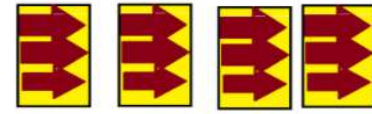
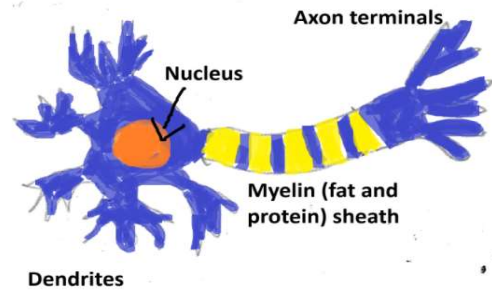


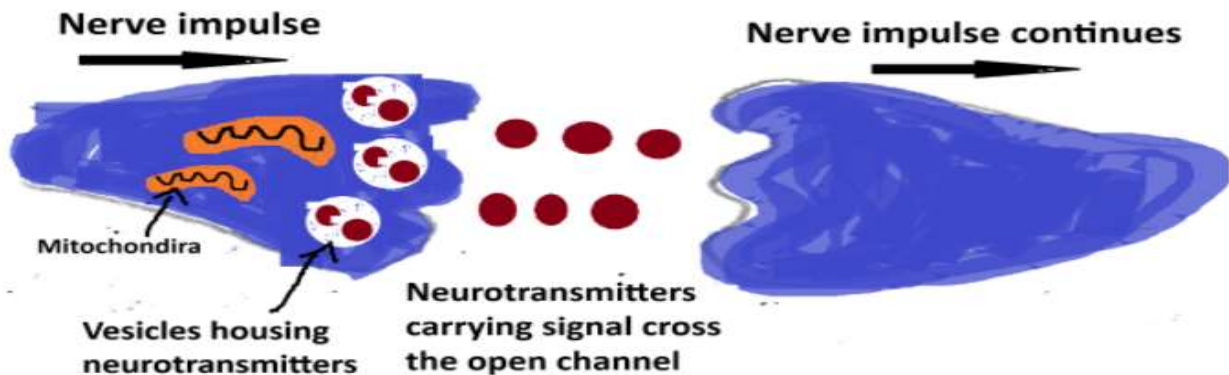
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Neural Functions

The nervous system is the key to bodily function, acting as the command center for all other operations the body carries out. The nervous system is responsible for receiving signals and then responding to them, and this is done thanks to neurons. There are 3 main types: sensory, motor and intermediary neurons. Their capabilities vary, but they all share the ability to receive signals and transmit them along the chain. Electrochemical impulses quickly pass through neurons, going from the dendrites through the main cell body to the axon terminals. On the way there, the pathway from one half of the neuron to another is the important production of fats and proteins called Myelin. It is created by glial cells, cells that are responsible for providing nutrients and protection to the neurons so they can function. The presence of Myelin allows for signals to quickly travel through, similar to those boost pads you often find in racing games like Mario Kart.



The real magic happens when neurons come together, axon terminals of one to dendrites of another. These junctions are called synapses, and it is the place where the game of telephone can carry on for the nervous system. When the signal reaches the end of the neuron, the axon terminals in this case, messages are sent via the neurotransmitters so the impulse can continue its journey. Most communication happens when the electrical signals are converted into chemical ones, with the movement of sodium and calcium allowing the process to occur.

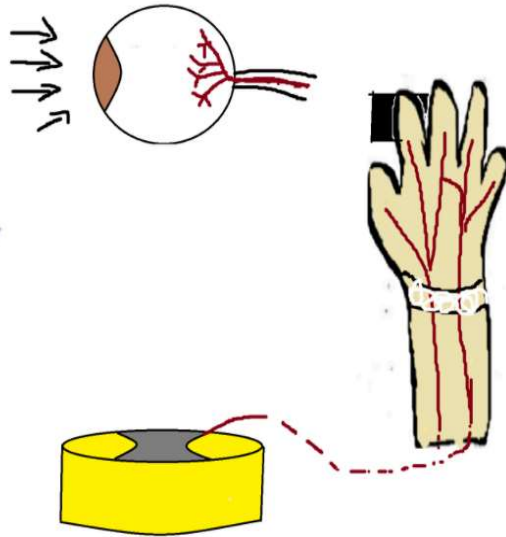


Neurons can be impacted in a couple of different ways. The protective sheath Myelin can be attacked by the body's own immune system, resulting in a disruption of communication. This is Multiple Sclerosis, and can lead to impaired movement, coordination or response time. Much like the Mario Kart speed pads, if the signals are unable to travel as fast as they can, then proper bodily function could be impacted. Even if the neurons are functioning properly, they are at the mercy of important nerves also functioning well. Something such as Carpal tunnel syndrome, with the restriction of the median nerve taking place, can end up having a trickle down effect on neurons and their efficiency, and what information is processed and relayed.

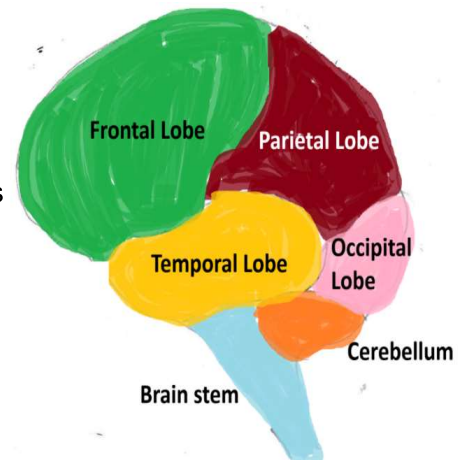
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A simple way to test how signals are received and then responded to is by way of reaction tests. Something I like to do is a color reaction test, waiting for the screen to change color and then click a button to display how fast I reacted to the change. Information is first being collected by the eye and taken to the occipital lobe (more on visuals + brain later). It is then quickly responded to once the color changes, with the response going down the spinal cord, prompting the nerves in the hand to move and click a button stopping the clock.

Your response time is: 0.284 seconds
Could be better...



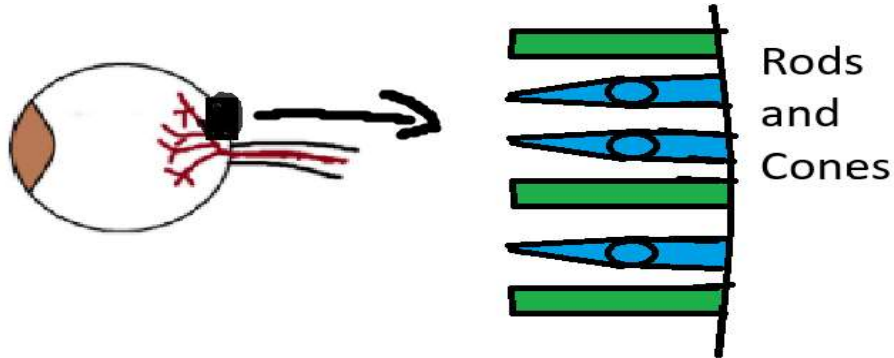
The brain is the main hub for everything the nervous system sends through. Thought, vision, hearing and much more sensory information is processed so that responses can be done. There are many sections or lobes responsible for different functions, but they work together in processing information in the many ways it is presented. The frontal lobe is responsible for movement and cognitive skills, these being such as problem solving and judgment. The parietal lobe is responsible for sensations such as taste, smell and more. The occipital lobe is responsible for visual recognition, like color, shape, field of depth and more. The temporal lobe deals with auditory information like speech recognition or language. Our last two sections aren't referred to as lobes, but they are still important. The cerebellum towards the back of the brain deals with muscle coordination and balance. Finally the brain stem not only has the important job of connecting the brain with the spinal cord but also serves to regulate breathing and heart rate, managing some of the more involuntary actions our body does.



Since the brain is the hub for everything allowing our body to function, disorders of the brain are very problematic. Something like brain cancer, the presence of a tumor in the brain, can pose lots of issues. The separation between the skull and the brain is quite small, so a tumor present can cause lots of pressure to be applied as a result. Pressure could cause internal bleeding, something that is not wanted anywhere in the body much less the brain. Another unfortunate thing that can occur is the loss of memory or decision making, either by severed neurological connections or unhealthy neurons. This is referred to as dementia, an umbrella term since it covers a wide range of disorders where loss of thought, memory, or cognitive ability can impact the life of an individual.

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The eye is responsible for the majority of our perceptions and understandings of what it is we see. Within the eye, more specifically the retina, are two photoreceptors cells capable of processing what visual information needs to be seen. These are the rods and cones, and the rods are responsible for shape and form while the cones are responsible for color and contrast.



Depending on what cell amounts one individual has versus another, it means no two people can observe something and see it exactly as the other. Not only that, the way the neurons interpret the information being sent in the first place can also vary. People might look at a color one day and say "oh it's red" and then see the same color the next day but with a different lighting or something and say "oh it's orange-red" I recall an illusion happening some years ago with a dress, and people kept going back and forth about it being either black and blue or white and gold. Apparently there was something going on with how the brain processed the environment lighting of the photo. Those seeing the dress as white and gold is because the brain interprets the lighting of the image to a more naturally lit scene, while those seeing the dress as black and blue interpret it as an artificially lit one. Neurons and the brain of each individual might process something similar definitely, and in the case of vision it's all because of rods and cones and those synapse connections over time.

I enjoy music, whenever I am driving I have to be listening to something, even if it's something I've heard many many times. Some of the music I tend to gravitate towards is those more melody intensive, where the sound drives you. Hip-hop, classical, electrical etc etc, anything where the driving force is the smooth sound and rhythm. On the flip side, music where the sound is roaring, overwhelming, is music I generally tend to avoid, think like heavy metal. For this experiment I will listen to a song, and rate it based on the hedonic scale. There will be some other genres on the scale just for completeness.

I ended up listening to a few songs from a group called Black Sabbath and it was weird to say the least. I know that heavy metal is just a branch of rock as a whole, but the feeling of listening to heavy metal was slightly unnerving. The change of tempos, the distortion of instrument sounds, the density felt in not just the instruments but also the vocals. Not something I particularly enjoyed.

