

## Structure and Functions of Nervous System

The nervous system is divided into two main parts: a central nervous system and a peripheral nervous system. The CNS consists of the brain and spinal cord, which lie within the bony cases of the skull and spine. The parts of the nervous system outside the skull and spine make up the peripheral nervous system.

### Peripheral Nervous System

The peripheral nervous system consists largely of nerve fibers, or axons, which

(1) carry nerve impulses from the sensory receptors of the body inward to the CNS and

(2) carry nerve impulses for the movement of muscles and the excitation of certain glands outward from the CNS. The PNS has two divisions: the somatic nervous system and autonomic nervous system.

of one division is opposite the the effect of the other, both work together to maintain a state of equilibrium.

(a) Sympathetic Nervous System: The sympathetic nervous system 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.

(b) Parasympathetic Nervous System: It 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 PNS 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.

(i) Somatic Nervous System: The somatic nervous system motor fibers activate the striped muscles of the body, such as those that move the arms and legs, while the sensory fibers of this system come from the major receptor organs of the body - the eyes, the ears, the touch receptors, and so on.

(ii) Autonomic Nervous System: The autonomic nervous system motor fibers activate the smooth muscles of such bodily organs as the stomach, cause secretion from certain glands such as the salivary glands, and regulate activity in the special type of muscle found in the heart. It is thus a smooth-muscle, glandular, and heart-muscle system. Sensory fibers in the autonomic system carry information from the internal bodily organs that is perceived as pain, warmth, cold, or pressure.

The autonomic nervous system has two divisions: Sympathetic division and parasympathetic division. Although the effect