

Bilingual babies' brains are 'prepped' to respond to sign language

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Babies raised listening to two spoken languages have a different brain response to British Sign Language compared to monolinguals, even if they have no previous sign language experience, a study from Goldsmiths, University of London has shown.

A research team analysed [brain activation patterns](#) in 19 monolingual babies (exposed to English only), 20 [bilingual babies](#) (exposed to English and another spoken [language](#) such as Spanish) and 21 babies with deaf mothers (exposed to spoken English and British Sign Language).

Results showed that hearing infants, who had been exposed to two spoken languages from birth, engaged the right hemisphere of the brain to a greater extent than the left while listening to spoken language but also when they saw sign language for the first time.

The research team conclude that the experience these babies have of listening to two spoken languages in their home may lead to increased sensitivity to the structure of languages. As a result, their brain responds to sign language in a similar way to how it responds to spoken language.

The team was surprised to find that the group of babies that differed most from monolinguals in terms of their brain activation for language was babies exposed to two spoken languages and not babies exposed to English and BSL.

Dr. Mercure said: "Both spoken and signed languages are formed of a [hierarchical structure](#) where different elements are combined to produce utterances. It's possible that the similarity in structure between spoken language and sign language leads to a similar pattern of activation for both language modes."

"Unimodal bilinguals (the infants exposed to two spoken languages) may also be more sensitive to visual speech articulation. Our study contained some English lip movements often present in natural BSL so it's possible that unimodal bilingual infants' activation for [sign language](#) is in part associated with the processing of these visual speech cues."

The team also found that bimodal bilingual babies—those exposed to

BSL and English—appear to outperform others on general communicative skills.

Dr. Mercure said: "This suggests that the development of [babies](#) with deaf mothers may be 'boosted' by their need to adapt their communicative strategies to different partners with different communication needs."

More information: Evelyne Mercure et al. Language experience impacts brain activation for spoken and signed language in infancy: Insights from unimodal and bimodal bilinguals, *Neurobiology of Language* (2019). [DOI: 10.1162/nol_a_00001](https://doi.org/10.1162/nol_a_00001)

Provided by Goldsmiths, University of London

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