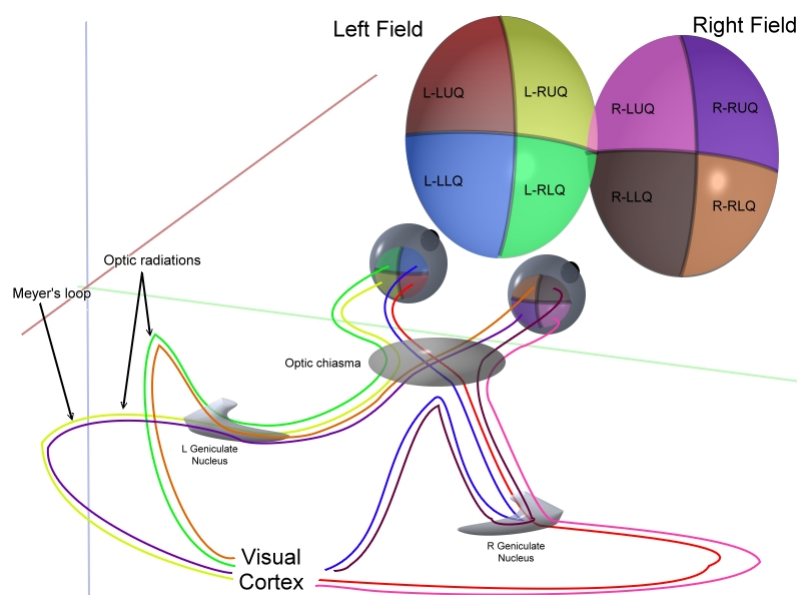


Optic radiation



The optic radiation (OR) is a **white matter bundle** with a very complex **anatomy**. Its anterior component bends sharply around the tip of the **temporal horn**, forming the **Meyers Loop** ¹⁾.

Definition

The optic radiation (also known as the geniculocalcarine tract, the geniculostriate pathway, and posterior thalamic radiation) are axons from the neurons in the **lateral geniculate nucleus** to the primary **visual cortex**.

Blood supply

The optic radiation receives blood through deep branches of the **middle cerebral artery** and **posterior cerebral artery**.

They carry visual information through two divisions (called Upper and Lower division) to the visual cortex (also called striate cortex) along the **calcarine fissure**. There is one such tract on each side of the brain. If a lesion only exists in one optic radiation, the consequence is called **quadrantanopia**.

The optic radiation can be accurately delineated by tractography and propagated onto postoperative images. The technique is fast enough to propagate accurate preoperative tractography onto intraoperative scans acquired during neurosurgery, with the potential to reduce the risk of visual field deficit (VFD) ²⁾.

Importance

Visual field defects (VFDs) due to **optic radiation** (OR) injury are a common complication of temporal lobe surgery.

Sparing optic radiations can be of paramount importance during [epilepsy surgery](#) of the [temporal lobe](#). The anatomical heterogeneity of the [Meyers loop](#) of the optic radiations could be assessed by means of diffusion tensor tractography.

The [posterior interhemispheric transprecuneus gyrus approach](#) is one of the surgical routes that has been suggested to reach the [atrium](#) of the [lateral ventricle](#). It has the advantage of avoiding the disruption of the [optic radiations](#); however, it has a narrow working area that at times makes the execution of this approach rather challenging.

A modification of the approach that might create a better surgical angle and a wider corridor by accessing the atrium from the contralateral side after transection of the falx, named this new approach the “posterior interhemispheric transfalx transprecuneus approach.”³⁾

Dorsal loop of the optic radiation

[Dorsal loop of the optic radiation](#).

1)

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3)

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