



**CONCUSSION
AUSTRALIA**

A BRIEF GUIDE TO MANAGING YOUR CONCUSSION/S

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What is a concussion?

A concussion is a mild traumatic brain injury that can be functional or structural in nature (or both). When a concussion occurs, neurons inside the brain can stretch and tear. In most cases, symptoms of concussion will resolve naturally, but in some cases, symptoms may persist for long periods. In the event of a concussion, it is crucial to remove risk of further head impact, which is why a concussed player must be removed from the field of play. Repeated concussion before full recovery increases the risk of long-lasting symptoms and in rare cases, individuals may also experience Second Impact Syndrome if a second head injury is sustained shortly after the initial concussion. Second Impact Syndrome is a condition that can cause death due an inability of the brain to protect itself from further trauma.

How long do the symptoms last?

Symptoms of concussion typically resolve within 1-4 weeks, though every concussion is unique, and some people will take longer than others to recover. When a concussion occurs, it is best practice to seek professional advice to assist with recovery. Typically, gentle exercise and activity (within the limits of your symptoms) should start approximately 1-2 days after the concussion. For some people this might be walking to the letter box and back, while others may be able to do more. For those who do not recover quickly, help from a multi-disciplinary team is the best approach. Some people take months or years to recover fully from concussion.

Signs (red = red flag)

- Loss of consciousness (<10% of cases)
- Poor coordination
- **Vomiting**
- Laying motionless
- Disorientation
- Possible **convulsions/ seizure**
- Slurred speech
- **Personality change**
- Dilated pupils
- Poor concentration
- Amnesia (memory issues)
- Vacant stare
- Stumbling

Symptoms

- Headache
- Dizziness
- **Confusion**
- Drowsiness
- More emotional
- 'Don't feel right'
- **'Pressure in the head'**
- Difficulty concentrating
- Difficulty remembering
- Nausea or vomiting
- **Neck pain**
- Fatigue or low energy
- Blurred vision
- Balance problems
- Sensitivity to light
- Sensitivity to noise
- Feeling like 'in a fog'
- Feeling slowed down
- Trouble falling asleep
- Nervous or anxious
- Sadness
- Irritability

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Acute management

Follow the 3R's:

- **Recognise** (recognise the signs and symptoms of concussion); and
- **Remove** (remove the athlete from play and or the workplace etc); and
- **Refer** (refer the athlete to an appropriately qualified medical practitioner, and if not available, a healthcare practitioner who has experience and education in managing concussion).
- Basic first aid principles need to be applied before the 3R's
- If a **red flag** is present, then the person needs to attend hospital.
- In the workplace (or places where there is not necessarily a further risk of head injury) then go directly to Refer.

0-48 hours after concussion

- A qualified medical practitioner should be seen on the day of the concussion
- Relative rest
- Limit screen time
- No alcohol, illegal drugs, or artificial sugar
- Proper nutrition inclusive of complex carbohydrates, a good amount of protein, with lots of fruit and vegetables
- No NSAIDs (Non Steroidal Anti-Inflammatory Drugs/e.g. ibuprofen), but Panadol is typically okay
- Proper sleep
- If symptoms dramatically worsen in the hours or days following then you need to go straight to the emergency department for further assessment.
- Complications of concussion may include subdural haematoma (brain bleed) OR a second impact syndrome, both of which are life-threatening.

Medical management: 48 hours-3 weeks

Every concussion is different, though upon presentation to your doctor they should generally undertake a SCAT6 test. This will show where your current deficiencies are, such as in the memory, balance or visual domains. Best practice concussion management involves a guided return to learn/return to play program, and both of these should typically involve exercise that is based on your heart rate and symptom onset.

The goal with exercise after a concussion is generally to exercise (which increases blood flow to the brain) to the point where your symptoms are not worsening. For some people this might involve walking to and from the letter box for a few days, but for others, they might be symptom free after running 5 km at 180 beats (heart rate) per minute. Every concussion is unique.

Depending on your symptoms, pharmaceuticals may also be prescribed to control things such as headaches. Your doctor may also order an MRI to assess for things such as a slow bleed.

It is important to note that radiological scans are normally clear and we do not typically recommend they be done. While there is no set time frame for referral to other practitioners, if symptoms are proceeding beyond 3-4 weeks, then your doctor should likely refer you to other medical practitioners/allied health providers or to a multi-disciplinary clinic for treatment.

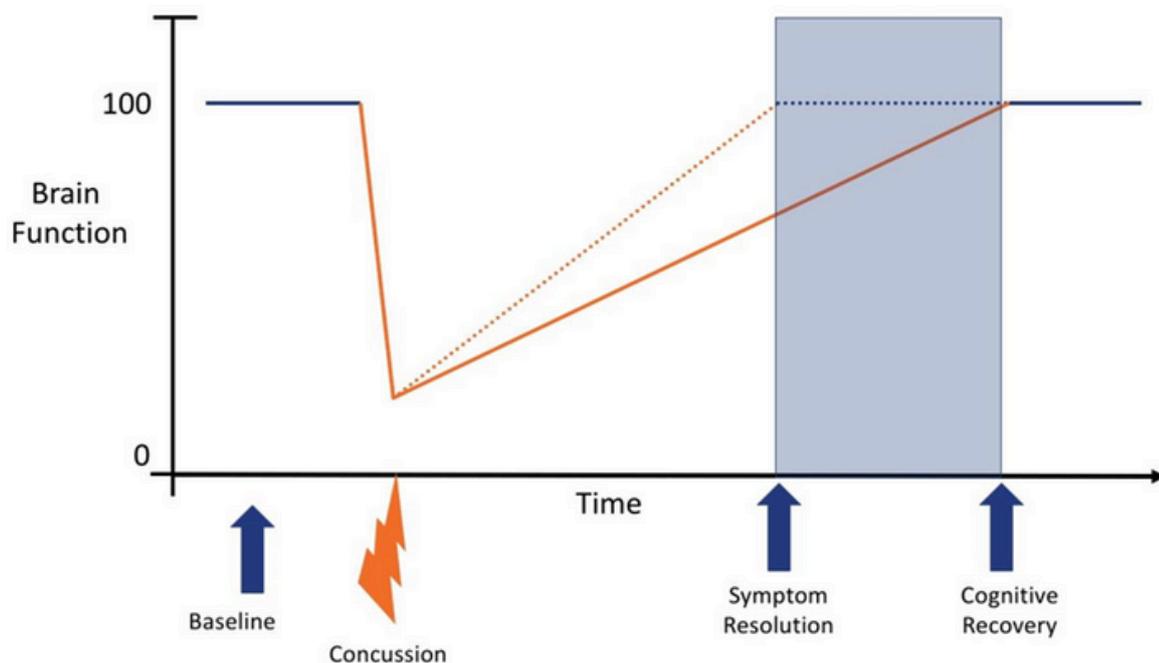
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Persistent Post Concussion Symptom (“PPCS”) (formerly Post Concussion Syndrome)

What is PPCS?

PPCS occurs when symptoms of concussion persist beyond 1 month (4 weeks). Researchers and clinicians do not know precisely why some people suffer from persistent symptoms and others do not. While there are various theories to explain PPCS, it is likely that there are different reasons as to why people recover at different rates. For example, some people may have a history of multiple concussions and may never have fully recovered previous concussions. Other types of PPCS may be linked to the expression of genetics, while others might be as a result of environmental factors. Some of the risk factors for prolonged recovery include:

- More severe initial symptoms may indicate a longer recovery
- The number of concussions and the time between repeat concussions
- Children, adolescents and females tend to have a poorer/slower recovery
- Loss of consciousness often has no bearing on recovery
- Pre-existing mental health conditions such as headaches, anxiety, ADHD and PTSD.
- Rotational injury (e.g. whiplash/head is thrown from side to side)



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Treating PPCS

Treatment for PPCS ideally involves a multi-disciplinary approach. This usually involves care and rehabilitation from a wide variety of practitioners. If you attend a multi-disciplinary concussion clinic you will often receive management from medical practitioners with expertise in concussion as well as (dependent on symptoms):

- Physiotherapy (both for vestibular/visual and neck/jaw treatment)
- Psychological care
- Cognitive rehabilitation
- Neuro-psychology
- Nutritional/dietitian advice
- Pharmaceutical prescription
- Exercise management
- Injection therapies (e.g. occipital nerve blocks)

If you do not have access to a multi-disciplinary clinic, then your treating practitioner can arrange for you to see a variety of professionals to ensure that you are given the best chance of recovering. The type and number of professionals in the team will depend on the type and variety of symptoms in your presentation. It is desirable that the professionals consulting you are trained in concussion management.

The largest body of research suggests that exercise is the best medicine for concussion and exercise will likely be an important part of your rehabilitation. It is important to note that any time during your recovery, your symptoms are not the most reliable measurement of your recovery; a professional assessment is necessary to accurately determine full recovery.

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Concluding bulletpoints

- Concussion is very common and it is unique to the individual.
- Concussion is a complex pathophysiological process affecting the brain.
- Most people with uncomplicated concussion recover in 1-4 weeks.
- Some people have prolonged post-concussion symptoms and develop PPCS (15-30%)
- Management of concussion should occur initially through lifestyle factors e.g. physical activity, nutrition and proper sleep health. Medications and other rehabilitative therapies can follow if conservative measures do not assist.
- Prolonged rest is not recommended and appropriate exercise should typically begin 1-2 days after a concussion. The intensity and duration of exercise should be guided by symptoms. A qualified professional can assist in guiding your exercise with specific measures such as heart-rate.
- We recommend a graduated return to learn and return to play process, to be done with supervision from your medical team.
- We recommend a minimum of 21 days away from contact sport after symptom resolution.
- If you develop persistent symptoms, then please contact us if you need assistance. We can refer you to doctors and allied health practitioners across Australia for treatment and you can also attend our monthly online support groups.

Version 1, November 2024

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What do we offer to help you, your club, or workplace?

Community education for sports clubs, schools and workplaces
(face to face and online workshops/seminars)

Education for solicitors and barristers by solicitors who have a
special interest in concussion (CPD accredited)

Education for doctors by our Medical Advisory Committee
(CPD accredited)

Monthly online support groups

Referrals to doctors and allied health practitioners nationwide

Legal and policy consulting

Media engagement

Advocacy