- Musical instruments / Brain—diseases

HEALTH

Learning an instrument could help protect you from cognitive decline

It's never too late to learn, say scientists



Recent YouGov polling found that the guitar is the second most commonly learned instrument in the UK. The piano was the most popular

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"Just like a well-tuned instrument doesn't need to be played louder to be heard, the brains of older musicians stay finely tuned"

Tickling the ivories could help protect you from dementia, according to two recent studies looking into the brain health of older musicians.

While one study looked at the effects of practising music for decades, the other investigated picking up a new instrument later in life. In both, playing music was associated with less age-related cognitive decline.

FIGHTING BRAIN STRAIN

The first study, published in *PLOS Biology*, was a collaboration between scientists in Canada and China, who recruited 50 adults with an average age of 65.

Half didn't play an instrument, and half had played an instrument for at least 32 years. They also recruited 24 young people, with an average age of 23, who had no musical training.

The scientists scanned the participants using magnetic resonance imaging (MRI) to measure the blood flow in their brains.

During the scans, participants were played a recording of someone speaking above background noise. They were asked to identify what the main speaker was saying.

When scanning the participants' brains, scientists found that the older musicians' brains responded to the challenge similarly to the younger participants' brains. The older non-musicians, however, showed signs of cognitive decline.

While the musicians benefitted from strong connections in the right sides of their brains, the non-musicians didn't. They had to compensate by using the left side of their brains as well – putting more strain on the brain.

"Just like a well-tuned instrument doesn't need to be played louder to be heard, the brains of older musicians stay finely tuned thanks to years of training," said co-author Dr Yi Du, from the Chinese Academy of Sciences.

"Our study shows that this musical experience builds cognitive reserve, helping their brains avoid the usual age-related overexertion when trying to understand speech in noisy places."

As we age, many of our brain's functions – such as memory, learning and perception – deteriorate, which can eventually lead to dementia. Scientists believe that cognitive reserve – the brain's ability to cope with damage – might help to build resilience and stave off this decline.

It's not clear how this works, Dr Morten Scheibye-Knudsen, associate professor of ageing at the University of Copenhagen, Denmark, told *BBC Science Focus*.

"In general, it's advised to train your brain, but the data is actually not that clear," said Scheibye-Knudsen.

LATE LEARNING

Another recent study, published in *Imaging Neuroscience*, suggested that musical practice might bolster brain health – even if the individual starts playing later in life.

Scientists at Kyoto University, Japan, followed up on a previous study where participants learned to play a musical instrument for four months. In the initial study, the 53 participants, with an average age of 73, showed little improvement in brain health.

25%
of people living in the UK can play a musical instrument

19%
of Brits aged over 65 can play an instrument

5%
of Brits aged over 65 can play more than one instrument

38%
of people who had music lessons as a child still play an instrument

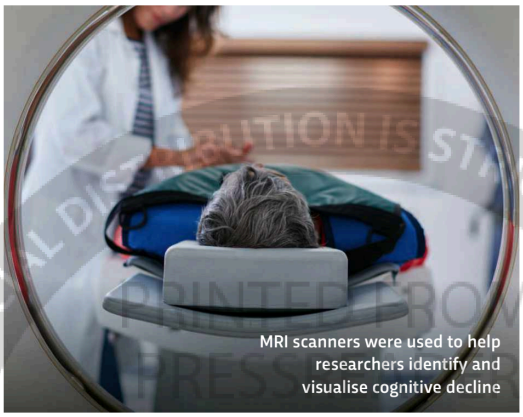
Four years later, the scientists conducted MRI scans on the same participants – 13 of whom had continued to practise music – while they completed a verbal memory test.

The study revealed that those who had stopped playing instruments performed worse on the memory test. In fact, the scans showed that their putamen – the brain region responsible for motor function, learning and memory – had shrunk.

Those who had continued playing music since the initial study, however, didn't show these signs of cognitive decline.

Scheibye-Knudsen said the study suggested that "playing a musical instrument may have direct positive effects not only on preserving your cognitive function as you age but also keeping your brain structurally intact."

He added, "I therefore hope people will start playing music. It's never too late to learn."



MRI scanners were used to help researchers identify and visualise cognitive decline

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