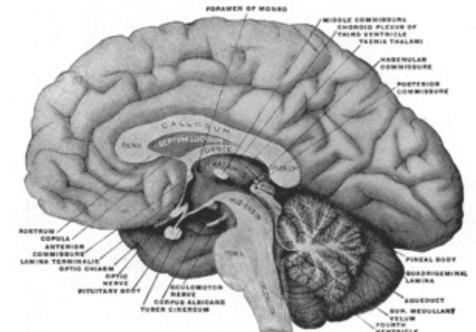


# Commissural junctions in the brain

**The commissural junctions** connect the right and left sides of the brain . In this way, they enable the transfer of stimuli from one hemisphere to the other and the cooperation of both hemispheres. Commissural junctions are homotropic – they connect the same regions of the left and right hemispheres, and heterotropic – they connect different regions of the hemispheres. Neurons sending commissural fibers are stored in **III. layer** of the cortex , neurons in **the opposite hemisphere** where these fibers end are mainly in **IV. layer** . The commissural fibers of the cerebral hemispheres are grouped into three macroscopic fiber formations: corpus callosum, commissura anterior, and commissura fornicis

## Corpus callosum

It is the largest cerebral commissure. It connects the hemispheres in the **neocortex** contains **200 to 300 million** fibers. They mutually connect the frontal, parietal and occipital lobes of the hemispheres, while from the temporal lobes the fibers of the corpus callosum connect only the auditory cortical areas . The dissectable fibers connecting the frontal lobe arc forward under the name forceps anterior . Similar fibers at the back that join the occipital lobe are referred to as the forceps posterior . The fibers of **the corpus callosum** forming the ceiling of the occipital horn of the lateral ventricle are referred to as the tapetum. Commissural fibers are absent in the motor and sensory areas of the cortex for the distal parts of the upper and lower limbs and in the part of the visual cortical area designated for the periphery of the visual field. The most common commissural connections have association cortical areas, premotor and supplementary motor areas, as well as the visual cortical area for the center of the visual field. More numerous commissural joints also have motor and sensory areas for the head, trunk and proximal parts of the limbs.



Commissural junctions

## Anterior commissure

It is a strong bundle of fibers adjacent to the lamina terminalis III in front of the columnae fornicis . cerebral ventricles. The bundle of anterior fibers of this commissure, referred to as the pars anterior , was originally a commissure of the paleocortex. In its final state, it connects **the olfactory cortical areas** of both hemispheres. A set of posterior fibers of the commissure, referred to as the pars posterior , runs laterally and downward below the nucleus lentiformis and connects the cortex of both temporal lobes, except for the auditory cortical areas, whose commissural fibers are contained in the corpus callosum, and in addition to the cortex of the gyrus hippocampi and the hippocampal formation , from where the commissural fibers go in the commissura fornicis itself.

## Commissura fornicis (Iyra Davidis)

They are the transverse fibers of the triangular disc, stretched between the crura fornicis that diverge under the splenium corporis callosi . The fibers of this commissure connect the gyrus hippocampi and components of the hippocampal formation of both hemispheres.