

Neurones

Nerve tissue is composed of nerve cells - known as neurones - and neuroglia, a connective tissue which supports neurones.

A nerve cell is the basic unit of the nervous system on which everything is built. Like other types of cell, they have a membrane containing a nucleus and cytoplasm but have a characteristic shape that is long and narrow. Nerve cells are easily damaged by toxins and lack of oxygen and, unlike other cells in the human body, they are not usually replaced when they die.

A neurone is made up of:

- Cell body - the centre of the neurone which has a nucleus and cytoplasm
- Dendrites - nerve fibres, like branches, which transmit nerve impulses to the cell body. Most neurones have several dendrites
- Axon - a long single nerve fibre which transmits nerve impulses away from the cell body. Neurones generally have only one axon
- Myelin sheath - made of a white fatty substance, this sheath covers the axon, insulating it, protects it from pressure and helps speed up the nerve conduction
- Neurilemma - a fine, delicate membrane which surrounds axons and helps regenerate nerve cells. It is only found in peripheral nerves
- Nodes of Ranvier - the compressed points in the myelin sheath
- End feet/axon terminals - the ends of the fibrils that make the axon are called axon terminals. They pass on the nerve impulse to the dendrites of the next neurone
- Synapse - the point where one neurone meets another. A chemical messenger fills the gap between one neurone and the next, enabling the impulse to be transmitted

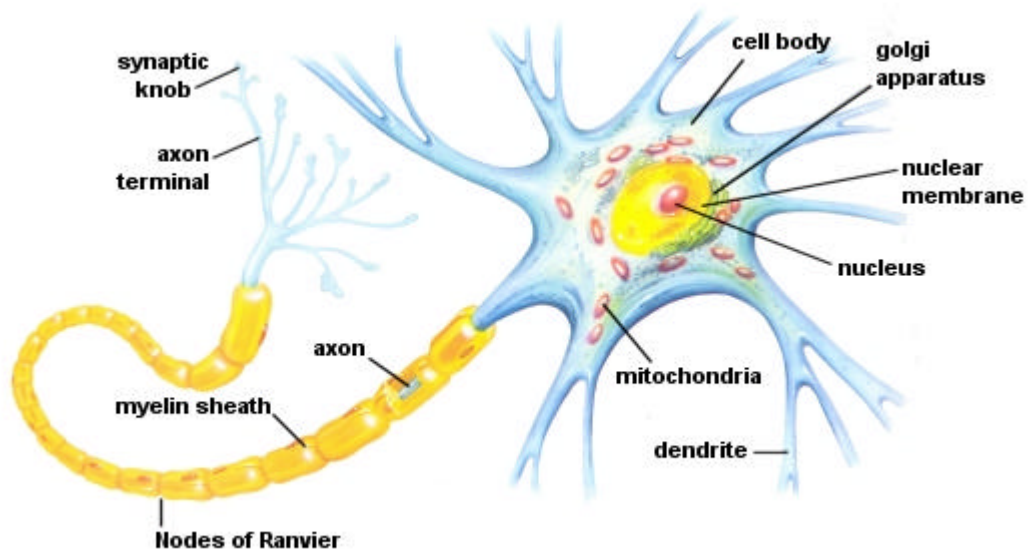


Fig. 1 Motor Neurone

Motor or efferent cells

Motor nerves carry impulses from the brain or spinal cord to the muscles which then act on the impulse, producing movements or constriction. Motor nerves only transmit to glandular and muscular tissues.

Sensory or afferent cells

Sensory nerves carry impulses from all parts of the body to the brain.