

Fundamental Neuroscience – Discussion, Week 1

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- Suffered a massive stroke, woke up 20 days later unable to do anything but blink a single eye-lid
 - Locked-in Syndrome – Mental faculties are intact, but majority of skeletal muscles are paralyzed

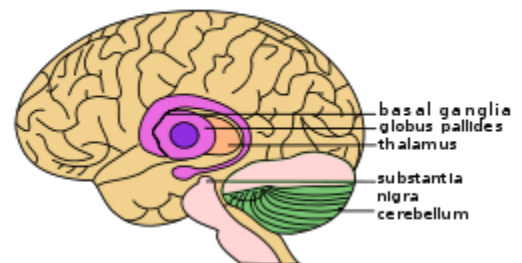
Categories of Nervous System Function

- Sensory
 - Perception is interpretation of the outside/internal world
- Homeostasis
 - Maintains internal balance, so to speak
- Abstract/Higher
 - Involved in cognition, thinking, higher order computation, etc.
- Motor
 - Motor neurons, also known as motoneurons and/or lower motor neurons, are neurons in the central nervous system that **only** target skeletal muscle
 - No other neurons 'talk' to skeletal muscle, and skeletal muscle cannot act/'say' anything on its own / of its own volition
 - Motor cortex goes to motor neurons (either indirectly or directly), known as the motor hierarchy

Structures Involved in Motor Control

- Cerebellum
 - Coordinates large scale, complex movements
 - **Not** necessary for simple movements (ie movement of a finger up and down)
 - 'Thinking' can interfere with function
- Basal Ganglia
 - Responsible for action selection / as a result is anti-multitasking
 - 'Tied' into cerebral cortex so to speak, so movements controlled by it more affected by thinking/cognition
 - Composed of the striatum and pallidum

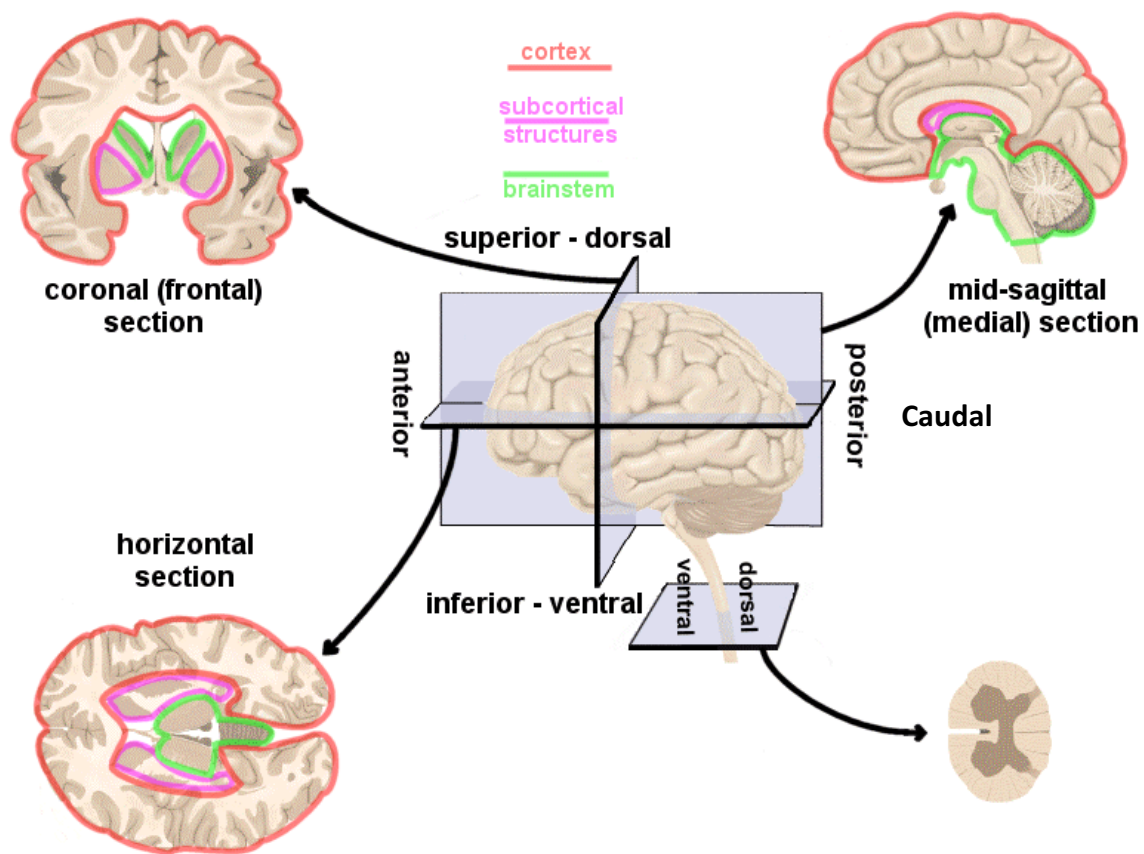
Basal Ganglia and Related Structures of the Brain



Neural Development

- Organizing point on dorsal and caudal surface of embryo
- No orientation to ball of cells
- I could write multiple pages on neural development, but this video will do a much better job than I will: <https://www.youtube.com/watch?v=Tp25wrm-AoA>

Directions



In the Future

It looks terrible at the moment (that will change), but I will put this, as well as the worksheets for the following discussions, on <http://isdebomb.com/neuro>