



Brain Aware

A training programme for carers

Introduction to Acquired Brain Injury

- What is Acquired Brain Injury
- Causes of Acquired Brain Injury
- How the Brain Works
- Consequences of Brain Injury
 - Physical
 - Cognitive
 - Emotional
 - Behavioural

What is Acquired Brain Injury?

"Any brain injury that occurs, usually with a rapid-onset, during a person's life"

How does it occur?

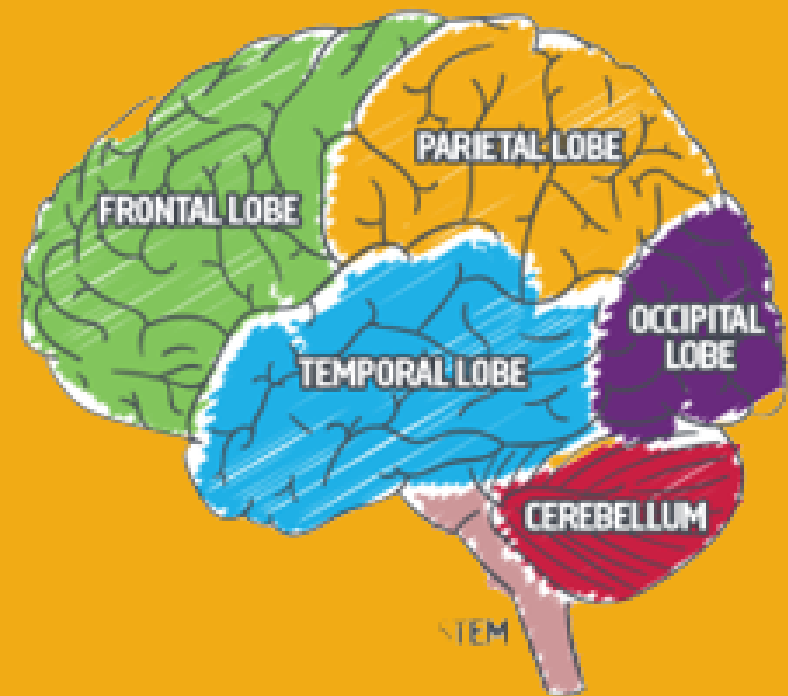
- Damage to brain tissue following traumatic injury i.e. Car Accident
- Damage to the brain following stroke (through hemorrhage or aneurysm), brain surgery or a brain tumour
- Damage to brain tissue as a result of viral infection i.e Meningitis
- Damage to brain resulting from lack of oxygen i.e. Drowning

How often & to whom?

- Approximately 13,000 people in Ireland have an Acquired Brain Injury every year
- 10,000 are admitted with significant injuries
- 3 out of 4 are men
- 75% are between the ages of 18 to 35
- Medical and technological advances have improved both survival and outcomes
- Those affected who survive usually have a normal lifespan

Describing the Brain

- Weighs 3lbs and has 100 Billion cells
- Most of these cells are called neurons
- A neuron is basically an on/off switch just like your light switches at home
- Sends messages (electrical impulses) down wires (axon)
- There are a lot of these neurons sending messages down a wire (axon) at any one time
- When switches or wires are broken some or all of the message may not get through



What the Lobes do



The **frontal lobe** - controls executive functions like emotion regulation, planning, reasoning and problem solving



The **parietal lobe** - controls sensory information including touch, temperature, pressure and pain



The **temporal lobe** - controls processing information including recognising language, forming memories and hearing information



The **occipital lobe** - controls the visual processing including distance, identity of objects, surroundings



Cerebellum – Balance & Muscle Coordination



Brain Stem – Heartbeat, Breathing, Wakefulness. It's what keeps us alive. It is also the pathway for all nerves passing up and down from the peripheral nerves (e.g. hands and skin) and the spinal cord to the highest parts of the brain.

Information Highways 1 & 2

1. Information enters from the spinal cord and comes up the middle of the brain. It crosses over and branches out like a tree and goes to the surface of the brain.
2. Vision and hearing do not go through the spinal cord but go directly into the brain. That's why people can be completely paralysed (unable to move their arms and legs) but still see and hear with no problems.

How is the Brain Organised?

The Right & Left Hemispheres



Right Hemisphere

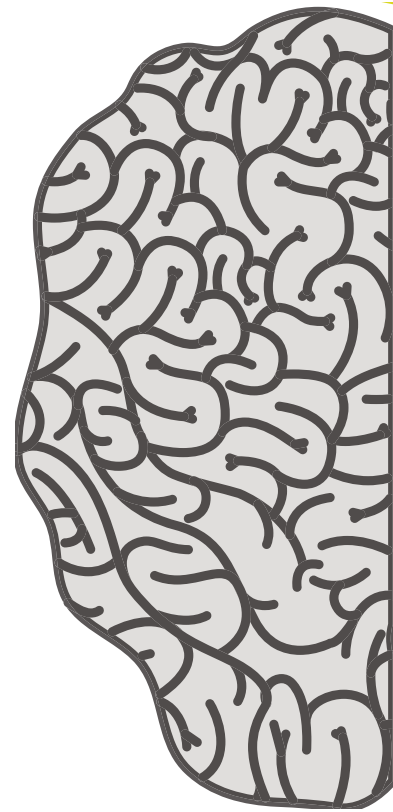
& problems associated with the right hemisphere



- The right hemisphere deals more with visual activities and plays a role in putting things together
- For example, it takes visual information, puts it together, and says "*I recognize that--that's a chair,*" or "*that's a car*" or "*that's a house.*" It organizes or groups information together
- People who have an injury to the right side of the brain "don't put things together" and fail to process important information. As a result, they often develop a "denial syndrome" and say "there's nothing wrong with me."

Left Hemisphere

& problems associated with the left hemisphere



- The left hemisphere tends to be the more analytical part; it analyses information collected by the right
- It takes information from the right hemisphere and applies language to it. The right hemisphere "sees" a house, but the left hemisphere says, *"Oh yeah, I know whose house that is--it's Joe's house."*
- The left side of the brain deals more with language and helps to analyse information given to the brain. If you injure the left side of the brain, you're aware that things aren't working but are unable to solve complex problems or do a complex activity. People with left hemisphere injuries tend to have more organisational and language problems.

Left Side:

Speech
Analysis
Time
Sequence



Recognizes:

Words
Letters
Numbers

Right Side:

Creativity
Patterns
Spatial Context



Recognizes:

Faces
Places
Objects

Physical Consequences of Brain Injury

- Weakness or paralysis
- Stiffness or rigidity
- Extreme fatigue
- Headaches and pain – Can be ongoing and difficult to treat/alleviate
Problems with speech, vision, hearing, co-ordination and/or balance

Cognitive Consequences of Brain Injury

- Impaired attention & distractibility
- Disrupted insight, judgement, and thought.
Reduced processing speed
- Deficits in executive functions such as abstract reasoning, planning, problem-solving, and multitasking

Emotional Consequences of Brain Injury

- Emotional problems can occur such as lability, depression, anxiety, hypomania, mania, apathy, irritability, and anger
- It is typical for emotional disturbances to be interrelated components of neurological or cognitive deficits, which causes difficulties in evaluating and treating. In other words the emotional difficulties can be complicated and very individual
- Changes in ability to cope, caused by the injury are likely to result in reactive and adaptive denial and depression
- Altered coping also occurs in family members in response to the person with the ABI. A process of frustration and helplessness on all sides is likely to develop when family members are unaware of the causes of the altered perceptions, poor coping, and poor judgment of their relative/family member.

Behavioral Consequences of Brain Injury

- Behavioral problems are associated with the location of injury; for instance, frontal lobe injuries often result in disinhibition and inappropriate or child-like behavior. Temporal lobe injuries often cause irritability and aggression.
- Typical behavioral issues include disinhibition, inability to control anger, impulsiveness, lack of initiative, inappropriate sexual activity/comments and changes in personality.

Family Support Principles

- Brain injury causes drastic life changes for everyone in the family
- Most people want their old life back
- Well informed people do better
- Every person deserves respect
- Every person in the family is important

Issues for the Family

- Stress Management
- Feelings/Managing emotions/Guilt
- Taking care of oneself

Social Inclusion

- Brain Injury can result in loneliness, isolation, depression and loss of friendships
- Seek out opportunities for your ABI survivor to participate and engage in community activities
- Participation in meaningful sport and recreation activities is one of the most powerful, yet simplest ways to improve the quality of life for people with an ABI