Management of Concussion.

What is it?

There has been a rapidly growing awareness of the dangers of concussion in sport and the best approach to managing it over the past few years. So exactly what is concussion and what should we do after suffering from a concussion?

Concussion has been defined as a complex physiological process affecting the brain, induced by traumatic biomechanical forces. In simpler terms it is also described as a mild traumatic brain injury (TBI). The most common cause of concussion is by either a direct blow to the head or elsewhere in the body with an "impulsive" force transmitted to the head**.** This typically results in rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, the signs and symptoms may persist longer.

It is estimated that between 10-15% of contact sport athletes in will experience a concussion each season. Over 50% of concussions will likely go unreported to medical staff, likely in an attempt to continue to play that day or into the next game. Concussion is not just experienced through collision sports. People should be aware that both limited contact sports and other activities can also cause concussion such as falls, motor vehicle accident or assault.

Diagnosis

The acute signs and symptoms of concussion are largely seen as a functional disturbance rather than a structural injury. As such there is generally nothing abnormal seen on structural imaging. Therefore, clinical examination is important in diagnosing concussion and may include a neurological and physical examination, as well as testing of the ocular and vestibular systems.

Concussion results in a range of clinical signs and symptoms that can include:

- Headache
- Head tension
- Neck pain
- Nausea/vomiting

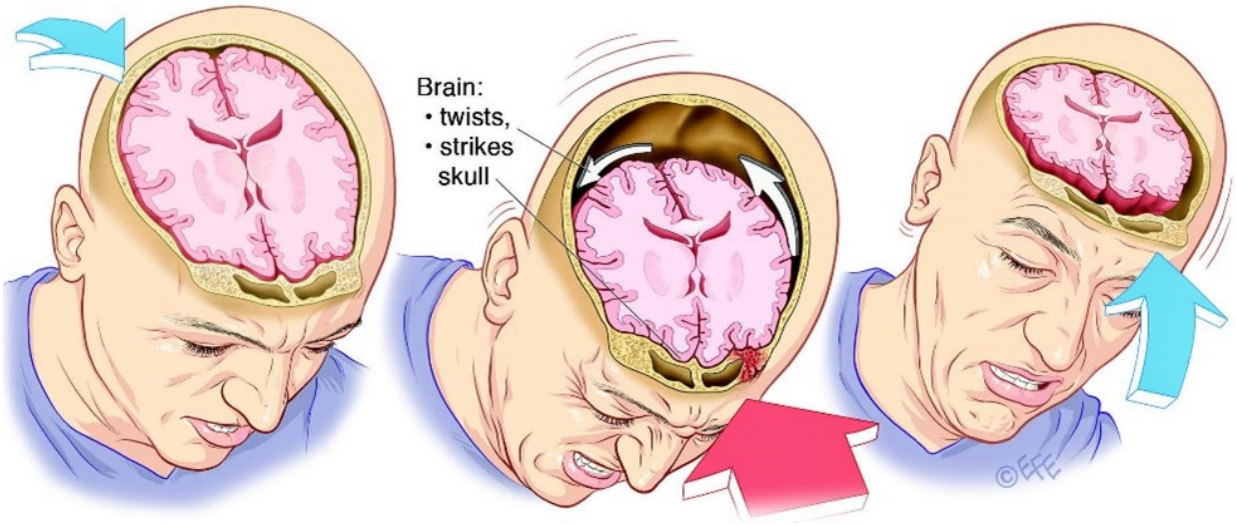
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- Dizziness
- Increased fatigue
- Blurred vision
- Balance problems
- Light/noise sensitivity
- Trouble concentrating or remembering
- Increased feelings of sadness, anxiety, confusion, or irritability

It is important to be aware of any signs and symptoms that can be seen as red flags, which is a signal to take the person affected to the emergency department. Red flags include:

- Seizures
- Decreasing alertness
- Nausea and vomiting
- Weakness in the extremities
- Tingling or numbness
- Changes in vision
- Gross in-coordination
- Loss of fine motor skills
- Difficulty speaking, swallowing
- Severe or worsening headache

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Management

Post-concussion, a brief period of cognitive and physical rest is suitable (24-48 hours). Complete rest is not recommended. Following this, patients are encouraged to gradually get moving again with sub-maximal and sub-symptom exercise.

Physiotherapists and other healthcare professionals have a strong role in concussion management, providing input on a broad range of strategies to optimise recovery, such as:

- Sideline coverage – the emergency response and identification immediately after concussion
- Assessment using SCAT5 or CRT5 (evaluation tools to help identify concussion). SCAT5 must be performed by the licensed health professional whereas the CRT5 can be performed by other supporting staff
- Hands on treatment – neck symptoms and headaches originating from structures in the upper cervical spine are common post-concussion. Physiotherapy can help to improve these symptoms.
- Rehabilitation and guidance – neck strengthening and motor control exercises may be suitable to help improve symptoms and help with prevention of future concussions. Vestibular and oculomotor exercises may also be prescribed depending on what the clinical examination found.
- Pre-emptive management – Pre-participation evaluation may identify high risk athletes, help to establish a baseline for return to sport and school, and provide an additional education opportunity for athletes on what to look out for.

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- It is worth noting that helmets/headgear do not help to prevent concussion, but they may still help to prevent skull fractures.

- Return to school/sport guidance and testing – Return to sport and school should be a graded process that aims to modify activities associated with school and sport to limit symptoms. E.g. Walking and cycling before any contact, or starting part-time back at school

- Referral to multi-disciplinary specialists as required (especially if symptoms are persisting into post-concussion syndrome (PCS)).

Prognosis

The resolution of clinical & cognitive features typically follows a sequential course. Up to 90% of concussion symptoms will settle within 7-10 days. It is estimated that around 30% of concussion sufferers go onto PCS, which is diagnosed when symptoms persist over 2 weeks in adults or 4 weeks in children and adolescents. It is important that people still experiencing these symptoms do not return to sport as Second Impact Syndrome then becomes a risk for further issues down the line. The long-term consequence of concussion still requires further research however.

If you have recently experienced concussion and are still experiencing symptoms, please contact your local health professional today.

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