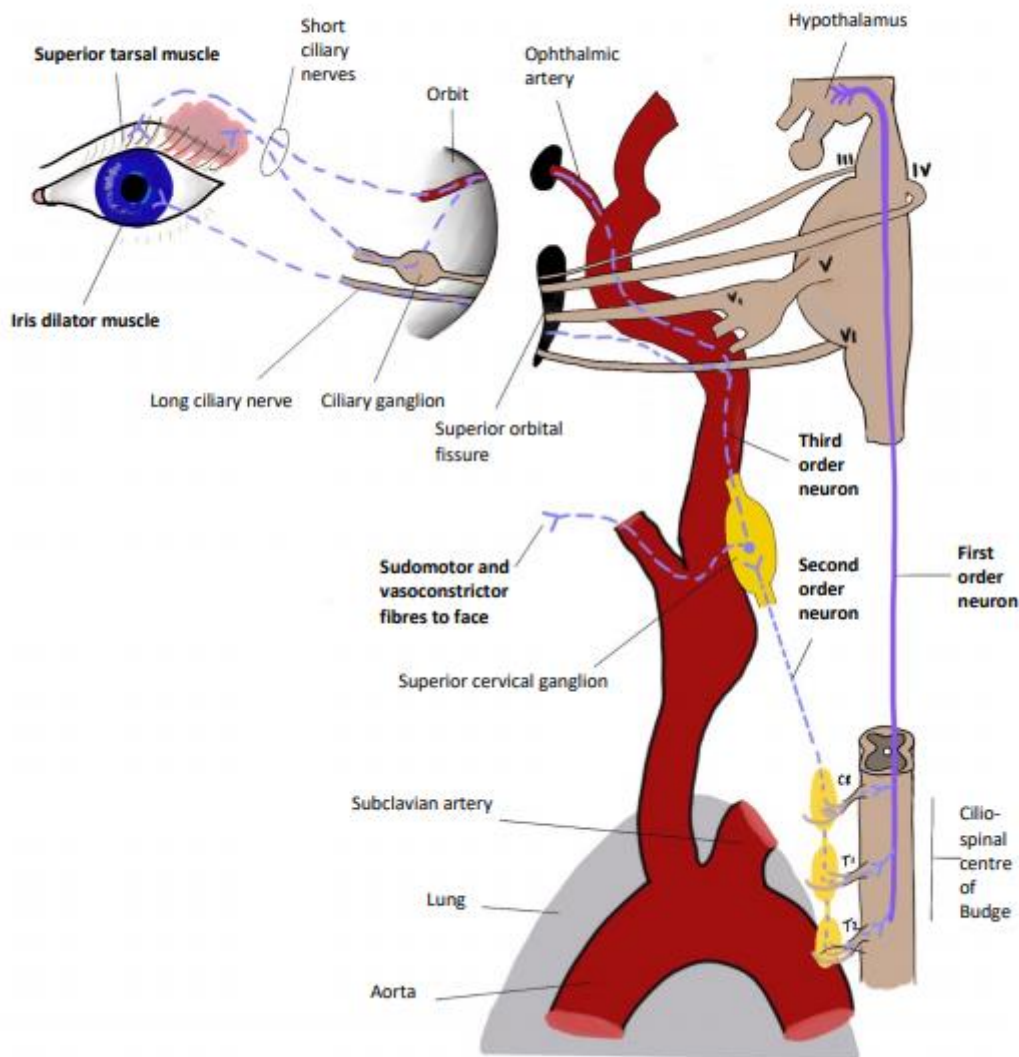


Course of the sympathetic nervous pathway to the eye



Sympathetic fibres descend from the hypothalamus to the upper thoracic spinal cord, the fibres leave the central nervous system to join the sympathetic chain and synapse in the superior cervical ganglion. They then form a plexus along the internal carotid artery and enter the orbit to supply the superior tarsal muscle and the iris dilator muscle. These are smooth muscles. (some sympathetic fibres travel along ophthalmic artery; others enter the orbit via the trigeminal nerve, the nasociliary nerve and long ciliary nerves. Sympathetic fibres that pass through the ciliary ganglion do not synapse here)

The levator palpebrae superioris enables voluntary eyelid opening supplied by the oculomotor nerve; whereas the superior tarsal muscle is responsible for partial eyelid opening via sympathetic innervation. The pupil contains smooth muscle supplied by the autonomic nervous system; sympathetic innervation causes dilation of the pupil; parasympathetic innervation causes constriction. When there is damage to the sympathetic nervous system along this chain, there is ipsilateral miosis, ptosis and anhidrosis. The constellation of symptoms can point to a location along the pathway that is affected. The ptosis is often subtle as it is only the superior tarsal muscle that is affected (the levator palpebrae superioris is intact in 'Horner's syndrome').