

**Attention and Concentration Problems Following
Traumatic Brain Injury**

Patient Information Booklet



Talis Consulting Limited

What are Attention and Concentration?

Attention and concentration are two skills which we use to perform almost all of our mental activities. They underlie many of the mental processes we do like memory or problem solving. They are also needed to perform many social activities like holding a conversation without becoming distracted or losing track of what's been said.



Attention can be thought of like a spotlight; it highlights certain things, and ignores or filters out others which are in the periphery. Concentration, on the other hand, is the process which keeps this spotlight trained on whatever is relevant.

This may sound like a simple process, but it is in fact quite complicated, to attend to something effectively you must:

- Select something which you want to concentrate on from the environment
- Ignore or filter out all other distractions
- Maintain this state of concentration
- Recognise when it is appropriate to break concentration and shift attention onto something else.

There are also different kinds of attention which we can use. There is selective attention, where we must be constantly shifting whatever it is we are concentrating on, and we must prioritise which tasks receive our attention and when.

There is also sustained attention, this involves concentrating at length on one particular task at hand and not getting distracted.

Finally there is divided attention, this is where we need to be concentrating on two different things at once.



Attention and concentration problems are very common following a brain injury, and some researchers suggest that they always occur following a brain injury to some extent.

Why can a Brain Injury Affect Attention and Concentration?

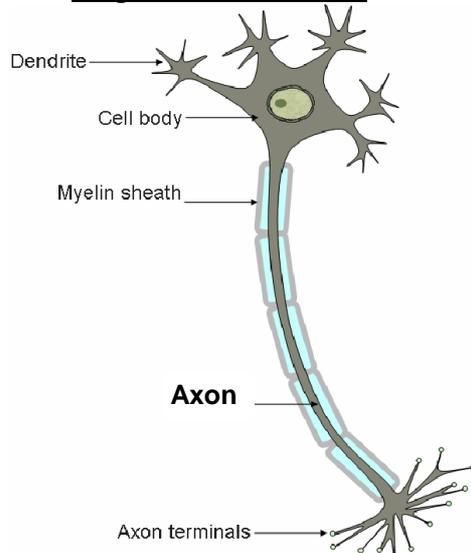
Attention and concentration are used in almost all mental activities, this means that they use a large number of different brain structures. Unfortunately this makes it quite likely that a brain injury will cause damage to one of these structures. Moreover, much of the attention and concentration processes occur in the frontal lobes of the brain (the bit behind your forehead). This is a further problem because this area is susceptible to damage in an accident as the brain can grind against the bones above the eye-sockets.

A further problem, is that as attention and concentration are needed in almost everything we do, having even a small impairment in attention or concentration can have implications for other processes. For example the learning of new material is heavily dependent on good attention and concentration, so when these are only slightly impaired it can make learning difficult.



How can a brain injury cause problems with attention and concentration?

Diagram of a Brain Cell



Attention and concentration can be impaired through physical damage to the brain cells. This damage is often widespread and diffuse. This means that the damage might not show up on any brain scans. Often the damage is to the axons of the brain cells. The axons are long thin parts of the cell which transport brain signals, this means that the different brain areas cannot communicate as quickly or as effectively as before.

However occasionally there are areas of the brain which suffer more specific damage, and these damaged patches might show up on a brain scan. These damaged areas might 'knock-out' an area of brain responsible for attention and concentration, or it may be that they serve as a blockage to brain signals in neighbouring regions, like damage to a road between two towns.

Finally, damage to the brain can upset neurotransmitter (chemicals which communicate between brain cells) and/or hormone levels in the brain. This kind of upset is associated with the time immediately after the accident. Often immediately following a brain injury the injured person can seem dazed and vacant; an upset to the brain chemicals is part of the reason for this.

What Kind of Problems are Associated with Impaired Attention and Concentration?

Why do I now find it difficult to do more than one thing at once?

Having problems concentrating on two things at once is not at all unusual following a brain injury. The problem with attention is that there is only so much of it to go around at any one time, so when we attend to one thing we find it hard to also attend to another.

Brain injury adds a further problem: often when we first learn a task (like driving a car) the task is effortful and requires a lot of concentration; however after a while the task becomes automatic and doesn't seem to take up any of our concentration. Brain injury can cause some of these automatic behaviours to require thought and concentration once more. This means that you may have to pay much more attention to tasks which required very little attention in the past. This ties up more of your attentional resources, making it harder to do another task at the same time.

Why do I now find it harder to ignore background distractions?

Ignoring background distractions is a very complicated process. It can never be a case of 'switching off' our attention to them completely, because there is always the chance that something important will happen in the background that will require our attention to deal with (such as a fire!). This means that you must process everything that goes on in the background to some extent.

After a brain injury this process can be impaired, and irrelevant material may slip through whatever filtering process would operate normally. In a nutshell this means that your brain is having trouble deciding which information is irrelevant to the task at hand and which is actually important and requires your attention.



Why can't I concentrate on a task at hand for as long as I used to?

Following a brain injury our attentional capacity can be lowered. This effectively means we have 'less attention' to devote to a task. This in turn can shorten your attention span. A further problem is that following an injury the brain has to work harder to perform tasks which were easy before. This means that you may get tired more quickly and therefore cannot work for as long. Finally, the brain's 'processing speed' (how quickly it can

deal with incoming information) can be impaired following an injury. This again means that you may get tired more quickly when doing a mental task.

What Treatments are Available to help overcome Attention and Concentration Problems?

In the majority of cases, resolution of deficits in attention and concentration occur naturally within one to three months. However some people still experience problems after this time.

As attention and concentration levels are linked to neurotransmitters (the chemicals which communicate between brain cells) there have been some efforts to develop medication which can help with the effects. It has also been shown that some anti-depressants may help to elevate concentration levels. However although some success has been found with medications, the primary method of treatment remains cognitive rehabilitation (such as mental exercises).

What can I do to Help Myself?

There are a number of changes you can make to your lifestyle which will help you cope with attention or concentration problems. The following are a few tips you may like to try. Remember that everyone's needs are different so use those techniques which work for you.

Organise your environment

If you need to get something done, create a quiet space in which you can do it. Make sure you eliminate background noise as much as you can (such as radios or people talking). This should help you maintain your concentration on the task in hand.

Use aids to help you to remember to pay attention

Use aids such as alarms or a picture or cue-card where you work to remind you to pay attention to the relevant task and not to let your mind wander. Cue cards you use might say things like: "What should I be doing now?" or "Am I wandering?".



Take frequent breaks

It is natural that when you are tired you will find it hard to pay attention or concentrate on what needs to be done. This means that you should take frequent breaks to prevent yourself from becoming too tired. Stress and worry will also make it harder to pay attention effectively, so make sure you have some time out if you feel stressed with what you are doing. If you carry on despite having difficulties this is likely to make you more stressed and therefore make it even harder to concentrate.



What can I do to Help Myself (Continued)

Keep time pressure to a minimum

If you have a task which needs to be done, then make sure that you leave plenty of time to do it in. Additional stress from feeling rushed will not help you. Also if you feel that someone is talking to quickly for you to keep up, don't be embarrassed to ask them to speak a little more slowly.

Set tasks to improve your attention and concentration abilities

Try setting increasingly difficult tasks and targets to work towards. For example, play a game or read a book for a set amount of time. Then gradually increase the time you spend on this task - make sure you don't start the task off at a level which is too difficult. Consider setting a goal to aim for, and some kind of reward or incentive which you will get when you achieve that goal.

Make lists of things to do

If you have a number of things to do, write them all down on a list, so that you know what you need to be concentrating on. If someone gives you instructions, make sure you write those down as well.



If you get interrupted or distracted then you will be able to refer back to your list to check what you need to be doing next. You might also like to consider pairing your lists with alarms to remind you to either do the next thing on your list, or simply to remind you to check your list.



Break down work into small manageable chunks

You may find it easier to work harder for short focused periods than to try and work continuously throughout the day. This also has the advantage of making what needs to be done clearly structured, large unstructured tasks are much more likely to result in your mind wandering.

Keep tasks varied

If you find that you become distracted or bored quickly when doing a task, consider planning your day so that you will be doing a number of different activities one after the other. This means that you may be able to maintain concentration on tasks for longer.

What can be done to Improve Social Situations?

Attention and concentration are needed just as much during social situations as they are during more formal work. If you find you are having difficulty with your social situations then you might want to consider some of the following:

Meet people one on one and face to face

Meeting large crowds of people can be distracting and can make conversations hard to follow. So if you know you have something important to discuss with someone then arrange a time when you can meet to discuss it one to one.



Repeat back instructions

If you are asked to do something, repeat back any instructions you are given. This has a number of advantages, it ensures you have understood the instructions, it slows down the pace of the conversation so you can concentrate harder upon it, and it helps you to remember what needs to be done later on.



Try not to meet in busy places

Make sure you hold your conversations in quiet environments away from distractions. Trying to hold a conversation in the middle of a busy restaurant will not be as easy as holding it in a quiet corner or office.

Talk to others about your problems

It might be necessary to tell others about your problems so that they know what difficulties you have. Ask them to slow down, to repeat information and to help you to keep on track.

If you lose track of a conversation, tell the person

If you get stuck, let the person know. Just say something like “I’ve got stuck, can you go over that part again”. Trying to muddle through without fully understanding the conversation will not be helpful to you.

Useful Websites:

www.headway.org.uk

- A useful web site with much information about brain injury and rehabilitation in the UK.

www.birt.co.uk

- Another useful web site concerning brain injury, with downloadable leaflets about brain injury and its implications.

<http://braininjury.org.au/portal/fact-sheets/attention-and-concentration---fact-sheet.html>

- A website specifically about attention and concentration problems, with tips on how to improve attention and make sure you are on track with any goals you set.

<http://www.elementssupportservices.com/InfoSheets/attention-concentration-acquired-brain-injury.html>

- Another website with some more tips on how you can improve your attention, as well as information about the nature of attention.

