Introduction to the Brain and Brain Injury

The brain has a wrinkled surface in order to fit in as much brain into the limited space within the skull as possible. It contains billions of cells; about one in ten are nerve cells (‘neurons’), which communicate using chemicals and electricity. It's this communication that underlies every function of the brain, and subsequently every single activity we carry out.

This includes a vast range of skills, including visual and perceptual skills, remembering things, planning and organising, language and communication skills, and the ability to concentrate, as well as carrying out movements and essential tasks such as keeping our heart beating.

The brain is delicate and so is protected by the skull, and by three membranes within the skull. It is surrounded by fluid that contains the right balance of chemicals for the brain to function at its best.

While the fact that the skull is hard is usually very useful in protecting the delicate brain, when things go wrong it can have some disadvantages. For example, a blow to the head may cause the delicate brain to bounce off the inside of the hard skull causing some injury. Because the skull is hard, if there is any swelling or bleeding inside the skull, then the pressure inside it can increase and cause injury to the brain in that way. Similarly, if there is something else taking up space within the skull, such as a tumour, then that too will increase the pressure.

Although it’s a complex picture, it can be helpful to think of different parts of the brain as being more involved with certain types of tasks. This is useful to know when considering how to manage the effects of any injury to the brain. The left side of the brain and the right side of the brain are often involved with different skills. The left side of the brain controls movement and feeling on the right side of the body, while the right side of the brain controls movement and feeling on the left side of the body. In addition, the left side of the brain tends to be involved with verbal and language skills, while the right side of the brain is more involved with visual and spatial skills.

Causes of brain injury

- Head injury – including road traffic accidents, sports injuries, falls and assaults.
- Stroke – oxygen supply to part of the brain is cut off, usually due to a burst blood vessel or a blocked blood vessel. Stokes can affect young people and children as well as older people.
- Lack of oxygen to the brain – choking, drowning, heart attack.
- Infections – e.g. meningitis, encephalitis.
- Other neurological conditions – e.g. brain tumours, epilepsy, Parkinson’s disease, multiple sclerosis.
Recovery and management

It is hard to predict the timescale and extent of recovery after an injury to the brain. After, for example, a head injury or a stroke, there is often relatively rapid recovery at first, which then slows down. If there are persisting difficulties, the most useful approach is 'management rather than cure', i.e. finding ways to work around the difficulties. As different parts of the brain are more involved in different skills than others, then this means that there are often lots of remaining strengths to play to that will help in managing any difficulties.