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Language learning may start in womb

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From their first days, babies cry differently depending on the language their parents speak—showing some learning has already started in the womb, according to a new study.



From their first days, newborns cry differently depending on the language their parents speak—showing some learning has already started in the womb, according to a new study. (Image courtesy Vt. Dept. of Children & Families)

Newborns are capable of “different cry melodies,” and they tend to produce “melody patterns... typical for the ambient language they have heard during their fetal life, within the last trimester,” said Kathleen Wermke of the University of Würzburg in Germany, one of the scientists involved.

“These data support the importance of human infants’ crying for seeding language development.”

The findings were published online Nov. 5 in the research journal *Current Biology*.

Human fetuses can memorize sounds from the external world by the last trimester of pregnancy, with a particular sensitivity to melody contour in both music and language, earlier studies found. Newborns prefer their mother’s voice over others and perceive the emotional content of

messages conveyed via intonation in maternal speech.

Their preference for the surrounding language and ability to tell apart different languages and pitch changes are based primarily on melody, Wermke said.

Although prenatal exposure to native language was known to influence newborns' perception, scientists had thought that the surrounding language affected sound production much later, the researchers said, but it now seems that's not so.

Wermke's team recorded and analyzed the cries of 60 healthy newborns, 30 born into French-speaking families and 30 born into German-speaking families, when they were three to five days old. French newborns tended to cry with a rising melody contour, whereas German newborns seemed to prefer a falling melody contour in their crying. Those patterns are consistent with characteristic differences between the two languages, Wermke said.

This imitation of language "melody contour" by infants doesn't depend on skills in articulation, which tend to develop a few months after birth, the scientists said.

"Newborns are probably highly motivated to imitate their mother's behavior in order to attract her and hence to foster bonding," they wrote. "Because melody contour may be the only aspect of their mother's speech that newborns are able to imitate, this might explain why we found melody contour imitation at that early age."