Diencephalon : gives “ thalamus and hypothalamus “

During the developmental stage :

 Forebrain (**prosencephalon** - telencephalon : gives cerebrum

The part of brain :
 •Midbrain(mesencephalon): gives midbrain

 Hindbrain (**rhombencephalon** ) pons

 medulla

 cerebellum

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Spinal cord “ascending tracts” lecture

**Slide 2** : million of motor neuron are causing the body to respond in special way , either it go to muscle or gland
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**Slide 3** : - tract travel within white matter of spinal cord either sensory or motor

* It is : sensory “ ascending “ and Motor “ descending

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**Slide 5** : Ascending “ sensory “ pathway involve 3 neuron :
 - 1st order neuron
 -2nd order neuron
 -3rd order neuron
………………………………………………………….

**Slide 6** : - sensory modalitiy : sensation varied into tracts “pathways “ e.g : pain ,temperature ,
 proprioception have own taract

* Somatotopic :Each point of the body represented in a special or single point in cerebral cortex
* Medial- lateral root : special orientation for every group of fibers

**Slide 7** : - posterior white coloum involve fasciculus gracilis “medial “ and fasciculus cuneatus “lateral
 - notice the fiber that carry sevnsation from leg and hip “Is” more medial than that of trunk and arm
 - notice the ventral horn : the extensor fiber is more anterior to the flexor
 - Every organ represented by single area
 -\*\* remember that : the ventral horn is divide into 3 region : medial group : axial muscle
 central group :
 lateral group :limb muscle
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**Slide 8** : delta A type > sharp pain but C type > burning “ اقل الما "
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**Slide 10**: - red line : first order neuron , synaps at posterior gray horn
 - white line :second order neuron then directly the axon make crossing “ decussation “
 then continue in lateral white column of the contralateral side
 - then it ascend as lateral spinothalamic tract

- third order neuron : ventral nuclei in thalamus and finish in the cerebral cortex at postcentral gyrus

 - thalamus : group of nuclei , each one has it’s own function
…………………………………………

**Slide 11** : at lateral spinothalmic tract , the sacral fiber are lateral and cervical fiber are medial why ? “
 because when it make crossing it will make twisting > change the orientation > اللي كان لاتيرال راح يصير ميديال وهكذا .
 ……………………………………………
**Slide 18 + 20** : first order neuron not synaps at dorsal horn , but it directly go to Post. white column ascend to thalamus , it synpes on 2nd order neuron at the medulla oblongata “the most inferior part of brain stem
then directly make crossing, then it complete its way until reach thalamus, then synap as 3rd order neuron -The axons of 3rd order neurons pass through internal capsule and corona radiata to reach the Postcentral gyrus of cerebral cortex
 - u should know the difference between the spinal leminiscus and the medial leminiscus
- leminiscus : collection of axon (bigger size than tract )
-M. leminiscus : the way of the fiber of the posterior spinothalmic tract ascend , it will end in cerebral cortex
- S. leminiscus : spinothalamic with other tract

 - what the benefit of twisting ?
 - let’s take the sacral fiber ; it start at medial side and it will represent in the cerebral cortex at lateral side >> so the decussation prevent the fibers to go to medial side of the cerebral cortex
So , always after decussation the sacral fiber will go to lateral side

**Slide 18** : according to the sensation > the the part of body will represent more area in cerebral cortex
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**Slide 21** : nucleus dorsalis = Clark’s cell
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**Slide 23** : cerebellum control the epsilateral side of the bode
epsilateral : same side
contralateral : the opposite side
……………………………………………………………

**Slide 24** : pathway between the cerebellum and brain stem :

-Brain stem ( pons +medulla + mid brain )

- no direct connection between the cerellum and cerebral cortex or the spinal cord

- there is 3 way to connect the brain stem with cerebellum which called peduncle

Between mid brain and cerebellum > superior cerebellar pedancle

Between pons and cerebellum > medial cerellar pedencle

Between medulla olingata and cerebellum > inferior cerebellar pedencle
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**Slide 26** :

How to discriminate ?

1. Thoracic >> minimum gray matter >> H regon “ small “ because it supply the muscle of trunk.
2. Cervical and sacral have bigger ventral
3. Sacral have small surround mantle of white matter

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