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Chewing 'wards off' dementia



Chewing may prevent memory loss as we grow old, scientists have discovered.

New memories are briefly stored in area of the brain closely associated with learning called the hippocampus.

As we age hippocampal cells start to deteriorate and this leads to a reduction in the power of the short-term memory.

After all, humans often chew gum to help with stress relief
Dr Joyce Wau, Edinburgh University

Another common sign of ageing is tooth loss, which reduces the ability to chew.

Some studies have suggested tooth loss and deterioration of hippocampal cells may be linked.

New Scientist magazine reports that Japanese researchers led by Dr Minoru Onozuka, of Gifu University School of Medicine, tested this theory on laboratory mice that had been genetically altered to age prematurely.

The mice exhibited signs of ageing, such as cataracts, hair loss and failing memory.

The mice then had their molar teeth extracted so that they could eat but not chew.

The scientists tested the mice's memories by recording how long they took to locate a hidden platform in a water maze.

They found that young mice swiftly learned to locate the platform, regardless of whether they had molars or not.

Older mice with a full set of teeth were only slightly slower.

However, old mice whose molars had been removed were unable to remember how to find the platform, and consistently headed off in the wrong direction.

Examination of the hippocampus showed that vital cells called glia had worsened far more than usual.

Brain scan

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Dr Felicia Huppert, Addenbrooke's Hospital, Cambridge

Dr Onozuka's team followed by their research by using magnetic imaging to scan brain activity while people chewed.

They found that there was a big increase in hippocampal signals during this activity.

Nobody knows why chewing stimulates the mind.

However, Dr Joyce Wau, a specialist in ageing at the Molecular Medicine Centre at Edinburgh University, postulates that chewing sends a signal to the hippocampus which in turn eases levels of stress hormones in the blood.

If older people chew less, their stress levels might rise enough to cause a decline in short-term memory.

"After all, humans often chew gum to help with stress relief," she said.

Dr Felicia Huppert, an expert in memory and ageing at Addenbrooke's Hospital, Cambridge, was sceptical of the results, and warned that the results of neuro-imaging had to be interpreted very carefully.

She said: "A lot of things - for instance teeth and memory - go together when they go, and just because they go together does not mean that they are in any way linked."

Dr Huppert's colleague Professor Joe Herbert, an expert in anatomy, said it had been shown that stress damaged the hippocampus. However, he had not heard of any link to chewing.