

THE NERVOUS SYSTEM

(Collated by Michelle Wilkinson www.movingnaturally.co.uk)

The basic unit of the nervous system is the nerve cell called a neuron. It can generate and conduct electrical energy that becomes human nerve impulses.

The neuron is a strange-looking cell with numerous narrow wiry projections acting as electrical wires. There is usually a very long one called an axon and shorter one named dendrite; the former in Greek means axis while the latter means tree.

Neurons are not joined together but have a small gap between the axon of one cell and the dendrite of another. This is called a synapse and chemicals are released into it by the axon.

The spinal cord evolved 400 million years ago with the fish and its head to tail relationship.

It is protected by Cerebrospinal Fluid (CSF) and the spinal vertebrae.

The brain and the spinal cord are known as the Central Nervous System (CNS).

The spinal cord relays information between the brain and the nerves of the body, which can reach out to the skin surface, so that communication can take place.

The nerve network outside the brain and spinal cord (CNS) is the peripheral nervous system (PNS).

The major nerves of the PNS are the 12 pairs of cranial nerves emitting from the brain and the 31 pairs of the spinal nerves extending from the spinal cord.

The bundles of nerves radiating from the CNS are divided into two types. The sensory nerves travel from the body's periphery back to the CNS enabling the brain to receive information. Then the motor nerves travelling back from the CNS engage bodily action in response to the information received.

When a person touches a hot object with their hand the sensory nerves send this information to the brain which enables the motor nerve to engage in a reflex action of removing the hand away from the hot object.

The nervous system can be divided into two systems the somatic (SNS) and automatic (ANS) nervous systems.

The SNS includes the CNS and PNS and controls the skeletal muscles. It can be under voluntary control.

The ANS controls those bodily functions that are in the main underneath voluntary control. It can be sub-divided into the Sympathetic and Parasympathetic Nervous Systems.

The Sympathetic Nervous System relates to the fight, flight and freeze survival reactions. It increases heart rate, channels blood away from the digestive organs into the skeletal muscles and the brain getting ready for action in response to the outer environment stimulus.

The Parasympathetic Nervous System relates to the functions of digestion, repair and recuperation which require restful conditions.

Nerves can converge in clusters which are called plexuses. These plexuses allow fine control in certain parts of the body.

The Solar Plexus acts as a relay station for both the sympathetic and parasympathetic nervous system. Adrenaline can be secreted for activation while sensory nerves can communicate feelings of comfort.

The spinal cord ends between the second and third lumbar vertebrae. From here lower body nerves fan out creating cauda equina a horse's tail.

The thickest and longest nerve in the body to extend from the horse's tail is the sciatic nerve. This nerve controls the thigh muscles which bend the leg and can measure a metre in length.