



Heart & Mind

**Mild Head Injury: A Self-Help Guide for Understanding
and Managing Post-Concussion Symptoms**

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BASIC
Brain And Spinal Injury Centre

Registered Charity 518806

Heart & Mind

This booklet is written for patients who have suffered a mild head injury as a result of a blow to the head, a fall, or a road traffic accident.

The purpose of the booklet is to help you and your family

- understand what happens when such an injury occurs;
- know what to expect during recovery;
- develop skills in managing any difficulties that you are experiencing.

Whilst reading this booklet, please refer to the advice leaflet given to you at discharge from hospital. The signs and symptoms described in that advice leaflet refer to the first 24 hours after your injury mainly. You will need to contact the hospital immediately, if any of them develop a few days after your injury.

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Introduction

Head injuries are very common. They can occur for many reasons. Tripping up or falling from a height, being involved in a road traffic accident, being injured whilst playing sport, a fight, or being assaulted are the most frequent causes of a head injury.

A slight injury to the head may cause bruising and cuts or grazes to the skin of the head or face. Such an injury, which might be caused by a slight blow to the head, does not necessarily cause damage to the brain itself.

A mild injury to the brain occurs if there is a temporary disruption to the functioning of the brain. This may occur if the head injury causes a person to lose consciousness, or if there is a loss of memory for events immediately before and, or, after the event.

Such a loss of consciousness may be for a few seconds or minutes only, and the loss of memory for events immediately after the event may also be for a few minutes only.

Following such an injury you may develop post-concussional symptoms (see below). In this booklet you will find both general and specific advice on how to manage such symptoms.

What happens when an injury occurs ?

A traumatic brain injury occurs when the head is brought into motion and sudden rest.

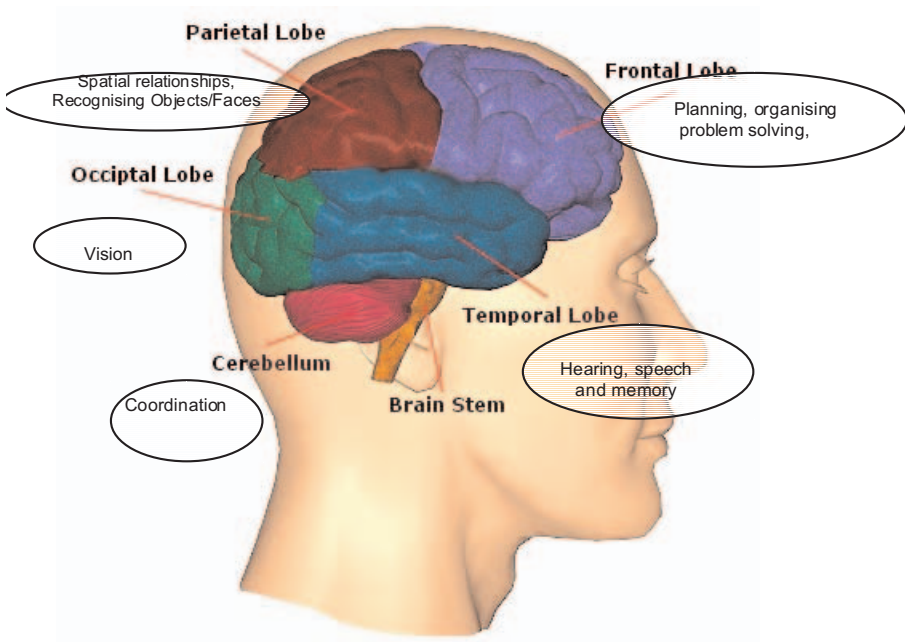
This could be as a result of a direct blow to the head during an assault. It also involves the head striking something else, such as a wall, a door, or any other object.

A traumatic brain injury could also occur during a fall from a height or if moving whilst sustaining the injury, such as travelling in a car. In such an event, the brain still moves in the very instant after the injury, when the head itself has come to rest. The force of this movement causes pressures and strains inside the skull area of the head.

These pressures and strains can cause some damage to nerve fibres which transmit information from the brain to other areas. This can lead to some stretching of these nerve fibres and disturb chemical processes. For a mild brain injury, such a disturbance is usually temporary in nature.

Injuries often have a general effect on the brain resulting in tiredness and headaches, but they can also have a more specific effect. More specific effects include physical problems such as a loss of smell, as well as problems in thinking processes. Such thinking processes include memory and attention. The picture below shows the different areas of the brain responsible for the various thinking processes.

Figure: 1
Cognitive functions of different parts of the brain



Frequently reported symptoms after mild traumatic brain injury

Please return to your Department of Emergency Medicine if following initial improvement symptoms re-occur.

Most people experience some disruption to their daily routines following a mild brain injury. This can include physical symptoms, a slowness in thinking or increased forgetfulness (cognitive problems), or general worry and disturbance in mood. Symptoms reported by people may include:

- Headaches
- Dizziness
- Poor concentration
- Loss of appetite
- Sensitivity to light
- Sleep disturbance
- Feeling emotional/tearful
- Depression/feeling low in mood
- Tinnitus
- Nausea
- Fatigue/feeling weak
- Difficulty remembering things
- Visual disturbances
- Sensitivity to noise
- Irritability
- Anxiety
- Reduced tolerance to people/events

These symptoms are called post-concussion symptoms. A person may experience one or more of these. Some people do not experience any symptoms. They are usually present in the first few days or weeks after the injury but most people recover by about three months following the injury.

General advice on managing post-concussion symptoms

For the first two weeks after injury:

- *Avoid alcohol - after a head injury you may be more sensitive to the effects of alcohol. A small amount may worsen the effects of the head injury. It can cause unsteadiness and dizziness which may lead to a fall and further injury. It is sensible to avoid alcohol for at least one week after injury and then monitor carefully how alcohol affects you. Reduce your normal intake until you feel fully recovered.*
- *Take some time off work. A graduated return to work can be helpful in managing your symptoms.*
- *Pace your activities and include rest periods during the day*
- *Reduce your exposure to noise levels (radio, TV, noisy groups of people such as in pubs)*
- *Reduce caffeine intake (coffee, tea, cola)*
- *Avoid contact sports*
- *Eat small, regular meals*
- *Ensure good fluid intake (2 litres / 4-5 pints per day)*
- *Engage in gentle activity to build up your stamina - short walks*
- *Use relaxation to help with physical symptoms (controlled breathing, progressive muscle relaxation)*

- Minimise exposure to activities or situations that are known to be demanding or stressful

General advice on managing sleep disturbance

- Pace your activity levels*
- Reduce stimulation - do not watch TV in bedroom, or spend long times on the computer.*
- Avoid large meal before bed*
- Avoid caffeine*
- Utilise relaxation techniques*
- Well ventilated room - warm, not hot or cold*
- Pain killers, if in pain*
- Get up for about 30 minutes if unable to sleep for long periods. Have a warm non caffeinated drink and then go back to bed.*
- Don't worry about the sleep disturbance. This is usually temporary and your normal routine will come back gradually*
- It is best to avoid sleeping tablets. Discuss with your GP if your sleeping pattern has become very disrupted. A short course of medication may be helpful in re-establishing your sleeping pattern.*

Additional advice on the management of specific problems

Physical Problems

o Headaches

Headache is a common feature following mild traumatic brain injury. It can be caused by stretching of neck muscles and supportive tissue, abrasion/soft tissue injury to muscle or scalp or stretching/bruising of the brain or its linings (meninges).

The most common headache is in the form of aching in a specific area or in a band around the head. This probably arises from the muscles in the scalp or neck.

It is possible to have headaches that are similar to migraine following a head injury (post traumatic migraine). This type of headache is not as common. It tends to affect one side of the head; the pain comes in waves and is throbbing or pulsating in nature. It is caused by stretching of the blood vessels in the neck or scalp at the time of injury. It may be accompanied by nausea, flashing lights or sensitivity to light.

Headache after head injury may be more persistent if there was any “wear and tear” in the neck joints before the accident. In addition, a whiplash injury often accompanies a head injury. There may also be contraction of the neck muscles causing pain to spread to the head.

Bruising around the face and eyes may cause strain of the eye muscles and cause temporary visual disturbances and headache.

Some people may have a combination of headache types and for some people nausea / feeling queasy may accompany headaches after head injury.

It is also important to recognise that anxiety about persistent headache may contribute to the symptoms continuing. This is especially the case if accompanied by lack of sleep, fatigue and low mood.

Management of headaches

Headaches are a normal feature of recovery and may take several weeks to settle. Be aware that worry about the headache can in itself contribute to a vicious circle of worry í tension and more headaches.

Headaches caused by bruising are usually relieved by simple pain killers such as paracetamol.

Migraine type headache may be treated with standard migraine medication. Advice should be taken from your GP as these medications require a prescription.

Anti sickness medication can be helpful where feelings of nausea accompany headaches. Advice should be taken from your GP as these medications require a prescription.

Headaches may also be relieved with alternative treatments such as relaxation methods. These can be helpful where headaches are caused by stretching of neck muscles and supportive tissues.

o Dizziness

Dizziness is usually a temporary problem. It may occur when standing or changing position. This is associated with adjustment of blood pressure when moving. It may also cause people to feel faint. This is more common in the elderly.

Vertigo is a medical term for severe dizziness.

Dizziness on moving the head and localised stiffness may occur if there is also a whiplash injury.

Management of dizziness

Dizziness occurring when standing or changing position may be relieved by standing up slowly and simply avoiding positions which cause dizziness.

Symptoms of vertigo may be treated with drugs that are used for sea-sickness such as Hyoscine or Betahistine. See your GP for advice on this.

o Tinnitus

Tinnitus (ringing in the ears) is due to damage to the inner ear after head injury. It is usually described as a whistling, ringing or roaring sound and may be accompanied by some hearing loss.

Management of Tinnitus

There is no specific treatment for this. It usually settles on its own within a few weeks after injury.

o Post - traumatic epilepsy

Seizures (fits) can sometime occur immediately after the head injury, but the development of persistent epilepsy, with recurrent attacks is very unusual after a minor head injury, usually this only occurs if there has been a fracture of the skull, and/or bleeding into the brain; this usually only happens in more severe head injuries.

Management of post -traumatic epilepsy

If you have a seizure during the first few days you should immediately go to the Emergency Department of your local hospital.

They will almost certainly wish to do further tests, including a scan.

You should treat a seizure as a medical emergency, and you should go straight to hospital, call 999 if necessary.

If a seizure occurs weeks or months later, as long as it stops within 2 - 3 minutes, and the patient returns to normal quickly, then you should seek urgent medical advice, for instance speak to your GP the same day, or call NHS Direct.

If the seizure doesn't stop quickly, if the patient has more than one seizure, or if they don't recover afterwards, then take them straight to hospital, again call 999 if need be.

If you develop post-traumatic epilepsy, then you should be referred to a Neurologist, or a child might be referred to a Paediatrician. You may need to be prescribed tablets, to stop further seizures. Post-traumatic epilepsy usually only develops

after a serious head injury.

You should not be driving, speak to your doctor about when you can drive again; it is usually after a year without seizures. It is also your responsibility to inform the DVLA about this. You will find the address on page ,, of this booklet.

Cognitive problems

Cognitive problems are difficulties in mental skills that can occur after a mild traumatic brain injury.

The most common are difficulties in memory and attention. Some people also experience difficulties in problem solving, planning and organising their activities.

Cognitive difficulties after a mild traumatic brain injury are usually temporary in nature. They may cause particular problems during the first few days after an injury but often resolve during the following weeks or months.

o Memory

Some people experience a brief loss of memory for a period immediately before and after the injury occurred. This loss of memory occurs as a result of a physiological disruption of brain function at the time of the injury and is generally regarded as amnesia. If such a memory loss has occurred it is very unlikely that a continuous memory for events surrounding the injury can be retrieved at a later stage during the recovery process. A person may however be able to remember some fragments of

events surrounding the injury. Such fragments are called “islands of memory”.

Memory difficulties usually show themselves as increased forgetfulness. This may include forgetting things that you have agreed to do or other planned arrangements, misplacing items around the house or at work, forgetting to pay bills or passing on telephone messages.

At college or at work a person may find it more difficult to engage in learning activities or take in new information or instructions.

There usually isn't a loss in memory for previous skills such as typing or other activity which follows an established routine. However it may be more difficult to carry out such routines as a result of difficulties in concentrating for a prolonged period of time and reduction in stamina, or problems with planning.

Managing difficulties in memory

One of the main ways to manage memory difficulties is to identify ways to compensate for the memory problems.

This can be done either using objects or devices within your environment (external strategies), or strategies that involve processing information differently in your own mind (internal strategies).

a) external strategies involve using diaries, calendars, notice boards, and lists such as shopping lists or “To Do” lists. Electronic devices such as dictaphones, tape-recorders and

alarms on watches, mobile phones or pagers, can prompt people to recall information and carry out activities at appropriate times. External strategies such as these tend to be most successful, especially if you build on those that you may have used before your injury (such as a diary).

b) internal strategies can include repeating something several times, create meaningful links and associations (such as remembering someone's birthday on 24th December is Christmas Eve), grouping information together under several subheadings (such as a shopping list into different types of foods) and using mental pictures and imagery. Such methods are helpful in processing and storing information.

c) setting up routines and organizing your environment to keep items in set places will also minimise some memory issues. Simplifying tasks can reduce the demands placed on memory, such as setting up direct debits to pay bills on time. Focussing on one item at a time can also be helpful, as can grouping only small amounts of information. Such methods should help more information to be stored and therefore retrieved.

Refer to the booklet “Management of memory difficulties” (BASIC) for further advice on this topic.

o Attention

Difficulties in attention can take a number of different forms. A person may find it more difficult to simply concentrate on a specific task and maintain their attention for a prolonged period of time.

Other problems with attention include difficulties in dividing

attention such as concentrating on several things at once, or rapidly switching attention from one task to another. Examples of this are cooking a meal whilst also listening to the children talking, or driving whilst also participating in a conversation and listening to the radio at the same time. For students, listening to a lecture whilst also taking notes may be particularly difficult.

Difficulties in attention can cause problems in other areas such as memory. An example of this is a difficulty in directing attention to what is being said, especially if there is background noise and other distractions. This may then result in a person not being able to remember what has been said, however a person may not have processed the information in the first place.

It is therefore important to recognise that such attentional difficulties are very common in the early period after a mild traumatic brain injury and may in fact be the underlying cause of some forgetfulness.

Managing difficulties in attention

Several things can be helpful in managing an attention problem

- *engage in stimulating and relevant activities, gradually increasing the time you do this. This can help in improving your attention span*
- *minimizing distractions in the environment such as turning the TV or radio off when doing more mentally demanding tasks can help to reduce being distracted from the task*

- *plan regular breaks to prevent mental fatigue*
- *talking out loud with phrases such as “what should I be doing” or “stay focussed” can help, as can having a cue card with a similar message written on it*
- *concentrating on small amounts of information and only doing one thing at a time can help to reduce mistakes*
- *carry out mentally demanding tasks at the time of day when you feel most alert*
- *having a structure for activities and tasks can be helpful in order to stay on track with tasks and getting things done*
- *double check for any mistakes made with work such as money management, work or college projects.*

o Planning and problem solving

Difficulties in that area involve being less able to plan ahead or follow through the steps that are required in carrying out an activity.

A person may not immediately recognise that they have such difficulties but being less able to carry out tasks which previously would not have posed a problem could be an indication of a difficulty in this area. This may become evident with some domestic or DIY activities which require several steps and planning. Examples are wiring a plug, decorating, carrying out repair work etc.

Such difficulties are not very common after a mild traumatic brain injury, but may occur in the early days following the injury and with some individuals may take a little longer to resolve.

Managing difficulties in planning and problem solving

When facing situations that present problems or opportunities to plan, it may become necessary to think things through in a much more structured and objective way, following a brain injury.

A helpful way may be by asking yourself a series of helpful questions such as:

1. What do I want to achieve?
 2. What are the available options?
 3. What is the best option?
 4. What steps will I need to take to achieve this?

After these questions have been considered and answered, you can then carry out your plan.

Writing down a goal, plan or problem also helps to give structure to your thinking and helps to make things clearer.

Thinking about the plan or problem and writing all possible available steps and solutions down, helps you to consider all available solutions and provide a clear plan for how they could be achieved.

Using a daily and weekly time table, planner, or keeping a diary can provide structure and ensure that plans are made routinely and on an ongoing basis.

Emotional problems

Feeling anxious, worried, frightened, angry and low in mood are normal emotions after sustaining an injury, including a mild traumatic brain injury. These feelings often pass in the weeks following the injury, as a person gradually resumes their usual activities.

For some people anxieties and low mood do not improve as much as they had hoped. Some reasons for this are:

- *A person may have suffered from anxiety, depression or other emotional upset before, and the injury has intensified those emotions.*
- *There may be subtle ongoing cognitive and physical difficulties, affecting general activity levels and confidence.*
- *Fears about the physical aspect of the injury, its effect on the brain and possible complications may cause anxiety about health and future recovery.*
- *Not knowing or understanding what happens during an injury and the nature of the after effects can cause further worry.*
- *Worrying a lot about symptoms such as headache can create additional tension, often in and around the neck muscles, which then creates more headaches. This can lead to a vicious circle of injury í headacheí worry í muscle tensioní headache etc.*
- *A person may have an isolated memory of a specific*

aspect of the injury which may be particularly upsetting for them.

- Irritability and frustration can occur as a result of a combination of ongoing subtle cognitive difficulties whilst also trying to meet demands at home and at work and perhaps also experiencing some ongoing physical difficulty.

Managing emotional difficulties

Recognise that emotional upset and worry is a normal part of recovery, even though you may have suffered an injury in the past and not felt like this before.

Try and identify whether any of the above apply to you and if they do, make some changes to your everyday life that help to address them.

Explain any difficulties that you are experiencing to your family and friends, so that they can understand the effect the injury has had on you and support you in managing your difficulties.

Use the advice on managing cognitive difficulties to make some practical changes to your environment, or ways of doing things. This will help you to adjust and manage any difficulties, reducing distress and irritability.

Use medication sensibly and as prescribed and if symptoms

such as headaches persist use additional methods such as relaxation. This will help to gain some control over the symptoms whilst also acknowledging that they are a normal part of recovery.

Recognise if your worry about symptoms intensifies and a vicious circle develops. If that happens remind yourself of the point above. If symptoms nevertheless do not improve, visit your GP. A review by a Rehabilitation Consultant or other Specialist within the Community Rehabilitation Team may be helpful at this point.

If you have a particularly upsetting memory about something that happened around the time when you sustained your injury and if you continue to feel distressed about this by around four weeks after the incident, visit your GP to discuss. A referral to a Counsellor or Clinical Psychologist may be helpful at this point.

If you have suffered from anxiety or depression before the injury and the head injury has intensified those feelings, visit your GP to discuss this further. A referral to the relevant service may be of help to you at this point.

Members of your family and friends also may experience an emotional reaction to your injury. Some people try and cope with this by becoming very protective of the person who sustained the injury, to the point of not wanting them to be on their own, leave the house on their own, do things for themselves etc.

Other people cope by convincing themselves that the injury was only a very minor matter and in doing so may not take problems seriously, or disregard them.

Both of these ways of coping are a reflection of the upset the person is experiencing as a result of their relative or friend having sustained an injury. If such a situation occurs it may be helpful for the family member to discuss this with someone close to them as well as the person who did sustain the injury. It is helpful to acknowledge this within the family if such a situation has developed. This helps to increase understanding of the effects of injury.

Sometimes people try and cope with emotional difficulties by drinking alcohol to numb their feelings. This is not a helpful strategy, often making things worse both in the short and longer term. Recognise if this is happening to you and seek help via your GP if you feel unable to make changes on your own.

Returning to work

You and your family may have concerns over your return to work. There may be worries that difficulties with fatigue, memory, planning, attention or emotion etc. could present hurdles to employment. People face this in differing ways; some are keen to return as soon as possible, others prefer to wait longer before going back.

The cause of your injury could have been due to an accident at work and the symptoms following a brain injury may appear to make future work impracticable. Nowadays there are regulations to assist return to work and funds to help employers to make practical modifications to the workplace, when such circumstances apply.

However quickly you intend your return to work to be, it helps to prepare. If you intend returning to an existing job, a gradual return is advised. Try and negotiate a gradual increase in hours starting with perhaps one morning or afternoon twice a week, gradually increasing your part time hours before moving to full time. Such an approach will make it easier for you to adjust to the demands of the workplace, also giving you an opportunity to manage any physical symptoms including tiredness.

You may find it helpful to seek advice, if your employer is unhappy with any absence, or any proposal to have a phased return to work.

If you have to look for new, alternative employment it is wise to seek help from relevant statutory and voluntary agencies. It is best to explore these avenues as early as possible so that you receive help and support at the right time. Maintaining routines in your life during convalescence, perhaps by retraining or renewing an interest in a hobby will improve your employability when the time comes.

If you are claiming benefit on the basis of incapacity for work - Incapacity Benefit for example - check with the CAB, Welfare Rights Officer, or Solicitor specialising in Welfare Benefits, or a voluntary agency such as BASIC, before returning to work.

You will need to ensure that your return, especially on a part time basis, does not compromise your income.

There are certain types of work which can be undertaken whilst still claiming benefit on the basis of incapacity for work. The rules - regarding this 'exempt' or 'permitted' work - are complex and you should seek advice.

If the rules do not help you there may be other payments which are relevant - for example, Working Tax Credit. Also, there are rules to protect persons who attempt work and then find out they cannot sustain it.

In summary, there are many potentially relevant benefits and it is always best to seek advice.

Roles of Health Professionals

Consultant in Emergency Medicine

Following a visit to Accident & Emergency with a head injury, you may be given an appointment for a follow-up visit. This is to check on your progress and to advise on any further treatment that might be needed. A self certificate will cover the first week.

Consultant Neurosurgeon

A neurosurgeon becomes involved if you require any surgical treatment as a result of your head injury. If you require an operation as a result of the injury the surgeon may give you an appointment for a follow up visit and also refer you on to any of the other health professionals listed below.

Consultant Neurologist

There are neurologists holding clinics across all of Greater Manchester. A neurologist may provide specialist advice in relation to ongoing physical symptoms and in particular during the rare occasions when seizures develop, after a head injury.

Consultant in Rehabilitation Medicine

There is a dedicated medical consultant for each area in Greater Manchester whose speciality is neuro-rehabilitation. If a person has persistent problems following head injury, the Consultant can provide a medical overview and advice on symptom management. Most consultants work in conjunction with the multi-disciplinary neuro-rehabilitation team in his or her local area, where available. Referral to the Neuro-Rehabilitation Consultant is via GP or A&E Consultant.

General Practitioner (GP)

If symptoms persist your GP can advise about the length of time needed off work and can provide a medical certificate to cover sickness absence. He/She will also provide prescriptions, if needed, for medication to help with pain, nausea or dizziness.

Neuro-Rehabilitation Team

Referral to a Neuro-Rehabilitation Team is not usually necessary with most minor head injuries.

However, if symptoms persist or if there are physical problems such as difficulty walking, getting dressed or more significant memory or fatigue problems then your GP can refer to the local neuro-rehabilitation team where available.

An assessment can be made by a physiotherapist, occupational therapist or specialist nurse as needed.

Occupational Therapist

The occupational therapist can assess your ability to carry out daily activities. These include caring for yourself, your home or work, and leisure activities. Occupational therapists can provide advice and treatment for the skills underlying these activities that may have been affected by your brain injury. Examples are hand function or memory.

Physiotherapist

The physiotherapist will assess your physical abilities such as walking, and provide treatment to improve problems such as arm and hand weakness or poor balance.

Specialist Nurse

The Specialist Nurse can provide information, advice and support on managing symptoms following MTBI. He/she can advise on appropriate medication, and on local support groups and agencies. The Specialist Nurse can provide emotional support for client and/or family and help to alleviate anxiety regarding symptoms. The Specialist Nurse can also provide information for GPs or employers if required.

Clinical Neuropsychologist

A clinical neuropsychologist specialises in helping those patients who have had a brain injury or other neurological illness. This may involve an initial assessment of any difficulty that you are having in your thinking skills, mood or general emotional adjustment following the injury. Working together you may then develop strategies to help with difficulties and explore different ways of thinking that can help emotional problems.

Referral to the Clinical Psychologist is via the Community Neuro Rehabilitation Team or GP.

Contact and information details

Brain and Spinal Injury Centre (BASIC).

554 Eccles New Road, Salford M5 2AL Tel: 0161 707 6441

Helpline: 0870 750 00 00

www.basiccharity.org.uk

Ways to Work

2 Champness Hall, Drake Street, Rochdale, 0L16 1PB

Tel 01706 525200

Headway (National)

4 King Edward Court, King Edward Street, Nottingham NG1 1EW Tel: 0115 924 0800

Helpline: 0800 800 2244

www.headway.org.uk

Headway (Local)

Salford & District, P.O.Box 690, Manchester M2 2QL

Helpline: 0800 138 6594

Social services

Via hospital or local phone book

Welfare Rights Officer or Solicitor specialising in Welfare Benefits

Advice about benefits. Accessed via hospital, Social Services or

Citizen's Advice

Bureau.

Disability Employment Adviser (DEA)

based at local Jobcentre Plus. Details of approved local advisers/solicitors can be found by contacting Community Legal Advice.

Tel: 0845 345 4345 www.clsdirect.org.uk

DVLA Driver's Medical Unit,

DVLA, Longview, Swansea SA99 1TU Tel: 0870 240 0009

Carer's agencies

Trafford Carer's Centre 226 Seymour Grove Old Trafford M16 0DU

Tel: 0161 861 0101 Carers@trafford-carerscentre.freemove.co.uk

Information booklets

Managing memory difficulties

Managing fatigue following acquired brain injury

All booklets are available from BASIC, Tel: 0161 707 6441

Glossary

Amnesia: a loss of memory.

Brain stem: connects brain to spinal cord

Cerebellum: base of the brain, responsible for co-ordination

Cognitive: thinking processes involving thoughts as well as mental skills such as memory, attention and reasoning/problem solving

Frontal lobe: the front part of the brain, responsible for behaviour, mood and emotions.

Islands of memory: a specific memory of an experience, or part of an experience that occurred after the injury and during the recovery period. The memory of this experience is in isolation, i.e. other parts of the experience are not recalled.

Nausea: feeling of sickness without physical vomiting

Occipital lobe: the back part of the brain, responsible for vision

Parietal lobe: the upper side part of the brain, responsible for sensation and movement

Post-concussional symptoms: symptoms that occur after concussion. These can physical, cognitive (see above) or emotional.

Stamina: energy and strength sustained while performing an activity over a long period of time

Temporal lobe: lower part of the side of the brain, responsible for language and memory

Vertigo: severe dizziness

Meninges: the three membranes/linings around the brain and spinal cord

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