

## Music training boosts the brain

**Music lessons can improve memory and learning ability in young children by encouraging different patterns of brain development, research shows.**



Music appears to have a profound effect on the brain

Canadian scientists compared children aged four to six who took music lessons for a year with those who did not.

They found the musical group performed better on a memory test also designed to assess general intelligence skills such as literacy and maths ability.

The study, by McMaster University, is published online by the journal *Brain*.

The researchers also measured changes in the children's brain responses to sounds during the year.

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They found changes developed in the musical group in as little as four months.

Previous studies have shown that older children given music lessons recorded greater improvements in IQ scores than children given drama lessons.

But lead researcher Professor Laurel Trainor said: "This is the first study to show that brain responses in young, musically trained and untrained children change differently over the course of a year."

### Brain measurements

The researchers focused on 12 children, six of whom attended a Suzuki music school, using a Japanese approach which encourages children to listen to and imitate music before they attempt to read it. The other six had no music lessons outside school.

They measured brain activity using a technique called magnetoencephalography (MEG) while the children listened to two types of sounds: a violin tone and a white noise burst.

All the children recorded larger responses when listening to the violin tones compared with the white noise - indicating more brain power was being deployed to process meaningful sounds.

In addition, all children responded more quickly to the sounds over the course of the year of the study - suggesting a greater efficiency of the maturing brain.

However, when the researchers focused on a specific measurement related to attention and sound discrimination, they found a greater change over the year among the Suzuki children.

Professor Trainor said this difference, coupled with the better performance of the Suzuki children in the memory test suggested musical training was having a profound impact.

He said: "It suggests that musical training is having an effect on how the brain gets wired for general cognitive functioning related to memory and attention."

Dr Takako Fujioka, of the Baycrest's Rotman Research Institute, also worked on the study.

He said: "It is clear that music is good for children's cognitive development and that music should be part of the pre-school and primary school curriculum."

The next phase of the study will look at the benefits of musical training in older adults.