

Fold

The folds of the [brain](#) offer a particular challenge for the [subarachnoid](#) vascular grid. The primitive blood [vessels](#) that occupy this space, when the brain is flat, have to adapt to an everchanging geometry while constructing an efficient network. Surprisingly, the result is a non-redundant arterial system easily challenged by acute occlusions. Shalom et al. generalized the optimal network building principles of a flat surface growing into a folded configuration and generate an ideal [middle cerebral artery](#) (MCA) configuration that can be directly compared with the normal brain anatomy. They then described how the [Sylvian fissure](#) (the fold in which the [MCA](#) is buried) is formed during development and used the findings to account for the differences between the ideal and the actual shaping pattern of the MCA. The results reveal that folding dynamics condition the development of arterial [anastomosis](#) yielding a network without loops and poor response to acute [occlusions](#) ¹⁾.

¹⁾

Shalom DE, Trevisan MA, Mallela A, Nuñez M, Goldschmidt E. Brain folding shapes the branching pattern of the middle cerebral artery. PLoS One. 2021 Jan 7;16(1):e0245167. doi: 10.1371/journal.pone.0245167. PMID: 33411825.

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Last update: **2025/04/29 20:22**

