

Posterior Commissure

The 'posterior commissure' is a small but important bundle of white matter fibers located in the dorsal part of the upper [midbrain](#), just above the [cerebral aqueduct](#) and posterior to the [third ventricle](#). It serves primarily to connect the left and right [pretectal nuclei](#), enabling bilateral coordination of the [pupillary light reflex](#).

Anatomy

- Located at the junction of the [midbrain](#) and [diencephalon](#)
- Lies below the [pineal gland](#) and anterior to the [superior colliculi](#)
- Runs transversely across the dorsal aspect of the upper brainstem
- One of the key fiber tracts crossing the midline in this region, alongside the [habenular commissure](#)

Function

- Mediates the **consensual pupillary light reflex**, allowing light in one eye to cause constriction in both pupils
- Transmits signals from the [pretectal nuclei](#) to both [Edinger-Westphal nuclei](#)
- Involved in reflexive eye movements and vertical gaze control

Clinical Significance

- Lesions affecting the posterior commissure can result in:
 - [Parinaud syndrome](#) (dorsal midbrain syndrome)
 - Vertical gaze palsy
 - Loss of pupillary light reflex with preserved accommodation (light-near dissociation)
- Commonly affected in pineal region tumors or tectal plate gliomas

Related Structures

- [Pretectal area](#)
- [Edinger-Westphal nucleus](#)
- [Pineal gland](#)
- [Vertical gaze center](#)

Reference

Nieuwenhuys R, Voogd J, van Huijzen C. The Human Central Nervous System. Springer, 2007.

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