

Scientist unveils secret of newborn's first words

August 26 2008

(PhysOrg.com) -- A new study could explain why "daddy" and "mommy" are often a baby's first words – the human brain may be hard-wired to recognize certain repetition patterns.

Using the latest optical brain imaging techniques, University of British Columbia post-doctoral fellow Judit Gervain and a team of researchers from Italy and Chile documented brain activities of 22 newborns (2-3 days old) when exposed to recordings of made-up words.

The researchers mixed words that end in repeating syllables – such as "mubaba" and "penana" – with words without repetition – such as "mubage" and "penaku." They found increased brain activities in the temporal and left frontal areas of the newborns' brain whenever the repetitious words were played. Words with non-adjacent repetitions ("bamuba" or "napena") elicited no distinctive responses from the brain.

The study is published in the current issue of the *Proceedings of the National Academy of Sciences* online Early Edition.

"It's probably no coincidence that many languages around the world have repetitious syllables in their 'child words' – baby and daddy in English, papa in Italian and tata (grandpa) in Hungarian, for example," says Gervain from UBC Dept. of Psychology's Infant Studies Centre.

Scientists have studied how older children and adults acquire grammatical structures. This is one of the first studies on a newborn

infant's innate ability to decipher structural patterns in language.

"The language centre of most right-handed adults is located on the left side of the brain," says Gervain. "This is consistent with our finding with new born babies and supports our belief humans are born with abilities that allow us to perceive and learn our mother tongue systematically and efficiently."

"The brain areas that are responsible for language in an adult do not 'learn' how to process language during development, but rather, they are specialized – at least in part – to process language from the start."

Source: University of British Columbia

Citation: Scientist unveils secret of newborn's first words (2008, August 26) retrieved 1 May 2024 from <https://medicalxpress.com/news/2008-08-scientist-unveils-secret-newborn-words.html>

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