Sound of mother's voice in womb may aid fetal brain growth

February 24 2015, by Randy Dotinga, Healthday Reporter

Study of preemies who heard recordings from mom showed larger auditory cortex.

(HealthDay)—Babies may get a brain boost in the womb when they hear the voices and heartbeats of their mothers, a new study suggests.

Researchers studying premature babies in the hospital found that the sound centers in the babies' brains grew more quickly when they heard recordings of their mothers rather than the normal clamor of intensive care units. The recordings were manipulated to simulate sounds heard in a womb.

It's not clear what this means in the long run, "but it shows how important it is for mothers to interact with their premature babies when they visit," said study co-author Amir Lahav, an assistant professor of

pediatrics at Harvard Medical School in Boston.

Babies born prematurely often suffer from hearing and language problems, Lahav explained, and the researchers wanted to know more about how they're affected by the weeks they spend in an incubator instead of in their mother's womb.

"Babies begin to hear at 25 weeks' gestation, and they're exposed to the mother's voice and heartbeat," Lahav said. "If you put them inside the incubator for five to six weeks, you're actually depriving them of these maternal exposures to the mother's voice. The incubator is seemingly a wonderful piece of equipment. But at the same time, it's like a social cage."

The study findings probably apply to all babies, one expert noted.

Previous research has shown that fetuses respond to the sound of the mother's voice. At birth, babies take notice "and say, 'Hey, that's what I was waiting for,' " said Janet Werker, a psychology professor at the University of British Columbia in Vancouver.

"There's very strong evidence that at birth, full-term babies show strong preference for the language they heard in utero and the voice of their mother over other women," she said.

But it's not clear if the mother's voice is the only important one, since exposure to other voices could be just as critical, Werker added.

For this latest study, the researchers chose a group of premature babies who were born at 25 to 32 weeks. Nineteen were randomly assigned to hear the normal noises of the hospital, while 21 heard recordings of the voices and heartbeats of their mothers. The second group listened to the recordings for three hours a day.

After a month, the study authors used ultrasound scans to measure parts of the brains of the babies. Those infants who heard the recordings had larger sound centers—the auditory cortex—in their brains.

"Our findings do not prove that the brains of these babies are necessarily better, and we cannot conclude that they will end up with no developmental disabilities," Lahav said. "We don't know the advantages of having a bigger auditory cortex."

It's also not clear if mothers' voices are crucial inside the womb or if the voices of other people might also make a difference.

Still, Lahav said the research suggests that parents of premature babies need to talk to them during visits in the hospital. "Hold your baby, talk to your baby, sing to your baby," he said.

Werker did caution that recordings should never be a substitute for actual visits from parents.

"The practice of encouraging mothers to visit their premature babies in the newborn nursery should be continued," she said, "as it has so many other valuable effects."

The study appears in the Feb. 23 issue of *Proceedings of the American Academy of Sciences*.

More information: For more about the development of hearing in babies, try the U.S. National Institute on Deafness and Other Communication Disorders.