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Arcuate Fasciculus

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Definition

The arcuate fasciculus is a large bundle of nerve fibers that curves around the lateral sulcus to connect Broca's area in the frontal cortex to Wernicke's area located in the posterior portion of the temporal lobe. This white matter pathway is essential for language processing in which the arcuate fasciculus connects the region associated with the ability to produce spoken language, Broca's area, to that of the ability to process spoken words that are heard which is associated with

Wernicke's area. This language loop is located in the left hemisphere in approximately 90% of the population. Lesions disrupting the arcuate fasciculus result in conduction aphasia, which is characterized by paraphasic errors in which incorrect words or sounds are substituted and word repetition is impaired, although these individuals generally show reasonably normal speech and comprehension.

Cross-References

► [Superior Longitudinal Fasciculus](#)

References and Readings

LaPointe, L. L. (2005). *Aphasia and related neurogenic language disorders*. New York: Thieme.