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Attention, learning and memory after ABI

Hurting your head can make it difficult to pay attention or remember things. This section will tell you more about how attention, learning and memory work. I've split it into different sections so you can learn about it more easily. Not everyone finds it easy to pay attention and this can affect their learning and their memory.

- **What is attention?**
- **How does attention work in the normal brain?**
- **Attention and learning**
- **Learning and memory**
- **Types of memory – the brain's filing system**
- **How can an ABI affect attention, learning and memory?**
- **Why is my learning affected?**
- **Unrealistic expectations**
- **What about my memory?**

What is attention?

Attention is part of the conscious. It is how you know where you are and what is going on around you. It helps us to understand when to speak, what to do and when to do it.

Attention is one word that describes a bunch of stuff that goes on inside the brain all at the same time. Your 'attention' is made up of the following:

- **Your thoughts:** All the stuff that is running through your head.
- **Words and speaking:** Things that you hear other people say.
- **Events:** The things in your life that happen to you, like going to school.
- **Objects:** The things you taste, touch, see, smell or hear which make you think. .

There are **different types of attention** too:

- **Being alert:** When our attention is alert we can interact with people and the environment around us.
- **Sustained attention:** This is when one thing holds our attention for a period of time. Like when you watch a football match on television for 90 minutes.





- **Focussed attention:** You can be in a room full of people all talking and you can just focus on what your friend is saying to you.
- **Divided attention:** Adults are a bit better at this. It means being able to do lots of things all at once like doing your homework and listening to the radio at the same time.

How does attention work in the normal brain?

Our 'attention' is kept inside the temporal lobe and the frontal lobe of the brain. If you have hurt this part of the brain, you may find 'paying attention' very difficult. Here is how it should work:

Imagine you are in a maths class. You see your teacher walking into the classroom and your 'be alert' attention switches on. You then listen to the teacher. You are in maths class for one hour so your brain switches your 'sustained attention' on too. This is so you can listen to the teacher for the whole lesson. Maybe someone starts messing around at the front of the class so your 'focussed attention' switches on so you can focus on what the teacher is saying and not on the annoying person. A bit later on, you and your friend feel a bit bored so your friend whispers to you: 'Do you want to play hangman?' You then switch on your 'divided attention' so you can play hangman and listen to the teacher at the same time.

That's all great if your brain is working well and your attention is working properly. If you have hurt your head, your attention stops working properly and those four different types of attention can stop working.

Attention and learning

When your attention is working, you can start to learn. You can't learn without attention.

For instance, when your eyes see the teacher you know it is time for class. Your 'be alert' attention is switched on and your ears are told to listen to what the teacher is saying.

The temporal lobe recognises the sounds the ears hear as the teacher's voice. It then figures out which bits of what the teacher is saying to be important. It then records all of this information as memory files which it stores in the 'short-term memory'. At the same time, it also sends these files like an email to the frontal lobe.





The frontal lobe studies these 'short-term memory files' and figures out what is really important or what is new that you don't know or haven't heard of before. It then files the important bits as 'very important information files' in the 'long-term memory'.

Maybe your maths teacher was talking about algebra. This was then filed away in the 'long-term memory' so you at least have some idea of what algebra is even if you don't fully understand it.

Over time, the temporal lobe will erase any old 'short-term memory files' so that it can make room for more. That's why you can't remember what you had for breakfast two weeks last Thursday! It simply is not important!

Learning is not just about schoolwork. Learning can be about all sorts. We learn how to make friends, make cakes, ride a bike, read, write, relax, laugh and a million other things!

Learning and memory

Memory is a bit like having a library in our brain. Instead of books there are lots of 'memory files' that contain lots of information that is important to us. It is the stuff that we have learnt throughout our life.

When we learn something new our brain looks at the memory file and decides which section it needs to be put under. It is then stored in the brain where similar information is stored. The brain is a bit like a library referencing system.

Types of memory – the brain's filing system

- **Working memory:** This part of the memory stores instructions or information you have just been given which you need to know at that moment in time.
- **Episodic memory:** Is the part of the memory that remembers events like what you were doing last Christmas.
- **Procedural memory:** This is the part of the memory that remembers routine. We have routine at home, school and work and this part of the memory makes sure you remember what to do and when, like brushing your teeth before bed.
- **Semantic memory:** This is the bit of memory that you choose to remember. For example, some people like football so will remember lots about football. Other people prefer horse riding so will remember lots about horses





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- **Explicit memory:** Is the stuff we learn at school. It is the facts and figures and how to do maths thing.
- **Implicit memory:** Is the stuff we learn without really knowing how we know it. It is amazing what people can 'pick up'!
- **Sensory memory:** Is the stuff we remember when we see or hear something that reminds us of something else.

Whenever we need to access information, our brain pulls it out of the memory banks and then uses it. It even puts it away after. Our memory has a very efficient librarian working in it!

Our brain can pull the information out of memory files in a few ways. One is when people asks questions and we think for a bit and give them the answer. The second is when they drop a clue into the question, like 'Do we have maths second period?'. The third is when something triggers our memory into action. And you say: 'Oh! That reminds me!'

How can an ABI affect attention, learning and memory?

An ABI can have a big impact on the brain even after you leave hospital and feel much better. Although you have got over the ABI, that doesn't mean to say you are completely back to your old self and sometimes people, including teachers, don't understand this.

Here are some common problems having an ABI can cause with your attention, learning and memory:

- You find it difficult to pay attention
- School work that you used to be able to do is harder now
- You find it hard to learn new things
- You can't remember things
- You forget names and who people are
- You can't understand what people are saying to you. This is called 'dysphasia'.
- Teachers expect you to do the same amount of work you used to do
- School is giving you a big headache!

Remember, an ABI will affect people differently so some things might not apply to you. A lot of it can depend on what part of the brain you hurt, but people who have damage to their frontal lobe and temporal lobe tend to have the biggest problems.





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How can my attention be affected?

Paying attention can be very difficult. Maybe you find it hard to concentrate on one thing and have so much running around in your head you can't focus on what you should be paying attention to. The reasons below can cause you to lose concentration. These aren't excuses, they are very good reasons why you find it hard to pay attention:

- **Headache:** Pain in your head can make you lose concentration.
- **Stress:** Outside stresses can worry you so much you can't concentrate.
- **Feeling tired:** When you feel tired you may start to day dream or some people might actually fall asleep. This can make paying attention difficult.
- **Dysphasia:** Means not understanding what is being said to you. This is when the brain receives the message from the ears but can't recognise the words that are being said. This can affect your speech too.
- **Hearing and sight difficulties:** Maybe you damaged the parts of the brain that control your hearing and sight and that you cannot hear properly or see properly. Maybe you have eye strain.
- **Medication:** Sometimes medication you are on may give you a headache. This can also make concentration difficult.

Why is my learning affected?

Attention affects how we learn. If we can't pay attention it can make new things very hard to learn.

After hurting your head you can spend some time adjusting to your old way of life. One of these adjustments can be to re-learn what you used to know before.

It can be very hard to learn new things. Sometimes school teachers may not understand why you are finding learning new things difficult. You should talk to them about this. The brain is still trying to adjust and needs time to remember what it can do.

Spend some time adjusting to your life again. You can start to learn new things when the time is ready. It is important to be patient with yourself here because this can take a long time.





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Unrealistic expectations

Unrealistic expectations are when we expect more of ourselves than we are capable of. This is common amongst young people with an ABI. This is because when you are in hospital it is quite common to make lots of little recoveries in a small space of time, for example, when you started to walk and talk again. When people see you walking and talking they expect you to be all better. This can mean they expect you to be as you were before the accident.

This can be a real problem with schoolwork. Maybe before you hurt your head, you did really well at school and got really good marks for your subjects and were very clever. Maybe you had dreams of becoming a fighter pilot, doctor or lawyer.

The truth is, walking and talking can be fairly simple for your brain to re-learn and remember what to do. Learning about new things, however, can be much more complicated because the brain has to do so much more in order for you to remember and learn.

You may not be able to have the same ambitions you did before the ABI. This can be a very hard and upsetting fact to get used to. Focus on what you can do. Your life hasn't ended. There are plenty of other things you can do and, with the right support, there is no reason why you can't go on to do something really worthwhile and enjoyable, just different from what you had intended.

What about my memory?

Your memory can also take a long time to adjust to how your brain now works. As your attention and ability to learn have been affected, it can be hard to remember new things. You may find that you can remember things that happened to you in the distant past but can't remember new things like what you had for tea last night.

A big part of learning is building on what you already know. If you can't remember the stuff you used to know, it can be harder to learn new stuff now.

If a big bookcase fell down in the library, it would take a long time for the librarian to sort it all out and get things back in order again. It is exactly the same when you damage your brain. Sorting out the memory can take just as long. It is very frustrating and there will be times you feel really down about it. Talk to your friends, family and teachers about this.

