

LONGITUDINAL DEVELOPMENT OF VOLUMETRIC CEREBRAL ASYMMETRIES OF CHIMPANZEES

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Humans have brain asymmetry, which is reflected in language, handedness, and social interaction. To understand the evolution of human brain structure, it is important to reveal the characteristics of brain development of chimpanzee (*Pan troglodytes*), our most closest phylogenetical relative. Identifying the difference of the 2 species on asymmetry of the cerebrum is also a key to infer the evolutionary basis of language and social interaction of humans through fossil endocasts. However, only few studies examined the development of brain asymmetry in non-human primates, and so far no studies have explored that in great apes. Here, we report a longitudinal volumetric development of brain asymmetry in chimpanzees. Three-dimensional T1-weighted images of the brain were longitudinally obtained in 3 growing chimpanzees between 6 months to 6 years, and 3 additional adults. Then we examined the volumes of the both hemispheres using FSL software. The right hemispheres of the chimpanzee cerebrum were consistently larger than the left throughout this period, while the difference of white matters in both hemisphere does not change significantly. We suggest that this developmental pattern of the cerebrum volume asymmetry during infancy and juvenile period is common with that of humans.

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