Please tell me if there’s any problem.

At last sheet: small trick

sensory modality : sensation varied into tracts “pathways “ e.g : pain and temperature , crud  
touch and pressure , proprioception ; each one have its own tract .

Now let’s start

* Ascending pathway
* Sensory pathwsy : it is compose of 3 order neuron ; the first order neuron and it’s cell body found in dorsal root ganglia , and it have 2 process “ peripheral process and central process cental prosses >> which go to anteriolateral system “spinothalamic” enter within it tract called dorso lateral tract then make decussation directly and then complete either “ anteriospinothalamic tract or laterospinothalmic tract “ at the contralateral side
* Posterior white column directly enter white matter as epsilateral then decussate at medulla oblongata
* Descending pathways :   
   \* **pyramidal >> corticospinal tract   
   \* extrapyramidal >> origen from higher center of brain not cortex**
* **pyramidal** :

1. Lateral corticospinal tract >> fine movement for distal muscle .
2. Anterior corticospinal tract >> control more proximal muscle>> originate from motor cortex and finish at contralateral side ?? because it decussate at spinal cord level   
   \*\* part of this tract complete in epsilateral side .

* **Extrapyramidal :**

1. **Vestibulospinal tracts 2.Tectospinal tracts 3.Reticulospinal tracts 4.Rubrospinal tracts**

* **Rubrospinal tracts:   
   \* decussate over near their point of origin  
   \*** **adjacent to the lateral corticospinal tract  
   \* flexion for upper limb**
* **Tectospinal tracts :  
   \* The tectum area consists of superior and inferior colliculi**
* **Reticulospinal tracts : the medial reticulospinal tract (MRST) and the lateral reticulospinal tract (MRST)  
   \* origin from** **Reticular formation   
   \* control alertness , conscious   
   \* medial : pons , activate the axial and proximal limb extensors  
   \* lateral : medulla oblongata , inhibit the axial and proximal limb extensors**
* **Vestibulospinal tracts :   
   \* Vestibular nuclei  
   \* control the balance**
* **Ventral horn : motor neuron in the spinal cord >> flexor are more posterior to the extensor and the proximal are more medial to distal muscle**

Clinical application

* Any tumor or pressure on spinal cord from the external side on the spinothalamic tract >> then sacral fiber will effected “ which is more lateral ” so patient will lose sensation for lower part before the upper part
* Any tumer in the central canal >> the cervical fiber will effected “ the medial before lateral
* Lateral spinothalmic :   
   \* pain and temperature  
   \* contralateral   
   \* any enjury that lead to complete destruction for the tract :loss of pain and thermal sensation at contralateral side below the level of the lesion
* Anterior spinothalmic :   
   \* light touch “non discriminative”and pressure
* Note : u should differ between non discriminative and discriminative touch   
   - the non discriminative : the touch that you feel   
   - discriminative : what u feel when u touch : quality , quantity and space etc , by   
   posterior spinothalmic   
   \* any enjury that lead to complete destruction for the tract :loss of light touch and  
   pressure at contralateral side below the level of the lesion
* Fasciculus gracilis and cuneatus  
   \* discriminative touch and properoreceptio“ the position of the body” and vibration   
   \* any enjury that lead to complete destruction for the tract :loss of proprioception  
   and vibration sensation and discriminative touch below the level of lesion   
   epsilateral side .
* Descending pathway injury
* Descending : upper motor neuron and lower motor neuron and interneuron
* Upper motor neuron : cell body in the cerebral cortex > brain stem > spinal cord > terminate by synape with interneuron mostly , or directly with lower motor neuron
* Lower motor neuron : go to muscles
* Reflex arc : continuously sensation come from the muscle and in the same time there is a motor impulses e.g patellar extension
* Muscle tone : the slight contraction of the muscle in all time
* Any injury for the upper motor neuron “ either in spinal cord or brainstem or at cortex ” > it called upper motor neuron injury
* Any injury for the Lower motor neuron “ either in ventral horn motor neuron through spinal nerve or cranial nerve until it reach the muscle ” . it called lower motor neuron injury
* Clinically :  
   1- upper motor neuron injury >> no atrophy for the muscle , why ? the muscle still receiving   
   motor supply >> there is reflex arc but there isn’t cortical input >> no control from the  
   cortex >> still ther is lower motor neuron supply
* Atrophy >> when the nerve cut so >> the loswe motor neuron lead to atrophy   
   2- the tone of the muscle :   
   \* the upper motor neuron : effect the reflex arc >> activation or inhibition >> most of the  
   tract make inhibition >> so the upper motor neuron make inhibitory reflex on the reflex   
   arc >> so any injury lead to “ increase muscle tone ” >> this called hypertonia   
   \* the lower motor neuron : no muscle tone >> this is called hypotonia  
   3- the power of the muscle : in both cases there will be paralysis   
   \* the upper motor neuron : >> no inhibition >> hypertonia >> spastic muscle “rigged ”   
   >> this paralysis called : spastic paralysis   
   \* the lower motor neuron : flaccid paralysis   
   4- the reflex :   
   \* the upper motor neuron : hyperreflexia   
   \* the lower motor neuron : hyporeflexia
* Fasciculation : twitching of the muscle >> at lower motor neuron injury >> no nerve supply>> at rest >> involuntary
* clasp knife reaction: characteristic responses of an upper motor neuron lesion
* The Babinski reflex occurs after the sole of the foot has been firmly stroked. The big toe then moves upward or toward the top surface of the foot “dorsiflexion ” The other toes fan out >> normal >> + in children ☺
* Corticobulber :   
  The corticobulbar input is bilateral to ‘from right and left side ’ :

1- 5th   
2- Part of 7th ( which supplies UPPER facial muscles)>> have part is unilateral   
3-9th,10th,11th

4- 12th  ( except one part , that supply genioglusses

* If any injury for facial nerve : - after the nucleus >> lower motor neuron injury   
   - before the neucleus >> between the cortex and it’s neucleus >>   
   then upper motor neurom injury
* If any injury for upper motor neuron left side, cut for facial nerve :   
   - lower part >> paralysis   
   - upper part >> no paralysis
* If any injury for lower motor neuron , cut for facial nerve :   
   - paralysis for all the face
* Type of paralysis :   
   1-hemiplasia : paralysis for one side only  
   2- monoplegia : paralysis for one limb only   
   3- paraplegia : paralysis for both limb  
   4- quadriplegia : paralysis for all 4 limb

.. لعدم توافر السلايدات , اضطررت لكتابة كل ما تم قوله في المحاضرة .. اسفه ☺