18/05/2020

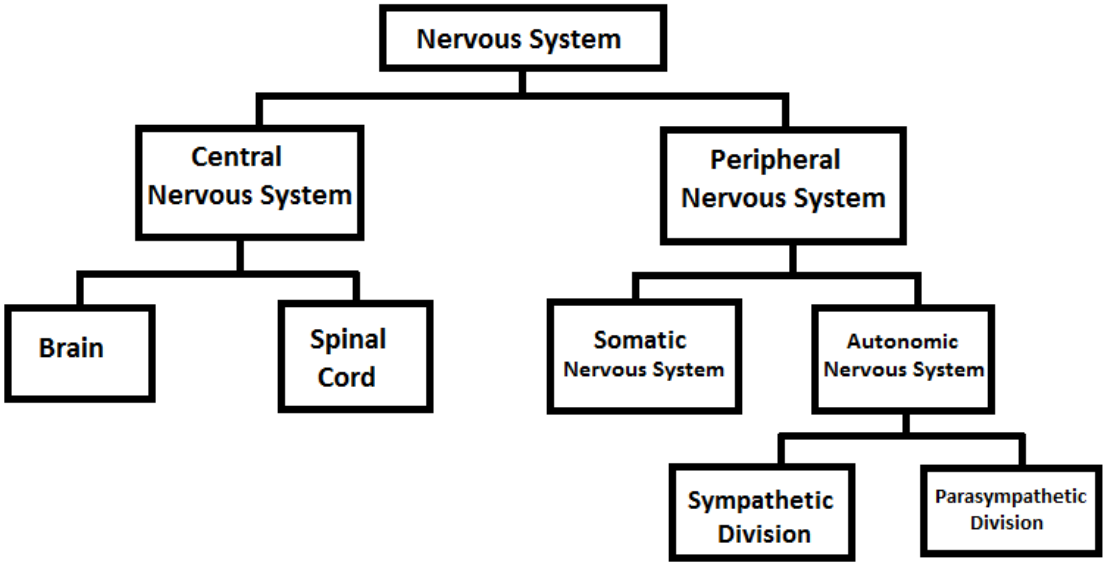
General Psychology

Paper I

B.A. I (Honours)

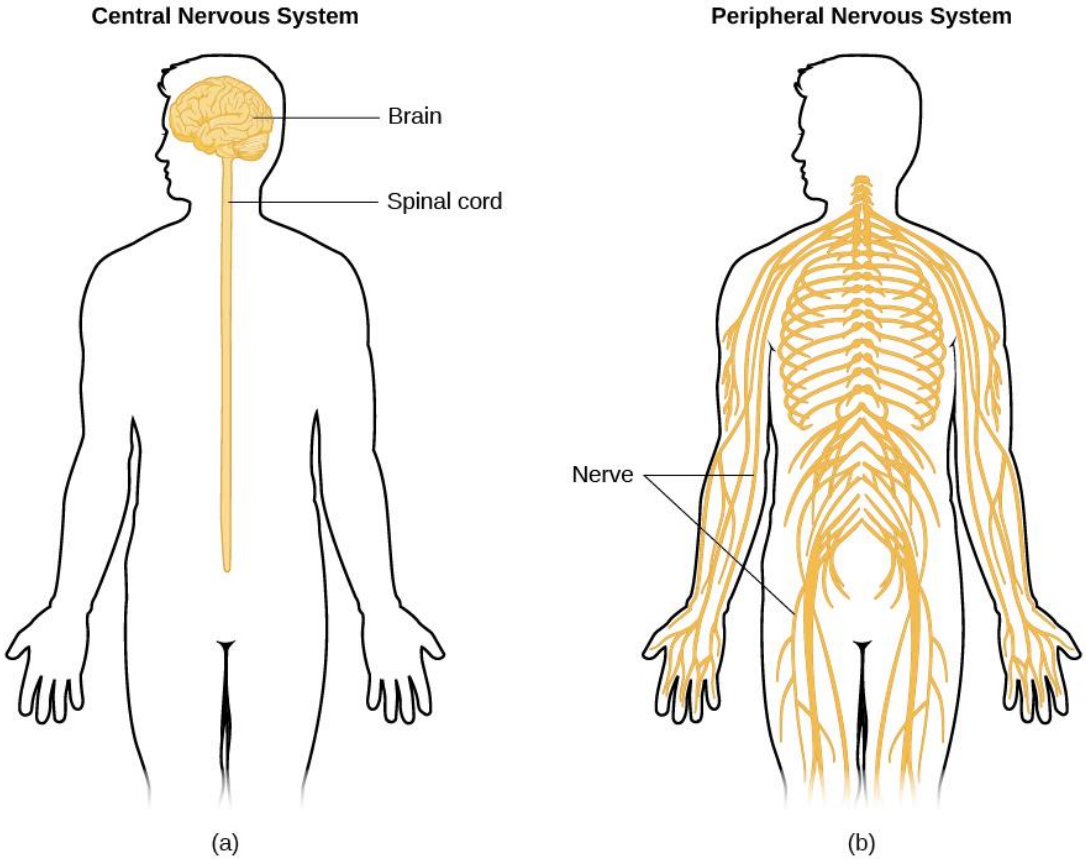
The Nervous System

Human nervous system is the most complex and most developed of all living creatures. Though the nervous system functions as a whole, for the ease of study, we can divide it into many parts depending on its location or functions. Based on location, the nervous system can be divided into two parts: Central Nervous System (CNS) and Peripheral Nervous System (PNS). The part of the nervous system found inside the hard bony cases (cranium and backbone) is classified as CNS. Brain and spinal cord are the organs of this system. The parts of the nervous system other than central nervous system are placed in the PNS. PNS can be further classified into Somatic and Autonomic nervous system. Somatic nervous system is concerned with voluntary actions, while the autonomic nervous system performs functions on which we have no voluntary control.



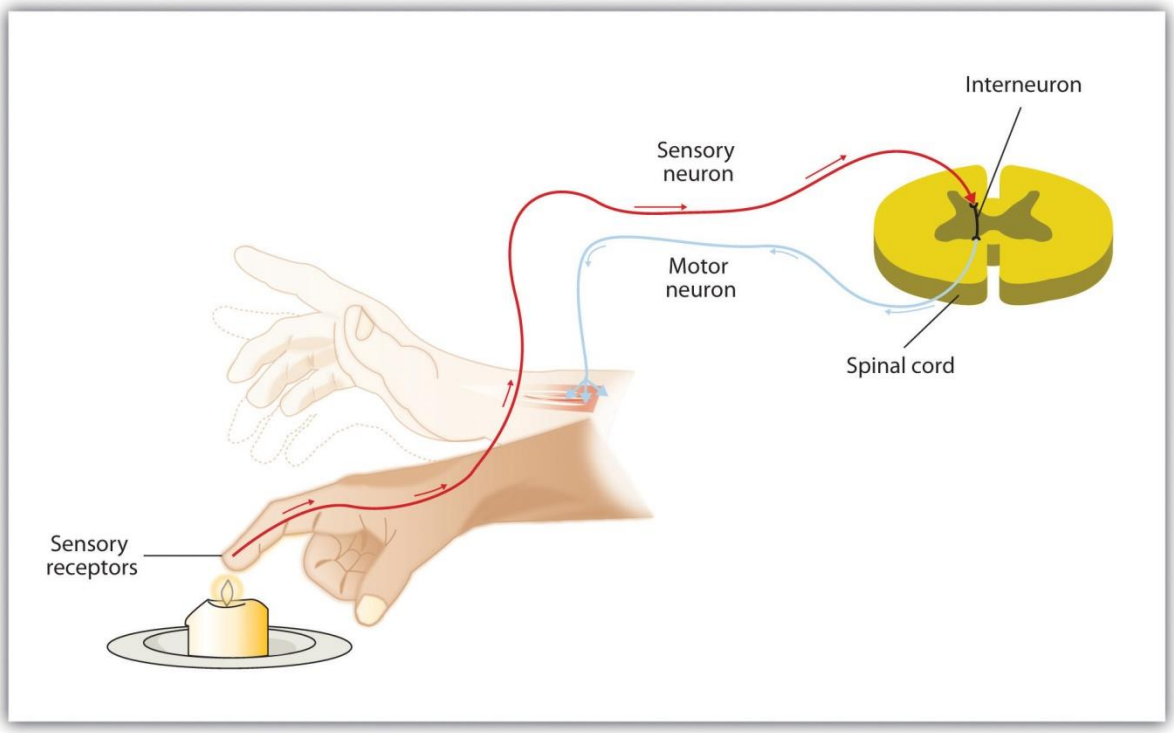
The Peripheral Nervous System

The PNS is composed of all the neurons and nerve fibres that connect the CNS to the rest of the body. The PNS is divided into Somatic Nervous System and Autonomic Nervous System. The autonomic nervous system is further divided into Sympathetic and Parasympathetic systems. The PNS provides information to the CNS from sensory receptors (eyes, ears, skin, etc.) and relays back motor commands from the brain to the muscles and glands.



The Somatic Nervous System

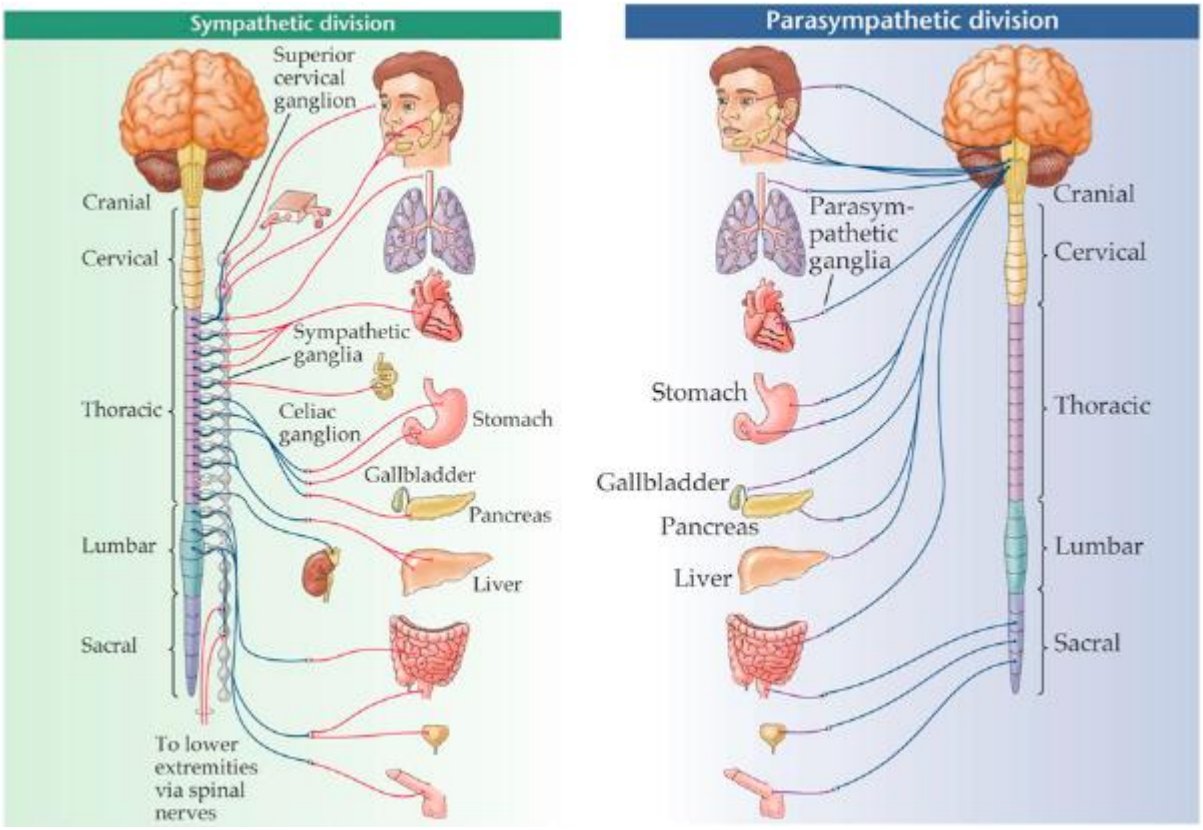
This system consists of two types of nerves, called cranial nerves and spinal nerves. There are twelve sets of cranial nerves which either emanate from or reach different locations of the brain. There are three types of cranial nerves - sensory, motor, and mixed. Sensory nerves collect sensory information from receptors of the head region (vision, audition, smell, taste, touch, etc.) and carry them to the brain. The motor nerves carry motor impulses originating from the brain to muscles of the head region. For example, movements of the eyeballs are controlled by motor cranial nerves. Mixed nerves have both sensory and motor fibres, which conduct sensory and motor information to and from the brain.



There are thirty one sets of spinal nerves coming out of or reaching to the spinal cord. Each set has sensory and motor nerves. Spinal nerves have two functions. The sensory fibres of the spinal nerves collect sensory information from all over the body (except the head region) and send them to the spinal cord from where they are then carried out to the brain. In addition, motor impulses coming down from the brain are sent to the muscles by the motor fibres of the spinal nerves.

The Autonomic Nervous System

This system governs activities which are normally not under direct control of individuals. It controls such internal functions as breathing, blood circulation, salivation, stomach contraction, and emotional reactions (Figure 3.4). These activities of the autonomic system are under the control of different structures of the brain.



The Autonomic Nervous System has two divisions: Sympathetic division and Parasympathetic division. Although the effect of one division is opposite to the effect of the other, both work together to maintain a state of equilibrium. The sympathetic division deals with emergencies when the action must be quick and powerful, such as in situations of fight or flight. During this period, the digestion stops, blood flows from internal organs to the muscles, and breathing rate, oxygen supply, heart rate, and blood sugar level increases.

The Parasympathetic division is mainly concerned with conservation of energy. It monitors the routine functions of the internal system of the body. When the emergency is over, the parasympathetic division takes over; it decelerates the sympathetic activation and calms down the individual to a normal condition. As a result all body functions like heart beat, breathing, and blood flow return to their normal levels.

(… to be continued)

Dr. Hena Hussain

Assistant Professor

Department of Psychology

Oriental College, Patna City

WhatsApp No. – 9334067986

Email-drhenahussain@gmail.com