



A person's brain wiring patterns can reveal a person's negative traits such as a family history of alcohol or drug abuse, researchers report in *Nature Neuroscience*.

The findings are the first from the Human Connectome Project (HCP); an international effort to map active connections between neurons in various parts of the brain. The HCP was launched in 2010 and seeks to scan the brain networks of 1,200 adults, a project that will cost US\$40 million.

In April this year data was released by one of the HCP's co-chairs, biomedical engineer Stephen Smith at the University of Oxford, showing results of scans from 460 people aged between 22 and 35yrs of age. Each scan result was supplemented by information of around 280 traits of the person, such as age, history of drug abuse, socioeconomic status and personality traits.

Smith's team was surprised at the findings; there was a stark difference in the way brains were connected. People with more 'positive' variables such as good physical endurance, above average results on performed memory tests and good education shared the same brain patterns.

The people with more positive factors in their lives had brains that were more strongly connected than those with negative traits, such as anger issues, a family history of alcohol abuse or smoking.

"You can distinguish people with successful traits and successful lives versus those who are not so successful," says Marcus Raichle, a neuroscientist at Washington University in St Louis, Missouri.

However he goes on to say that it is impossible from the study to determine how these different traits relates to one another and whether weakened brain connections are the cause or effect of negative traits.

One of the negative traits that pulled a brain further down the negative axis was if marijuana had been used by a participant in recent weeks. Following a major project launched by the US National Institute on Drug Abuse findings where they will follow 10,000 adolescents for 10years to find out how marijuana and other drug abuse affects the brain, this new study could help to prioritise future drug research programmes, says Van Wedeen, a neuroscientist at Massachusetts General Hospital in Boston.

[Source: Nature.com](https://www.nature.com)