

## **THE NERVOUS SYSTEM – an overview**

There is a lot of talk about the nervous system at the minute and how it can affect us in so many different ways.

So, what is it – simply it is the control centre of the body, combining what the body does, sends information to muscles and glands and also runs the autonomic system.

Nerves are made up of neurons which are the building blocks of each cell and each neuron has an axon and a dendrite. Nerves transmit electrical impulses in one direction from the axon of one nerve cell to the dendrites of the next cell.

The contact point between both these cells is the synapses. The axon secretes tiny amounts of chemical messengers or neurotransmitters, which trigger the receptor of the next cell dendrites to produce a new electrical current. Different types of nerves produce different neurotransmitters to convey messages across the synapses.

It has two distinct parts – the central nervous system and the somatic and autonomic systems.

The central nervous system is made up of the brain and the spinal cord including all the peripheral nerves that branch out from both the brain and the spinal cord. They are more commonly known as cranial nerves or spinal nerves. The second part of the nervous system is the autonomic nervous system. It receives sensory input and produces motor responses via nerves. Disorders of the central nervous system can affect either the brain or the spinal cord and can be due to trauma, infection, autoimmune disorders, tissue degeneration, strokes or tumours.

The peripheral nervous system connects the central nervous system with the peripheral parts of the body and are made up of bundles of nerve fibres i.e. cranial nerves or spinal nerves.

The somatic nervous system regulates movement of the skeleton and the autonomic system controls such things as heart rate, digestion, glands and perspiration, it also carries pain and other impulses. It is divided into two – the sympathetic nervous system and the parasympathetic system. The sympathetic part prepares the body for emergency situations or fight or flight, it increases your heart rate, constricts blood from the digestive system and peripheral parts of the body, raises blood pressure so that there is more blood for the brain, heart and muscles.

The parasympathetic part which is also known as the cranial sacral is active during times of rest and digestion and normal conditions.

The nervous system is very complex and sends thousands of signals constantly but it is vulnerable to disease and injury.

Nerves can degenerate leading to Alzheimer's, Huntington disease or Parkinson.

They can become inflamed which can lead to multiple sclerosis. Bacteria or viruses can affect them causing encephalitis or meningitis, a block in the blood supply can cause a stroke and general injury to the head or spine can cause structural damage.

When our nervous system is out of kilter, it can affect us in many different ways, including:

Stress

Sciatica / Neuralgia

Myalgic encephalomyelitis (ME) / chronic fatigue syndrome

Referred pain

Epilepsy

Cerebral palsy

Alzheimer's disease and dementia / Bell's palsy / Parkinson's disease

Strokes including TIA (transient ischaemic attacks)

Motor neuron disease / Multiple sclerosis

Meningitis

Paralysis

Deafness / Earache / Glue ear / Tinnitus

Vertigo

Cataracts / Conjunctivitis / Glaucoma

Peripheral neuropathy

Spina bifida

In Fr Freddie's notes, he has an excellent paper on Shortcuts via the Autonomic Nervous system (August 85) which will certainly help to dispel some of the above issues.

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*August 2025*