

Teenage smokers have different brains than non-smoking teens, study suggests



BY EMMET LYONS

A new study suggests that the brains of teenagers who take up smoking may be different from those of adolescents who don't take up the habit — data that could help treat and prevent nicotine addiction from an early age.

A research team led by the universities of Cambridge and Warwick in Britain and Fudan University in China found that teens who started smoking cigarettes by 14 years of age had significantly less grey matter in a section of the brain's left frontal lobe.

Tuesday's (August 15, 2023) findings, published in the scientific journal *Nature Communications*, indicate that adolescents with less grey matter on the left frontal lobe have less cognitive function and therefore are more inclined to break rules and develop bad habits such as smoking.

The left frontal lobe is linked to decision-making and rule-breaking. Grey matter is the brain tissue that processes information, and its growth and development peaks for humans in their teenage years.

Notably, researchers found that the right part of the same brain region also had less grey matter in teenage smokers.

The right frontal lobe of the brain is linked to the seeking of sensations and the research team found that the right frontal lobe shrinks for teenagers who smoke regularly -- which may lead to addiction and affect the ways adolescents seek pleasure.

Scientists hope the combined results may help in intervening and preventing teenagers from taking up the bad habit before addiction takes hold.

"Smoking is perhaps the most common addictive behaviour in the world, and a leading cause of adult mortality," said Cambridge University Professor Trevor Robbins, who co-authored the study.

"The initiation of a smoking habit is most likely to occur during adolescence. Any way of detecting an increased chance of this, so we can target interventions, could help save millions of lives," Robbins said in a press release on Tuesday.

Around 1,600 young people try their first cigarette before the age of 18 every day in the United States, and nearly half a million Americans die prematurely each year from smoking or exposure to secondhand smoke, according to the Centers for Disease Control and Prevention (CDC.) -

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