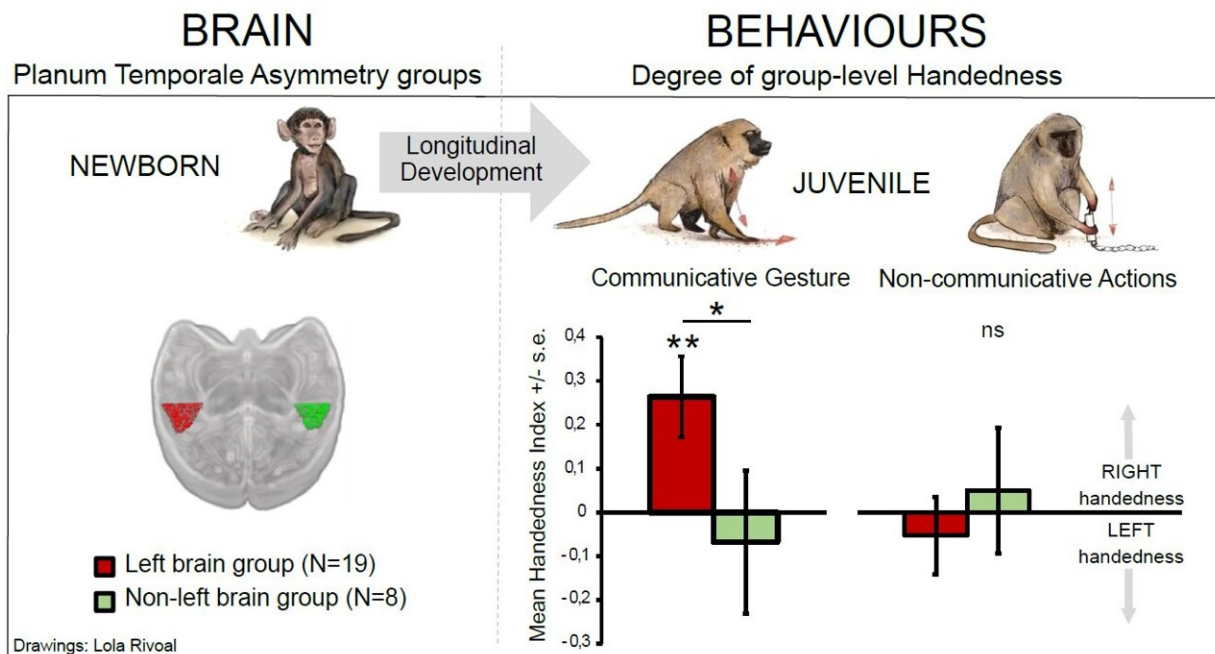


# Baby baboon brain anatomy predicts which hand they will use to communicate

June 7 2024



3D MRI cross-section of the brain of a 10-day-old baboon. The planum temporale area in the left hemisphere (shown in red), an area essential for language in humans, is larger than that in the right hemisphere (shown in green) in the majority of baboons. Only the baby baboons with this early larger left-than-right PT asymmetry will develop a preference for gestural communication with the right hand once they have reached the appropriate age, as shown in red on the left of the graph. Credit: Centre de recherche en psychologie et neurosciences, CNRS, Aix-Marseille Université

By studying the brain anatomy of newborn baby baboons, a research group including several CNRS scientists was able to predict what hand they would use to communicate after they had been weaned.

These researchers had already found that nearly 70% of newborn baboons, like [human babies](#), had early asymmetry in the planum temporale (PT) area of the brain. The PT, which is also a key area for language in humans, was larger in the left brain hemisphere than in the right in this group of baby baboons.

In the new study, [published](#) in *Nature Communications*, the scientists found that as these baboons grew up, they tended to develop a right-hand preference for gestural communication. This [tendency](#) was independent of their right- or left-handedness for other, non-communicative actions such as manipulating objects to extract food.

In [contrast](#), the remaining 30% of young baboons—those who were showing no brain asymmetry for the PT or an asymmetry toward the right when newborn—had an equal likelihood of later communicating preferentially with their left or [right hand](#).

This discovery implies that PT asymmetry is not just a neuroanatomical requirement for [language development](#) in humans but also one for the development of gestural communication in monkeys, suggesting a shared evolutionary heritage which could date back to their [common ancestor](#) 25 million years old.

The scientists based their conclusions on behavioral observations that they made on a group of young baboons previously examined for early brain asymmetry based on MRI images obtained at birth. In this work, they identified the hand that the baboons preferentially used to make the most common gestures of their communication repertoire, namely rubbing or slapping a hand on the ground to threaten other baboons.

This study casts a new light on the links between gesture and language in the evolution of primates by demonstrating their cerebral prewiring.

This "gestural" path could have promising clinical implications for brain surgery patients, notably to determine the dominant hemisphere for language based on simple communicative gestures' measurements, to minimize risks of post-operative aphasia.

**More information:** Yannick Becker et al, Planum temporale asymmetry in newborn monkeys predicts the future development of gestural communication's handedness, *Nature Communications* (2024).  
[DOI: 10.1038/s41467-024-47277-6](https://doi.org/10.1038/s41467-024-47277-6)

Provided by CNRS

Citation: Baby baboon brain anatomy predicts which hand they will use to communicate (2024, June 7) retrieved 21 June 2024 from <https://medicalxpress.com/news/2024-06-baby-baboon-brain-anatomy-communicate.html>

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