

Babies Listen and Learn While in the Womb

Sometimes she just tells him about her day. Other times, Ruthie W. rubs her pregnant belly and tells her future son that she can't wait to meet him (which should be any day now).

And a new study shows that he not only hears his mom, but may understand her and is already learning language from her.

"I talk to him all the time, even when I am in stores shopping for a layette and other things we will need once he is born," says the New York City-based cosmetic executive. "People probably think I am crazy if they overhear me!"

Far from it.

In fact, she is giving her son a foundation for language development.

The new research suggests that babies began to absorb language when they are inside the womb during the last 10 weeks of pregnancy -- which is earlier than previously held. Newborns can actually tell the difference between their mother's native tongue and foreign languages just hours after they are born.

"The main message for new moms is that their babies are listening and learning and remembering during the last stages of pregnancy. Their brains do not wait for birth to start absorbing information," says study author Patricia K. Kuhl, PhD. She is the Bezos Family Foundation endowed chair in early childhood learning and a professor of speech and hearing sciences at the University of Washington in Seattle.

How can researchers tell?

Kuhl and colleagues used a high-tech pacifier that was connected to a computer that measured infants' reactions to sounds. The study included 80 infants who were, on average, about 30 hours old and from Tacoma, Wash., and Stockholm, Sweden. They listened to vowel sounds in their native language and a foreign tongue while sucking on the pacifier.

Vowels are the loudest units in speech. The number of times they suck on the pacifier indicates which vowel sounds attracted their attention. Babies sucked longer for foreign languages than their native tongue in both countries, the study showed.

Building Blocks of Language

"The mother's voice can be heard because it is amplified by her body," Kuhl says.

Sorry, Dad. The father's voice cannot be heard in the womb, she says.

"Mothers shouldn't try putting earphones on their bellies and playing music because it's already noisy in there," she says. "Learning the mother's voice and her vowels happens naturally as the mothers speak," she says.

"Expectant moms should have confidence that their developing baby is making sense out of the sounds that she is providing for the baby," says another study author, Christine Moon, PhD. She is a psychologist at Pacific Lutheran University in Tacoma. "This is how we launch off into language."

The sound of their mom's voice is also associated with movement. "The mom moves when she talks, and her diaphragm is moving when she talks, and we think that this pairing may be useful and may help make the sound more salient."

Their findings appear in the journal *Acta Paediatrica*.

Speech pathologists like New York City's Melissa Wexler Gurfein are excited about the findings.

"Really what it is saying is that infants are learning and tuning into the speech patterns of their first exposed language(s) earlier than was originally thought," she tells WebMD. "This may suggest the importance of the mother not only to talk during the last trimester of pregnancy but to continue to talk to her newborn from the moment of birth to help facilitate language development. "

David Mendez, MD, says that the best thing that expectant moms can do for themselves and their baby is to maintain a stress- and chemical-free environment. He is a neonatologist at Miami Children's Hospital. "Talk to your baby as much as possible in a calm and relaxing way," he says. Avoid screaming, yelling and other violent language.

The study is “fascinating,” says Amos Grunebaum, MD. He is the director of obstetrics at New York-Presbyterian Hospital/Weill Cornell Medical Center in New York City. “People thought that newborns don’t learn until they are born, but this well-conceived study that shows that fetuses can learn while in utero,” he says. “We knew they could hear sounds, but we can teach fetuses.”

Natalie Meirowitz, MD, agrees that the study is fascinating, but she is concerned that some moms may take it to the extreme and start purchasing Rosetta Stone and other language tapes to give their baby a leg up. She is the chief of maternal and fetal medicine at Long Island Jewish Medical Center in New Hyde Park, N.Y.

“We are learning a lot more about how sensitive the fetus is and how much influence stimuli coming from the mom have on the fetus,” she says. “We have known for a long time that fetuses hear outside noises and noises coming from the mother,” she says. But “I don’t think this means moms should get language tapes and teach children different languages while they are in the womb.”