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Music lessons are an IQ booster for young minds

by JENNY HOPE

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Brain beat: Music can help a child's education

Giving your children music lessons could be one of the best things you ever do for their education, claim researchers.

Unique brain testing shows how early musical training improves memory and IQ - within as little as four months.

Even children as young as four years old can benefit, not only in playing and understanding music but also in developing other mental skills, say Canadian-based researchers.

Experts say music should be routinely taught in pre-school and primary school to maximise children's brain development.

Brain scanning showed children aged between four and six who received music lessons generated more sophisticated responses than those who did not.

Their brain processing systems worked faster and general memory capacity increased, according to a study published online today in the science journal *Brain*.

Lead researcher Dr Laurel Trainor, professor of psychology, neuroscience and behaviour at McMaster University, Hamilton, Ontario, and director of the McMaster Institute for Music and the Mind, said after a year's musical training, the brains of children who had lessons responded differently to music.

But their brain responses were also significantly improved in a memory test linked to a wide range of mental skills, compared with children who had no music training.

He 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.

"That the children studying music for a year improved in musical listening skills more than children not studying music is perhaps not very surprising.

"On the other hand, it is very interesting that the children taking music lessons improved more over the year on general memory skills that are correlated with non-musical abilities such as literacy, verbal memory, visiospatial processing, mathematics and IQ than did the children not taking lessons.

"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 Trainor said better brain processing was apparent within as little as four months on those getting music lessons.

The researchers measured changes in brain responses to sounds in two groups of six children aged between four and six years over the course of a year.

One group were having Suzuki music lessons, a method which teaches children to play by ear and practise together, while the others had no musical training.

The Suzuki method was chosen because the children were not selected for musical talent, there was no training in reading music and their parents were supportive of musical training.

The children's brain responses were measured four times using magnetoencephalography (MEG) - a non-invasive brain scanning technology that measures the magnetic fields outside the head that tracks mental processing in waveform peaks on a graph.

The children listened to two types of sound, a violin tone and a white music burst. During the first and fourth testing session, the children were also asked to complete a music test distinguishing between harmonies and melodies and a memory test, where they had to remember series of numbers.

Analysis of the MEG responses found all children had larger responses to the violin tones and their brains worked faster at processing the sounds over the year - but the Suzuki children showed better attention and sound discrimination.

Analysis of the music tasks showed greater improvement over the year in melody, harmony and rhythm processing in the children studying music compared to those not having music lessons.

Memory capacity also improved in the non-music test, which is linked with general skills such as literacy, mathematics and IQ.

Previous studies have shown that older children given music lessons had greater improvements in IQ scores than children given drama scores, but this is the first study to identify those effects in brain-based measurements in young children.

Co-researcher Dr Takako Fujioka, a scientist at Baycrest's Rotman Research Institute, Toronto, said 'Previous work has shown assignment to musical training is associated with improvements in IQ in school-aged children.

"Our work explores how musical training affects the way in which the brain develops. 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."

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This is not actually the first time music has been shown to benefit children in other ways. There was a school in UK about 10 years ago, in a news item if I recall correctly, shown on television which split a class of children into two halves. One half studied music, the other half studied computers. The children who studied music did far better academically than the 'computer' children in all other unrelated subjects. As far as I know it was never followed up in this country. I always wondered why more was not made of those important findings by our own department of education.

- Susan, St Albans, England, 21/9/2006 10:20

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The numerous educational benefits of learning musical instruments have been known for a long time. This subject is often phrased in the context of children, but there are of course benefits to adult learners too.

- Simon, Cheltenham, 20/9/2006 18:14

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Not sure why this is such a big revelation now, it has been known for years. Also if you play music, decent music that is, to children in the womb, it has the same effect.

- Nigel, Somerset, 20/9/2006 12:20

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That would explain why Canadians are such brilliant musicians too.

- Barry, London, 20/9/2006 11:40

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The "Mozart Theory" is quite true, my son wrote a thesis on this many years ago at university, after doing years of research and study. The results were astonishing! Especially the correlation between maths and music.

- Annette, Yorkshire, 20/9/2006 10:56

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Wonder if it would do the same for us who are just a little older (over 65) Might be worth a try.

- Sylvia, Isle of Wight., 20/9/2006 08:21

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