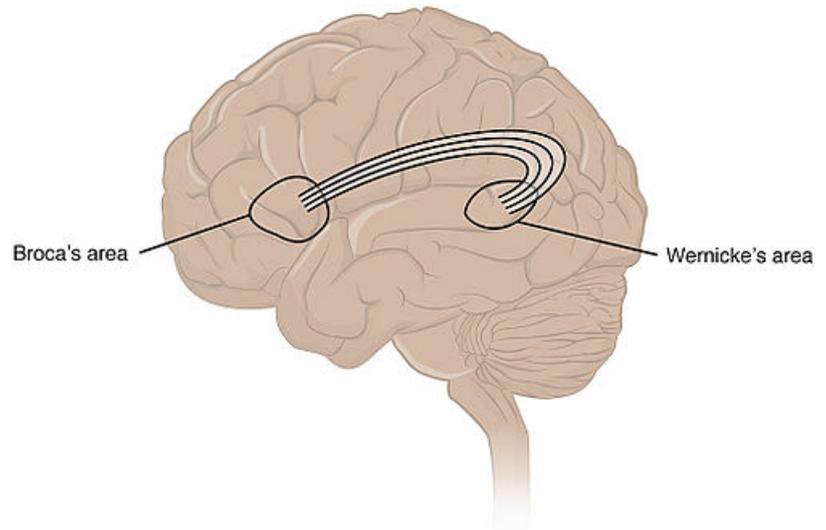


Arcuate fasciculus

see [Arcuate fasciculus resection](#).



The arcuate fasciculus (Latin, curved bundle) is a bundle of [axons](#) that forms part of the [superior longitudinal fasciculus](#). The arcuate bidirectionally connects caudal temporal cortex and inferior parietal cortex to locations in the [frontal lobe](#).

The aim of a study was to examine the arcuate (AF) and [superior longitudinal fasciculi](#) (SLF), which together form the dorsal language stream, using fiber dissection and diffusion imaging techniques in the human brain.

Twenty-five formalin-fixed brains (50 hemispheres) and 3 adult cadaveric heads, prepared according to the [Klingler method](#), were examined by the fiber dissection technique. The authors' findings were supported with MR [tractography](#) provided by the [Human Connectome Project](#), WU-Minn Consortium. The frequencies of gyral distributions were calculated in segments of the AF and SLF in the cadaveric specimens.

The AF has ventral and dorsal segments, and the SLF has 3 segments: SLF I (dorsal pathway), II (middle pathway), and III (ventral pathway). The AF ventral segment connects the middle (88%; all percentages represent the area of the named structure that is connected to the tract) and posterior (100%) parts of the superior temporal gyri and the middle part (92%) of the middle temporal gyrus to the posterior part of the inferior frontal gyrus (96% in pars opercularis, 40% in pars triangularis) and the ventral premotor cortex (84%) by passing deep to the lower part of the supramarginal gyrus (100%). The AF dorsal segment connects the posterior part of the middle (100%) and inferior temporal gyri (76%) to the posterior part of the inferior frontal gyrus (96% in pars opercularis), ventral premotor cortex (72%), and posterior part of the middle frontal gyrus (56%) by passing deep to the lower part of the angular gyrus (100%).

This study depicts the distinct subdivision of the AF and SLF, based on cadaveric fiber dissection and diffusion imaging techniques, to clarify the complicated language processing pathways ¹⁾.

1)

Yagmurlu K, Middlebrooks EH, Tanriover N, Rhoton AL Jr. Fiber tracts of the dorsal language stream in the human brain. *J Neurosurg*. 2015 Nov 20:1-10. [Epub ahead of print] PubMed PMID: 26587654.

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