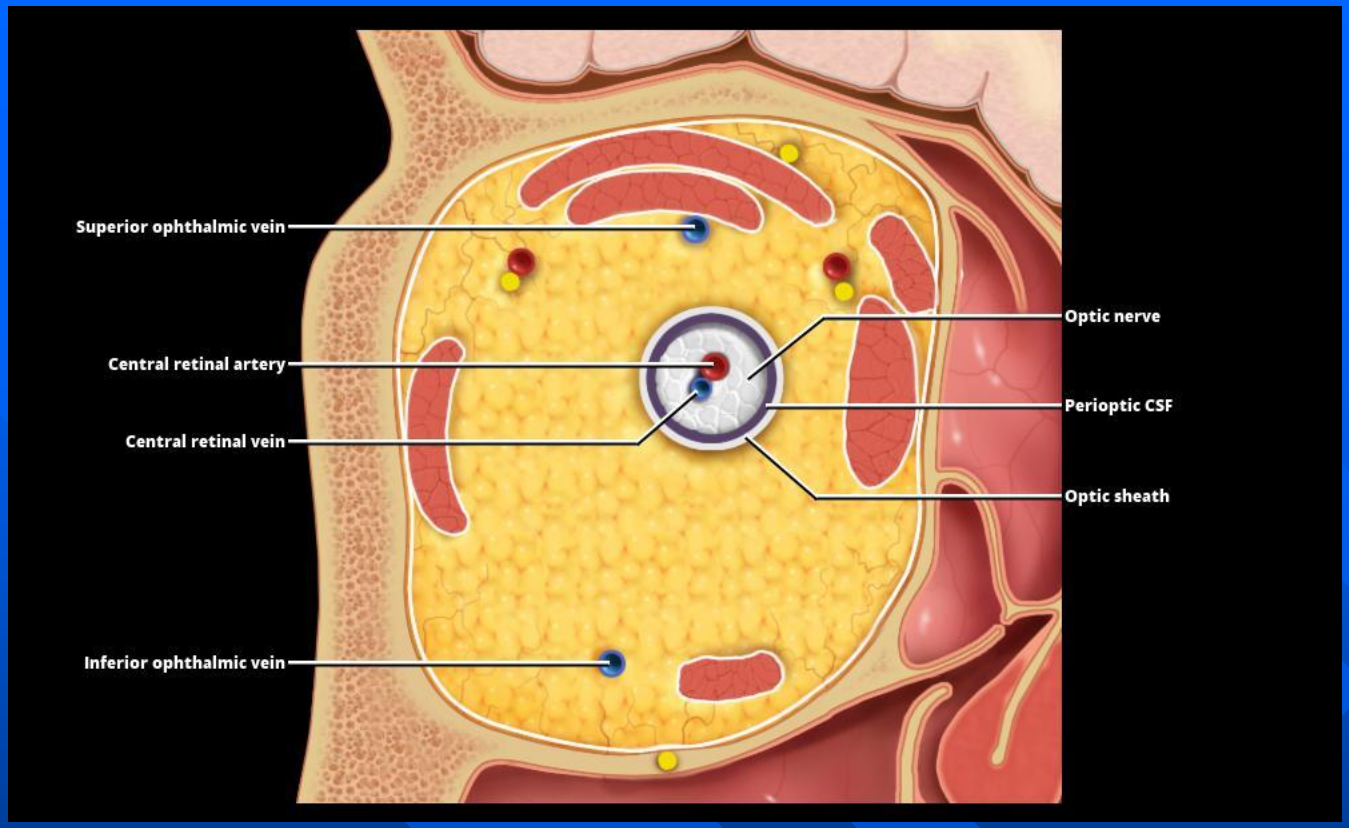
Optic Nerve/Sheath Complex

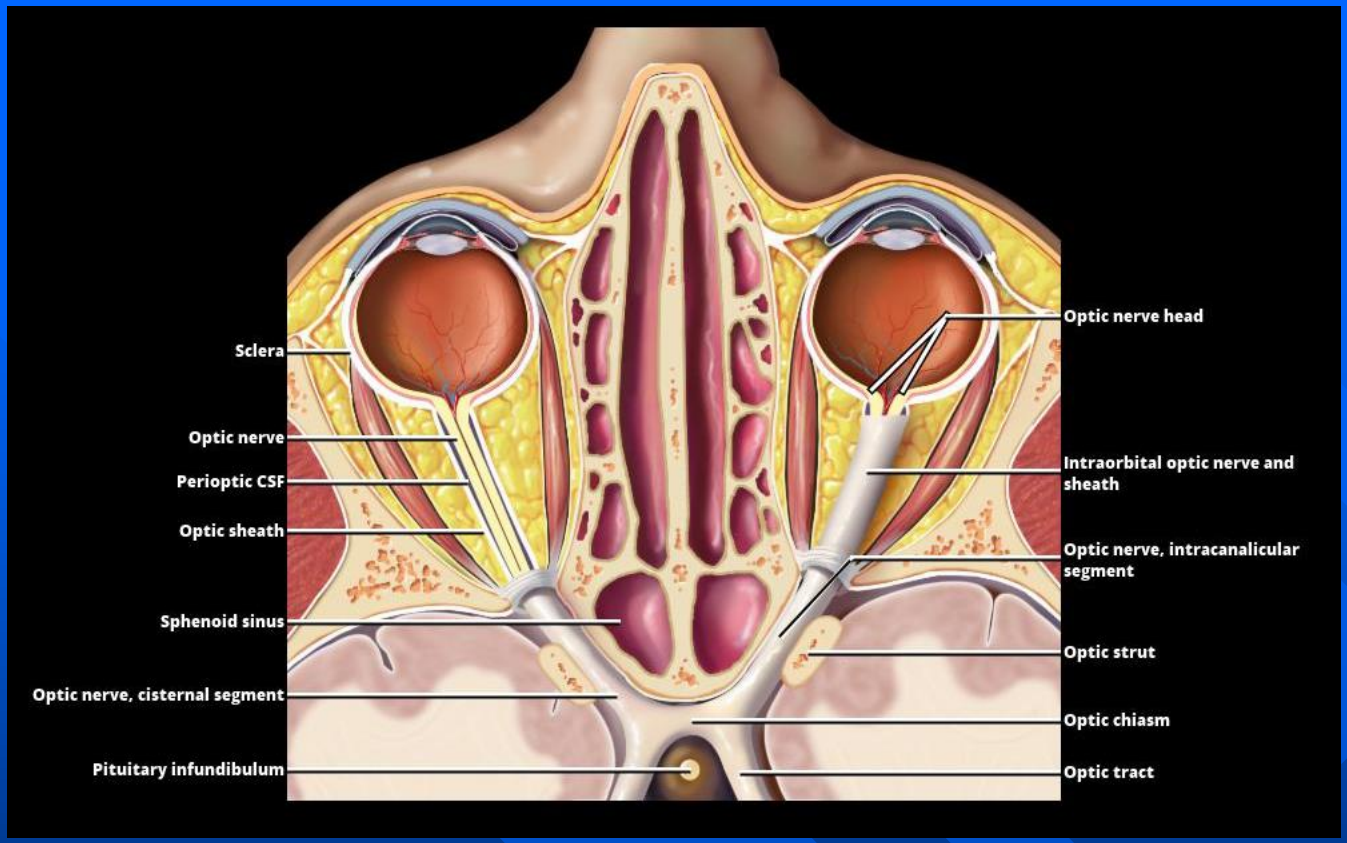
- **Optic nerve and tract**
  - Anatomically a CNS tract
    - » Composed of oligodendrocytes
  - Different from other cranial nerves
    - » Composed of Schwann cells
- **Optic sheath**
  - Dural encasement of nerve
    - » Contiguous with intracranial dura
    - » All 3 membrane layers of meninges present including pia, arachnoid & dura mater
  - CSF-filled arachnoid space surrounds nerve
    - » Contiguous with suprasellar cistern
    - » Transmits intracranial pressure changes

Segements

- **Intraorbital segment**
  - Posteromedial oblique sagittal long axis
  - Roughly horizontal plane
  - Position varies with eye movement
  - Nerve longer than distance from apex to globe, tends to form an "S-shaped" contour
- **Canalicular segment**
  - Oblique axis results in non-orthogonal "ovoid" cross sectional appearance on coronal images
- **Cisternal segment**
  - Angle changes relative to intraorbital segment as it courses posteriorly
  - Oblique sagittal long axis ≈ 30˚ medially and superiorly



- The nerve is bathed by a thin layer of CSF which is contained by the Dural optic sheath.
- The central retinal vessels are external to the optic sheath posteriorly in the orbit.
- They pierce the dura in the mid-portion of the nerve to travel within the substance of the nerve anteriorly.



- Axial graphic of the intraorbital and intracranial segments of CN2.
- The extra-axial optic pathways can be segmented (posterior to anterior) into optic tract, optic chiasm, cisternal nerve, intracanalicular nerve, and intraorbital nerve.
- The optic sheath is a dural reflection that is contiguous with intracranial dura mater. Note the relationship of the pituitary infundibulum to the optic chiasm.