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| **Structure** | **Function** | **Lesion** |
| Corticospinal tract | Motor pathway | Contralateral weakness |
| Medial lemniscus | The medial lemniscus is a second order neuron of the dorsal column-medial lemniscus pathway (DCML) | Contralateral proprioception/ vibration loss |
| Medial longditudinal fasciculus | The medial longitudinal fasciculus links the three main nerves which control eye movements, i.e. the oculomotor, trochlear and the abducent nerves, as well as the vestibulocochlear nerve. | Ipsilateral internuclear ophthalmoplegia |
| Spinocerebellar pathway |  | Ipsilateral ataxia |
| Spinothalamic | Pain/temp | Contralateral pain/temp  sensory loss |
| Sympathetic pathway | Autonomic | Ipsilateral Horner’s  syndrome |
| Glossopharyngeal CN9 | Mixed | Ipsilateral pharyngeal sensory loss |
| Vagus CN10 | Mixed | Ipsilateral palatal weakness |
| Spinal accessory CN11 | Trapeziuz and sternomastoid | Ipsilateral shoulder weakness |
| Hypoglossal CN12 | Motor | Ipsilateral weakness of tongue  Remember: The tongue is pushed to the weaker side. |
| Trigeminal CN5 |  | Ipsilateral facial sensory loss |
| Trigeminal CN5 Mesencephalic nucleus | Sensory proprioceptive sensibility. | Loss of proprioceptive sensation in distribution on ipsilateral side |
| Trigeminal CN5 Main sensory nucleus | Tactile sensation. | Loss of tactile sensation in distribution on ipsilateral side |
| Trigeminal CN5 Spinal tract nucleus | Pain and temperature. | Loss of Pain and temperature. sensation in distribution on ipsilateral side |
| Mandibular | Motor | Ms of mastication |
| Abducent CN6 | Motor | Ipsilateral eye abduction weakness |
| Facial CN7 | Mixed | Ipsilateral facial weakness |
| Auditory CN8 | Sensory | Ipsilateral deafness |
| Occulomotor CN3 | Mixed | Eye turned out and down |
| Trochlear CN4 | Motor | Eye unable to look down when looking towards nose |
| Occulomotor CN3 |  | Eye turned out and down |
| Edinger Westphal Nucleus | Parasympathetic pre-ganglionic nucleus that innervates the iris sphincter muscle and the ciliary muscle |  |
| CN VII, IX, X, | Special Sens from Tongue (Taste) |  |
| N of Tractus Solitarius | Taste in rostral part  cardio-respiratory and gastrointestinal processes in caudal part |  |
| N Ambiguos | Facial Vocal Larynx Ms |  |
| Vestibular | Sensory 4 Nuclei | Balance |
| Sup Salivatory | Lacrimation |  |
| Inf Salivatory | Salivation |  |
| Sup Colliculus | Vision |  |
| Inf Colliculus | Hearing |  |
| Medial Geniculate body | Hearing |  |
| Lat Geniculate body | Vision |  |
| Medulla | Centers for cough, gag, swallow, and vomiting Reflexes |  |
| Midbrain | Auditory and Visual reflex centers. |  |
| Brain stem | * Controlling Subconscious, Stereotyped Movements [crying, yawn, suckling, stretch] eg; Anencephaly * RAS |  |
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**Some say marry money but my brother says big brains matter more**

**S = pure sensory**

**M = pure motor**

**B = both (motor and sensory)**

**Spinal Cord**

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| **Terms** | **Explanation/Examples** | **Lesion** |
| Superficial reflexes | **plantar response**, **withdrawl, abdominal** corneal and conjunctival reflexes. |  |
| Deep Reflexes | Stretch reflexes called **tendon reflexes**  \* E.g. knee jerk, ankle jerk etc. |  |
| Monosypatic | Stretch reflexes called **tendon reflexes**  \* E.g. knee jerk, ankle jerk etc. |  |
| Polysynaptic | **plantar response**, **withdrawl, abdominal** corneal and conjunctival reflexes. All autonomic |  |
| Autonomic reflexes integrated in spinal cord | pupillary reflex, carotid sinus reflex | Horner’s Syndrome |
| Pathway for withdrawl reflex |  |  |
| Crossed extensor |  |  |
| Reciprocal inhibition circuit |  |  |
| **Somatic Reflexes Integrated in Spinal Cord** | * Stretch 🡺 Maintain Muscle Tone * Flexor 🡺 Withdrawal * Extensor 🡺 Standing/Posture/Stepping * Rhythmic 🡺 Walking/Scratching |  |
| **Autonomic (Visceral) Integrated in Spinal Cord** | * Vasomotor 🡺 Vascular tone * Micturition/Defecation 🡺 Bladder/Bowl |  |
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