

BOUNCING BABIES TO THE BEAT OF LANGUAGE

by Alison Palkhivala

We tend to think of music appreciation as being all about how we hear, but new research shows that the experience of rhythm and music is far more complex than just hearing a pattern of sounds. Laurel Trainor has demonstrated how the senses work together in young babies to form their experience of rhythm and music.

WHY BABIES LOVE RHYTHM AND MOVEMENT

Whether in their fathers' arms or still in their mothers' bellies, babies experience a great deal of rhythmic movement, and any parent will tell you that quiet humming and rocking will soothe a baby, while lively singing and bouncing can make a cranky baby attentive and happy. This natural connection between movement and sound, evidenced in adults by the need to groove to a favourite tune, *"suggests that there are multisensory connections between the auditory system and the movement system,"* says Trainor, director of the McMaster Institute for Music and the Mind and a professor in the Department of Psychology, Neuroscience, and Behaviour.

To see how early these multisensory connections come into play, Trainor and her team had babies listen to an ambiguous rhythm with no accents while half of them were bounced on every second beat, as in a march, and half on every third beat, as in a waltz. The babies later preferred to listen to the rhythm with auditory accents as in a march or auditory accents as in a waltz, depending on how they had been bounced. This means, says Trainor, that *"there are multisensory connections very early in life between movement systems and auditory systems. Not only does auditory stimulation make us move, but the opposite is true as well: The way that we move actually affects what we hear."*

COMBINING RHYTHM AND MOVEMENT IS GOOD FOR BABIES

According to Trainor, these findings suggest that giving infants stimulation that combines both sound and movement, such as bouncing them on your knee while singing to them, is not only pleasurable but could be beneficial. Fortunately, this is something most parents do already. *"We don't have any evidence that doing anything other than what parents do naturally is going to have a huge effect,"* she says. *"My advice to parents is always that what comes naturally is usually the best thing."*

THE LANGUAGE CONNECTION

According to Tim Griffiths, professor of Cognitive Neurology at the Newcastle University Medical School in England, the development of rhythm perception may follow a pattern similar to the pattern of language perception. Both require the integrated action of several senses although, on the surface, both seem to be all about sound and hearing.

Trainor's findings, says Griffiths, could have important implications for understanding how young children learn to understand and use the rhythm of sounds we call language. It also opens the doors to new methods of helping children who are experiencing difficulty with language acquisition. If the development of language is dependent on more than one sense, then it is possible that input to one sense can



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make up for lack of input to another. For instance, perhaps movement exercises that replicate language rhythm could facilitate language development in children who are hard of hearing or who have developmental disorders, such as autism, associated with language difficulties.

Trainor is conducting a follow-up study to see if taking infants to a music and movement program will have an impact on their development. 🐾

Ref.: Phillips-Silver J, Trainor LJ. Feeling the beat: Movement influences infant rhythm perception. *Science* 2005;308(5727):1430.