



THE UNIVERSITY *of* EDINBURGH

## *News Release*

Issued: 11 February 2015

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### **Smokers tend to have thinner brain cortex, study suggests**

People who give up smoking might reduce accelerated thinning of the cortex – the brain’s outer layer which is important for thinking skills.

Researchers have found that people who avoided smoking had a thicker outer layer of the brain than people who had smoked.

Those participants who had given up smoking for the longest time had a thicker cortex compared with those who had given up recently – even after accounting for the total amount smoked in their lifetime.

The study gathered health data and analysed MRI scans of 244 males and 260 females with an average age of 73. Around half were former or current smokers.

The group tested were part of the Lothian Birth Cohort 1936, a group of individuals who were born in 1936 and took part in the Scottish Mental Survey of 1947.

Using detailed MRI brain scans, careful image analysis and statistical models, researchers analysed how a person’s smoking habit was linked with the thickness of the brain’s cortex.

The study authors suggest that avoiding smoking helps to keep the brain’s cortex thicker so therefore more normal. They also cautiously suggest that the cortex might regain some thickness once smokers quit, but that this was not seen in all regions of the brain.

They state that further studies are needed to confirm these results with larger numbers of current smokers studied over long periods of time.

The research was carried out by scientists at the University of Edinburgh and the Montreal Neurological Institute at McGill University.

Professor Ian Deary, Director of the Centre for Cognitive Ageing and Cognitive Epidemiology at the University of Edinburgh, who led the research project, said: “It is important to know what is associated with brain health in older age. From these data we have found a small link between smoking and having thinner brain grey matter in some regions.

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“There are findings in our study that could suggest that stopping smoking might allow the brain's cortex to recover some of its thickness, though we need further studies conducted with repeat measures to test that idea.”

Professor Joanna Wardlaw, Director of the Brain Research Imaging Centre at the University of Edinburgh, said: “The effects of smoking on the lungs and heart are well known, but our study shows that there are important effects on the brain as well, another good reason for not smoking”.

The study is published in the journal *Molecular Psychiatry* and is part of a larger project called the Disconnected Mind that is supported by funding from the Age UK. Additional support was received from the Medical Research Council and the Biotechnology and Biological Sciences Research Council.

Professor James Goodwin, Head of Research at Age UK, said: “Understanding how and why our thinking skills change with age is a major current health challenge. This work helps us to understand how smoking affects the brain in later life. The more we can find out about what influences our thinking skills as we age, the better the advice that we can give people on protecting their cognitive health.”

The study was led by the University of Edinburgh’s Centre for Cognitive Ageing and Epidemiology (CCACE) which is supported by the Medical Research Council (MRC) and the Biotechnology and Biological Sciences Research Council (BBSRC) as part of the Lifelong Health and Wellbeing programme, a collaboration between the UK’s Research Councils ([www.mrc.ac.uk/LLHW](http://www.mrc.ac.uk/LLHW)).

The brain imaging was carried out at the Brain Research Imaging Centre, Neuroimaging Sciences, University of Edinburgh ([www.ed.ac.uk/edinburgh-imaging](http://www.ed.ac.uk/edinburgh-imaging)).

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