

**Post-Concussion Syndrome 'PCS'**

**'The Noisy Brain'**

**Concussion:**

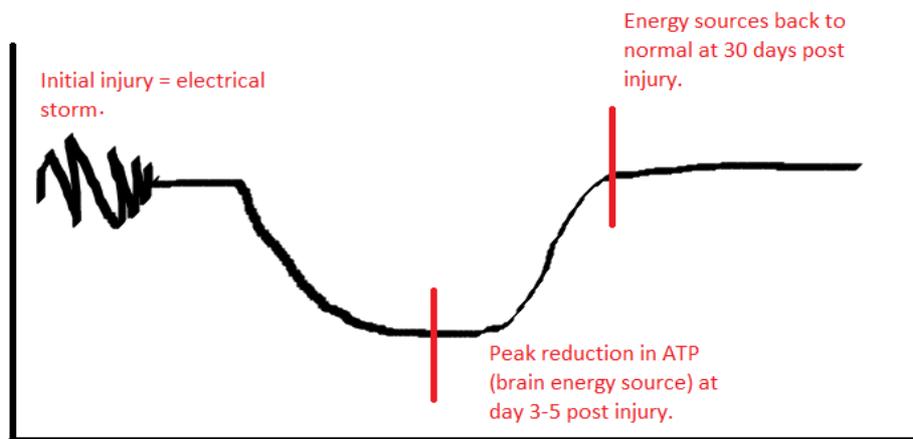
Definitions of concussion clinical –varies

Occurrence of injury to the head resulting from blunt trauma or acceleration / deceleration (1 or more of the following): Observed or self-reported transient confusion, disorientation, or impaired consciousness, Observed or self-reported dysfunction of memory around the time of injury, Observed signs of neurological / neuropsychological dysfunction.

Loss of Consciousness < 30 minutes

Post Traumatic Amnesia < 24 hours

**Take home message:**



**Concussion is the ‘stretching and sheering’ of neurons that causes a temporary ‘electrical storm’ in the brain which depletes ‘energy resources’- nil long-term physical brain damage is experienced.** The electrical storm and depletion of energy/energy mismatch explains symptoms in the initial 30 days post injury.

Symptoms beyond this are caused from factors such as: physiological, psychological, cervical, visual sensitivity and vestibular sensitivity. **Symptoms beyond 30 days are NOT due to brain damage but an issue with CENTRAL PROCESSING of information.**

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### **Concussion Severity:**

Often the severity of the initial symptoms at time of impact do not reflect recovery time. The main factor that excels recovery is accurate education and reassurance regarding concussion and concussion management. You are currently taking the first steps to ensure a full recovery given you have chosen a certified CCMI clinician from Vertigo Physio and Rehab to provide you with this information.

### **Post-Concussion Syndrome Classifications:**

International Classification of Disease-10: Any 3 symptoms of: headache, dizziness, nausea, vomiting, fatigue, irritability, sleep problems, memory problems lingering for more than 4 weeks post injury.

### **Understanding of the body changes related to PCS:**

Current factors suggested in research that may contribute to prolonged symptoms:

1. Physiological: E.G. Possible altered cerebral cortex excitability. Reduced cerebral vascular reactivity and blood flow. Hormone influence. Ongoing inflammatory processes (gut brain link).
2. Cervical
3. Visual/Ocular
4. Vestibular
5. Psychological

### **Main categories of PCS and Research Supported Treatment utilised at VertiGO Physio and Rehab:**

#### **Physiological (post-concussion) disorders:**

- \*Graded return to exercise and daily activities. Buffalo treadmill test recommended.
- \* Diet recommendations- to be discussed with therapist.
- \*Referral to a neurologist if required.

#### **Cervicogenic (post-concussion) disorders:**

- \*Somatosensory retraining of the cervical spine.

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\*Strength retraining of the neck.

\*Pain relieving techniques.

### **Vestibular-ocular (post-concussion) disorders:**

\*Vestibular rehabilitation and visual sensitivity retraining.

\*Ocular movement retraining- especially convergence.

\*Balance integration.

\*Referral to a neuro-ophthalmologist if required.

### **Psychological:**

\*Mindfulness techniques

\*Relaxation techniques

\*Yoga

\* Referral to psychologist for cognitive behavioural therapy if required.

### **The role of your Physio in PCS:**

- **Identify the category of PCS you are currently in.**
- **Assess using globally utilised PCS specific assessments.**
- **Treat as indicated for the type of PCS category you have.**
- **Continue to reassess the PCS specific assessments throughout treatment.**
- **Education around PCS and graded return to exercise and daily activities.**
- **Case co-ordinator where relevant.**

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