Where does verbal memory originate from?

A newborn’s brain can remember words ever since the early days of life

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When do we start learning our first words? According to a new study carried out by the International School for Advanced Studies (SISSA), the first signs of brain activity linked to linguistic memory can be seen ever since the early days of our lives.

We start remembering linguistic sounds very early, although vowels seem to be much easier than consonants. That is what Silvia Benavides-Varela and her colleagues at the Language, Cognition and Development Lab at SISSA in Trieste, led by Jacques Mehler (one of the authors of the article), state in the new study published in Proceedings of the National Academy of Sciences. This study shows that ever since the early days of our lives the brain activity linked to verbal memory can be seen. This paper is based on the results of the research work with which Benavides-Varela obtained her PhD at SISSA.
The brain activity of forty-four newborns was monitored by using optical topography two minutes after the babies had listened to some words (which were actually syllable sequences without meaning but whose structure was similar to words). Before the test phase, the newborns listened to a range of words which were the words of reference. In the second phase of recognition they listened to some other sequences which were phonetically similar or dissimilar.

The researchers observed that in the test phase, when the newborns listened to words with the same vowels as those listened before, in the right frontal regions (the same activated when adults remember words) “signs” were registered which in literature are commonly associated to recognition. On the other hand, if the words had different vowels but the consonants were the same, these signs of recognition were absent.

“Basically, these experiments show two things: first of all, in newborns the information conveyed by vowels seems to be much easier to recognize than the information conveyed by consonants” explained Marina Nespor, Professor at SISSA and one of the authors of the study. “The second important remark is that the frontal areas seem to be involved in the recognition of spoken sequences ever since the very first developmental stages.”

References:
Silvia Benavides-Varela, Jean-Rémy Hochmann, Francesco Macagno, Marina Nespor, and Jacques Mehler, “Newborn’s brain activity signals the origin of word memories”, Proceedings of the National Academy of Sciences, 15 October 2012

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