

Abstract

Aims: To test the hypothesis that exposure to ambient language in the womb alters phonetic perception shortly after birth. This two-country study aimed to see if neonates demonstrated prenatal learning by how they responded to vowels in a category from their native language and another nonnative language, regardless of how much postnatal experience the infants had.

Method: A counterbalanced experiment was conducted in Sweden (n=40) and the USA (n=40) using Swedish and English vowel sounds. The neonates (mean postnatal age = 33 hrs) controlled audio presentation of either native or nonnative vowels by sucking on a pacifier, with the number of times they sucked their pacifier being used to demonstrate what vowel sounds attracted their attention. The vowels were either the English /i/ or Swedish /y/ in the form of a prototype plus 16 variants of the prototype.

Results: The infants in the native and nonnative groups responded differently. As predicted, the infants responded to the unfamiliar nonnative language with higher mean sucks. They also sucked more to the nonnative prototype. Time since birth (range: 7-75 hours) did not affect the outcome.

Conclusion: The ambient language to which foetuses are exposed in the womb starts to affect their perception of their native language at a phonetic level. This can be measured shortly after birth by differences in responding to familiar vs. unfamiliar vowels.

Keywords: fetal, language, learning, neonatal, vowels

Key Notes:

- Being exposed to ambient language in the womb affects foetal phonetic perception.

Language experienced *in utero* affects vowel perception after birth: a two-country study
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- Eighty neonates (mean: 33 hrs since birth) in Sweden and the USA responded differently to vowel sounds, depending on whether they were from their familiar native or an unfamiliar nonnative language.
- The neonates sucked their pacifiers more frequently to activate recordings of unfamiliar nonnative vowel sounds, and the hours that had elapsed since birth had no effect on these rates.