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Babies' brains benefit from music lessons, researchers find

Hamilton, Ont. May 09, 2012—After completing the first study of its kind, researchers at McMaster University have discovered that very early musical training benefits children even before they can walk or talk.

They found that one-year-old babies who participate in interactive music classes with their parents smile more, communicate better and show earlier and more sophisticated brain responses to music.

The findings were published recently in the scientific journals *Developmental Science* and *Annals of the New York Academy of Sciences*.

"Many past studies of musical training have focused on older children," says Laurel Trainor, director of the McMaster Institute for Music and the Mind. "Our results suggest that the infant brain might be particularly plastic with regard to musical exposure."

Trainor, together with David Gerry, a music educator and graduate student, received an award from the Grammy Foundation in 2008 to study the effects of musical training in infancy. In the recent study, groups of babies and their parents spent six months participating in one of two types of weekly music instruction.

One music class involved interactive music-making and learning a small set of lullabies, nursery rhymes and songs with actions. Parents and infants worked together to learn to play percussion instruments, take turns and sing specific songs.

In the other music class, infants and parents played at various toy stations while recordings from the popular Baby Einstein series played in the background.

Before the classes began, all the babies had shown similar communication and social development and none had previously participated in other baby music classes.

"Babies who participated in the interactive music classes with their parents showed earlier sensitivity to the pitch structure in music," says Trainor. "Specifically, they preferred to listen to a version of a piano piece that stayed in key, versus a version that included out-of-key notes. Infants who participated in the passive listening classes did not show the same preferences. Even their brains responded to music differently. Infants from the interactive music classes showed larger and/or earlier brain responses to musical tones."

The non-musical differences between the two groups of babies were even more surprising, say researchers.

Babies from the interactive classes showed better early communication skills, like pointing at objects that are out of reach, or waving goodbye. Socially, these babies also smiled more, were easier to soothe, and showed less distress when things were unfamiliar or didn't go their way.

While both class types included listening to music and all the infants heard a similar amount of music at home, a big difference between the classes was the interactive exposure to music.

"There are many ways that parents can connect with their babies," says study coordinator Andrea Unrau. "The great thing about music is, everyone loves it and everyone can learn simple interactive musical games together."

McMaster University, one of four Canadian universities listed among the Top 100 universities in the world, is renowned for its innovation in both learning and discovery. It has a student population of 23,000, and more than 156,000 alumni in 140 countries.

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