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| **Objectives** | **Subject: Anatomical Structures** | **Subject:**  **Function/Explanation** | **CourseLevel topic should be taught** | | |
| **1**. are able to name the stimuli which are used in PNF in order to facilitate motor control | Items under objectives 3 Basic Principles |  | 1&2 | | |
| **2.** are able to describe the receptor and receptor systems which contribute to motor control. | Afferent systems :  2.1.Somato sensory system  2.1.1 Proprioceptive System:  - Muscle spindle,  Golgi Tendon Organ, Receptors in Ligaments and capsule, | 1.1detect the velocity  detect tension  detect compression and traction  detect position in space and in relation to other body parts | 1&2 | | |
|  | 2.1.2 Exteroceptive  System  2.1.2.1 Skin receptors  2.1.2.2 Visual System  - eye  2.1.3 Auditory System  -hearing organ  2.1.4 Vestibular System  -inner ear | - touch, temperature, mechano stimuli -  Body-schema  1.2.2 - Recognition of objects and faces; Space Perception; Feed-forward – and Feedback System  1.3 - Hearing and Space Perception ; Feed-forward and Feedback System  1.4 - direct influence to postural tone, Balance and Balance reaction ; Feedback System | 1&2 | | |
| **3.** are able to describe reflexes which contribute to motor control | spinal cord:  -synapses  -„monosynaptic reflex“ | synaptic mechanism:  excitation / inhibition ( Summation of stimuli )  reciprocal innervation loop | 1&2 | | |
| **4.** are able to describe the different motor (sub-) systems which contribute to motor control. | Descending motor system:  Dorsolateral System or  pyramidal and extra pyramidal tract | - important for the control of distal musculature and for steering the extremities and manipulating the environment  - selective movement  - Voluntary movement | 3 |  |  |
|  | Brainstem:  Ventromedial system: | - control of axial and proximal musculature  - | 4 | | |
|  | Locomotion:  - | - activate and modulate the Central Pattern Generator | 4 | | |
|  | Spinal cord:  Central Pattern Generator | generated reciprocal movement of the leg | 3 | | |
|  | Frontal lobe:  premotor area: | - Planning of movement and posture ( Feed-forward System ) | 3 | | |
|  | Basal ganglia: | -regulation of movement  pattern through  controlling of movement  sequences, muscle  strength and postural  control | 4 | | |
|  | Cerebellum: | - Balance  - control the execution of movement , adjustment processor | 3 | | |
|  | Thalamus | - filtered, sorted and organized sensory and cortical information | 4 | | |
| **5.** demonstrate knowledge of principles of motor learning and how they can be used  within the PNF concept. | Principals of Motor learning | Please refer Marianne and Nicola’s power point “Definition of Motor learning”  **AND**  “12 principle” for “Practical Application of Motor Learning”. | 1&2 | | |
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