

# The synapse



**ASSIGN  
BUSTER**

For the purpose of this assignment I will be looking at this question in two parts. Firstly I will explain how neurons transmit information in the human body and secondly I will discuss how knowing how neurons function within our bodies helps us understand different aspects of human behaviour. I will be using information gathered from Book 1 (Mapping Psychology). External and internal factors and conditions are detected by the body's nervous system. These changes are detected, interpreted and responded to. By sending electrical and chemical impulses the nervous system sets in place reactions to counteract these conditions.

An example of this is if you were to place your foot on a sharp object, pain is detected by nerves or receptors in your foot and send a message through your foot, leg and into your spinal cord and into the brain which forms part of your central nervous system. This signal is interpreted by the brain and the appropriate signal is sent to react to the pain. The majority of the brain is made up of specialized neurons. They interact to control the five senses. Different types of stimulation are necessary to stimulate different types of neurons.

A neuron is made up of three basic parts: a cell body (soma) that contains the nucleus, dendrites, which are branches off the cell body that are there to receive impulses and signals and a long axon that carries impulses away from the body and on to surrounding neurons. The fluid inside a neuron is separated from that outside by a cell membrane that contains particles known as ions. When a neuron is stimulated a change in cell potential occurs. “ The chain of communication is an alternating pattern of chemical

and electrical signals. In its normal resting state, a neuron has a negative internal electrical charge.

The Synapse Often termed the synaptic cleft the gap between the axon of one neuron and the dendrite of another is also known as the synapse. Information is passed through neurons when an electrical impulse is triggered and a neurotransmitter is released. The nerve pulses passing from one neuron to the next at the synapse causes the release of the neurotransmitter. Neurotransmitters are vital to our everyday functioning. Over 100 neurotransmitters have been identified but it is unknown how many exist. The release of a neurotransmitter can be affected and disrupted by disease.

Motor neurone diseases is a disease that that only affects motor neurones which are the cells that control voluntary muscle activity such as breathing, speaking and swallowing. Using different drugs it is possible to insert chemicals into the gap between neurons (synapses) in the brain. This can affect the way in which brain cells talk to each other and can be used to treat such diseases. So in conclusion organs such as hands and feet sense things that the brain needs to know. Signals are sent to the brain and are interpreted as the signals reach the neurons. These impulses regulate our behaviour by instructing muscles how to react during certain events” (Feldman, 2008, p. 94)

A Persons behaviour can be described as their reaction of an object or environment. Behaviour can be conscious or unconscious, voluntary or involuntary. In understanding how we behave, we can understand that the

neurons and their corresponding transmitters are at the centre of every command. A neurons response, or lack of response plays a large part in all aspects of our behaviour and behavioural problems are often caused by problems at neuron and synapse level.