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NEURONS AND FIBERS OF CEREBELLUM

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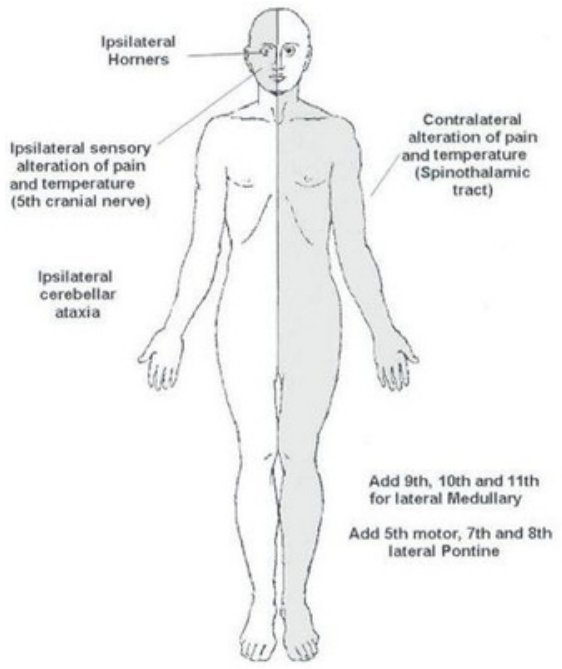
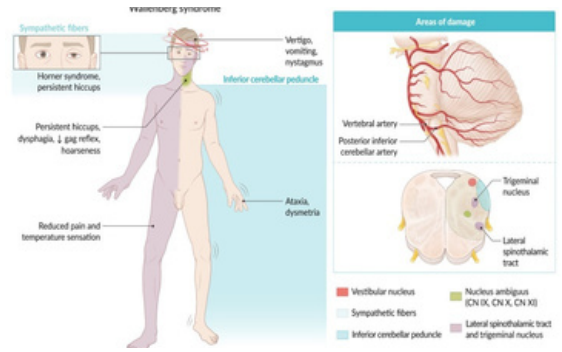
NEURONS AND FIBERS OF CEREBELLUM

- *The cerebellum is a vital component in the human brain as it plays a role in motor movement regulation and balance control.The cerebellum coordinates gait and maintains posture, controls muscle tone and voluntary muscle activity but is unable to initiate muscle contraction.Damage to this area in humans results in a loss in the ability to control fine movements, maintain posture, and motor learning.*

VISUAL REPRESENTATION





NEURONS AND FIBERS OF CEREBELLUM

structure and function

- *The gray matter of the cortex divides into three layers: an external - the molecular layer; a middle - the Purkinje cell layer; and an internal - the granular layer.*
- *The molecular layer contains two types of neurons: the outer stellate cell and the inner basket cell.*
- *The Purkinje layer consists of Purkinje cells, which are large Golgi type I neurons.*
- *Their dendrites reach the molecular layer and have multiple branches.*

NEURONS AND FIBERS OF CEREBELLUM

- *The axons are long, pass through the granular layer, enter the white matter, acquire a myelin sheath, and terminate in the intracerebellar nuclei.*
- *Their collateral branches make synaptic contacts with the basket and stellate cells of the granular layer.*
- *Climbing and mossy fibers provide the primary input to the cerebellar cortex.*
- *Mossy fibers use glutamate, while the climbing fibersuse aspartate as their main excitatory neurotransmitterto provide excitatory signals to the Purkinje cells.*
- *Control of the distal extremity muscles is by the intermediate zone of the cerebellar hemispheres, located adjacent to the vermis.*

MCQ

Question: ***Which of the following is not a part of Wallenberg syndrome?***

- ***A Ipsilateral Horner's syndrome***
- ***B Ipsilateral loss of taste***
- ***C Contralateral impaired thermal sensation over the arm***
- ***D Contralateral atrophy of tongue***

Answer: ***(D) Contralateral atrophy of tongue***