

THE BRAIN

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

The brain contains around 100 billion neurons forming the headquarters of the nervous system.

The brain weighs approximately 5.4-6.8kg (12-15lbs) and uses one-fifth of the body's oxygen intake.

The brain along with the spinal cord floats in a freshwater shock-absorbing fluid known as the cerebrospinal fluid (CSF).

The strong skull bones protect the brain like a shell around a walnut.

85% of the brains weight is found in the cerebrum. It has a heavily folded surface with ridges and grooves. Spread out flat the cerebral cortex would measure around 1.5sq meters (16sq ft).

The cerebrum is divided into the left and right cerebral hemisphere which control the opposite side of the body. For instance, the left hemisphere controls the right side of the body.

The right cerebral hemisphere is concerned with creativity, spatial perception, art and music while the left side is where language and logical thought resides.

The corpus callosum is an arched bridge over nerve tissue which links both cerebral hemispheres with approximately 200 million nerve fibres supporting communication.

The cerebrum is divided into different lobes each with their own range of functions.

The frontal lobe is responsible for short-term memory, planning, thought, speech and skilled movement.

The lower occipital lobe interprets visual images.

The parietal lobes of the sides perceive sensations of touch and pain and create a sensory map of the whole body.

By the ears are the temporal lobes which recognise sounds, help with memory storage, language and complex thought processes.

At the centre of the cerebrum above the brain stem is the limbic system which is considered the emotional-relational brain and is concerned with emotions and memory.

To prevent the brain from being overwhelmed only 1% of life experiences enter long-term memory. There is a filtering system through the sensory memory which holds an experience for seconds and the short-term memory which holds it for minutes to hours.

The cerebellum lies under the occipital lobe. It coordinates movement, supports balance and maintains muscle tone. The motor memory for riding a bike is centred here.

The brainstem connects the cerebrum with the spinal cord. It is divided into three sections the midbrain, pons and medulla oblongata. It forms a central pattern generator for respiration and heartbeat rates.

The midbrain section links the brainstem and the cerebellum to the cerebral hemispheres associated with vision, hearing, motor control, alertness and temperature control.

The pons below the midbrain is concerned with the pattern of respiration.

The medulla oblongata below the pons also directs the breathing pattern and connects the spinal cord to the brain stem.