unless the incentive was high, or they had taken their medication, those with **ADHD** would fail to switch off their DMN and would perform poorly.  Dr Martin Batty, co-author of the study, said: "Most people are able to control their 'daydreaming' state and focus on the task at hand. This is not the case with children with **ADHD**.  "If a task is not sufficiently interesting, they cannot switch off their background brain activity and are easily distracted.  "Making a task more interesting - or providing methylphenidate - turns down the volume and allows them to concentrate."  The findings are published in the Journal of Child Psychology and Psychiatry.   |  | | --- | |  | | http://www.lexisnexis.com:80/uk/nexis/images/s.gif | | http://www.lexisnexis.com:80/uk/nexis/images/s.gif | |

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