

Smokers are three times more likely to suffer from back pain - but quitting can ease symptoms

- Smokers are three times more likely to develop chronic back pain
- Chronic pain is pain that lasts longer than 12 weeks
- Quitting smoking can lower the risk of developing chronic pain
- Study looked at the connection between two areas of the brain
- These were areas responsible for motivated learning and addiction
- The areas 'talk' to each other and the connection is stronger in smokers
- May be a more general link between addiction and pain, experts said

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Smokers are three times more likely to develop chronic back pain than non-smokers, a study found

To avoid back pain, give up smoking, according to new research.

A new study has found that smokers are three times more likely to develop chronic back pain than non-smokers.

Dropping the habit may cut the chances of developing the condition, experts found.

This is the first evidence to link smoking and chronic pain – pain that lasts longer than 12 weeks - with the part of the brain associated with addiction and reward.

Lead author Bogdan Petre, of Northwestern University Feinberg School of Medicine said: 'Smoking affects the brain. We found that it affects the way the brain responds to back pain and seems to make individuals less resilient to an episode of pain.'

The results come from a study of 160 adults with new cases of back pain.

At five different times throughout the course of a year they were given MRI brain scans and were asked to rate the intensity of their back pain and fill out a questionnaire which asked about smoking status and other health issues.

Another 35 healthy control participants and 32 participants with chronic back pain were also monitored.

Through looking at the MRI scans scientists analysed activity between two areas of the brain – the nucleus accumbens and the medial prefrontal cortex, NAc-mPFC - which are involved in addictive behaviour, and motivated learning.

These two regions of the brain 'talk' to one another and scientists discovered that the strength of that connection, or circuit, helps determine who will suffer from chronic pain.

This connection was very strong and active in the brains of smokers.

'But we saw a dramatic drop in this circuit's activity in smokers who - of their own will - quit smoking during the study, so when they stopped smoking, their vulnerability to chronic pain also decreased' Mr Petre added.

Their findings reveal there may be a more general link between addiction – not just to smoking – and pain, the researchers said.

Medication, such as anti-inflammatory drugs, did help the participants manage pain, but it didn't change the activity of the brain circuitry.

In the future, interventions which change behaviour, such as programs which help people stop smoking, could be used to manipulate the circuits in the brain as an effective strategy for the prevention and relief of chronic pain.

Quitting smoking can cut the chances of developing chronic back pain - which is pain that lasts for more than 12 weeks

The study was published online in the journal Human Brain Mapping.

It backs up previous research which found links between smoking and back pain.

In 2012, U.S. researchers analysed more than 5,300 patients for eight months during treatment of spine disorders and showed that smokers reported far more pain than non-smokers or those who had quit.

They found that nicotine interacts with a family of proteins which have a key role in the nervous system and control anxiety and pain.

Smoking upset the functions of these cells and changes the way pain is processed, they explained.

Smoking also impairs the way oxygen is delivered to tissues, making a person more likely to suffer bone and joint disorders such as osteoporosis.

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