

# Concussion

## What is concussion?

Concussion is a type of mild head injury. Concussion usually occurs through sporting, car or workplace accidents and is usually caused by the head hitting something or being violently shaken.

Concussion is not easily diagnosed. Many people with concussion may not even be seen in a hospital because they did not think their injury was severe enough. In an Emergency Department symptoms may be subtle and the condition may go undiagnosed until the injured person returns for further review. It is important to return to the Cabrini ED if there are any ongoing problems after the initial assessment.

## What causes concussion?

Concussion may be caused by diffuse (affecting the whole brain) or focal (affecting a specific area) injury.

In diffuse injuries, a blow to the head can result in stretching and tearing of nerve fibres throughout the brain. Most stretched nerve cells will return to normal, but some may remain damaged, either functioning abnormally or not functioning at all. This causes the symptoms of concussion.

In focal injuries, there is damage to a specific area either on the side of the blow or directly opposite it.

There is some evidence that some patients may have longer term issues if they suffer multiple concussions.

## What are the symptoms?

Concussion can result in problems with thinking, physical symptoms or emotional difficulties. Some of the more common symptoms are listed in Table 1 below.

Table 1: Common symptoms associated with mild traumatic brain injury

| Problems with thinking  | Physical symptoms  | Emotional symptoms   |
|---|--|--|
| <ul style="list-style-type: none"><li>• Reduced concentration or attention</li><li>• Slower processing of information</li><li>• Forgetfulness or memory problems</li><li>• Difficulties with making decisions</li></ul> | <ul style="list-style-type: none"><li>• Headaches</li><li>• Nausea</li><li>• Tiredness</li><li>• Sensitivity to light or noise</li></ul> | <ul style="list-style-type: none"><li>• Irritability</li><li>• Reduced control of emotions</li></ul> |

## Treatment in the emergency department

While in the emergency department the injured person will be assessed by the medical staff. They may be recommended to have:

- Pain medications for headache or pain
- Anti-nausea medication for any nausea or vomiting
- Ongoing observation to detect any deterioration due to a serious brain injury

For some patients there are investigations that they may be recommended to have. These are based on the doctor's assessment and will not be the same for everyone.

In particular younger patients may only require an observation period where as some older patients may require:

- A CT scan of the brain, neck or bones
- An MRI scan (another specialised scan of the brain)
- Blood tests and an ECG (an electrical recording of the heart) – to look for and treat any medical complications

If serious injury is ruled out, the injured person will usually be sent home with family or friends.

Admission to the Cabrini Emergency Department Short Stay Unit may be required to allow a period of monitoring and clinical review before discharge home.

## Rest and rehabilitation

After a concussion you should have physical rest and relative mind rest for no more than 48 hours to allow your symptoms to improve. Limit physical activity to routine daily activities (avoid exercise, training, sports) and limit activities such as school, work, and screen time to a level that does not worsen symptoms. In most cases, this only needs to be for a few days.

You should then gradually increase your daily activity level as long as your symptoms do not worsen.

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## PATIENT INFORMATION

Table 2: Steps for returning to work/school/sport

| Stage   | Exercise mode                       | Example of exercise activity   | Work/School                               | Progression  |
|---|-------------------------------------|--|---|--|
| <b>REST &amp; REHABILITATION</b>                                    |                                     |  |   |  |
| 1   | Rest                                | Complete rest of the brain and body  | No work/school                            | In most cases this only needs to be a few days   |
| 2   | Symptom-limited activity            | Daily activities that do not provoke symptoms  | Light home duties, no work/school         | Gradually increase based on symptoms   |
| <b>RETURNING TO WORK/SCHOOL/SPORT (when symptoms have resolved)</b> |                                     |  |   |  |
| 3   | Light cardiovascular exercise       | Walking, light jogging for 10-15 minutes or stationary cycling at low to moderate intensity<br>No weights training | Short periods of work/school eg from home | If no symptoms, start Stage 4 after minimum of 24 hours.<br>If symptoms occur, rest 24 hours and repeat Stage 3                      |
| 4   | Sport specific exercise             | Individual running drills and skills without contact<br>No weights training  | Reduced hours at work/school eg half days | If no symptoms, start Stage 5 after minimum of 24 hours<br>If symptoms occur, rest 24 hours and repeat Stage 3, then progress        |
| 5   | Sport specific non-contact training | More complex training drills e.g. passing and kicking drills<br>May start progressive (low level) weights training | Return to full-time work/school           | If no symptoms, proceed to Stage 6 after a minimum of 24 hours<br>If symptoms occur, rest 24 hours and repeat Stage 4, then progress |
| 6   | Sports practice                     | Full contact practice (following medical clearance)  |   | Monitor for recurring symptoms   |
| 7   | Return to sport                     | Normal/full game play  |   |  |

### Returning to work/school/sport

Once you are able to complete your usual daily activities **without** concussion-related symptoms, the second step of the return to work/school/sport progression can be started. You should follow a gradual re-introduction of activities in stepwise progression – shown in Table 2 above.

### Key points

- You can only proceed to the next stage if you do not have **symptoms of concussion** at the time of exercise/school/work, later that day and on waking the following day
- The **minimum** time between stages is **24 hours**
- If there is a recurrence of symptoms at any time during the stages you must:
  - Rest for a minimum of 24 hours until all symptoms have settled
  - Return to the previous stage at which you had no symptoms
  - Recommence the progression of the stages
- If you have a recurrence of severe symptoms (e.g. requiring you to miss school or work) or repeatedly during the stages, or if your recurrent symptoms are prolonged (more than 24 hours), you should be reviewed by a medical doctor

- You should **not** return to sport until **all** concussion-related symptoms have resolved and you have successfully returned to full school or work
- ‘Headcheck’ is a free app developed by the Murdoch Children’s Research Institute and the AFL and is a useful resource for concussion in children

### Other advice

- 1) Avoid alcohol
- 2) Avoid medications without medical supervision. Specifically:
  - a) Avoid sleeping tablets
  - b) Avoid aspirin or stronger pain medications such as narcotics
- 3) You may be advised not to drive until cleared by a healthcare professional
- 4) Your return to sport requires clearance by a healthcare professional



### Follow up

For many sports and activities you may wish to consider review with a sports physician before returning to training, matches and/or exertional activities.

If symptoms persist, return to Cabrini ED for further assessment. You may require further investigations and may also be referred to a neurologist (brain specialist) to assess the full extent of the injury and to plan activities to aid recovery. Sometimes referral to an occupational therapist or neuropsychologist is required if thinking difficulties persist.

### Seeking help

**Cabrini Emergency Department (ED)** is staffed by experienced emergency doctors and nurses 24 hours a day, 7 days per week. If you have any questions about your ED treatment our qualified ED staff can be contacted on **(03) 9508 1500** at any time. If you need to return to Cabrini ED for ongoing care we would be glad to take care of you again and if this occurs within a week of your initial consultation the doctor's fee will be bulk-billed.

You can also expect to receive a phone call or SMS message from one of our emergency nurses the day after you have been discharged. The nurse will be able to clarify any aspect of your diagnosis, treatment, or follow-up.

In a medical emergency return to Cabrini ED if it is safe to do so or go to the nearest hospital emergency department or call an ambulance – dial triple zero (000).

#### Seek urgent medical review if the injured person:

- Repeatedly vomits
- 'Blacks out'
- Has a seizure (fit)
- Cannot be woken or is not responsive
- Has a vision disturbance
- Has weakness or numbness
- Has severe or worsening headaches

### Want to know more?

- Contact Cabrini ED on **(03) 9508 1500**
- Ask your local doctor or healthcare professional
- Visit the Better Health Channel at [www.betterhealth.vic.gov.au](http://www.betterhealth.vic.gov.au)