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Sports and Exercise Medicine**ORTHOSPORTS****PATIENT HANDOUT | HEAD INJURY IN SCHOOL RUGBY**

Head injury in sport has progressed enormously in its understanding, particularly over the last few years. Initially road trauma and boxing and finally American football attracted the majority of attention to head injuries. The long held view was that if there was no loss of consciousness (LOC) then the injury was not severe. We know now that this is not so. Medical professionals were sometimes puzzled as to why an athlete could remain unwell even though his "scans" were normal.

The term concussion has a broad definition. In the 1960's the American College of Neurosurgeons offered a definition which included symptoms and wording such as temporary unsteadiness, dizziness and giddiness. These are symptoms which many experienced both playing and training for rugby. Concussion is the only injury which has a higher rate in schoolboys compared to professional rugby (20% v 6% of total injuries).

We know that the brain is protected in the vault of the skull and it is bathed in a chemically rich fluid (CSF). We know that sudden trauma will jolt the brain within the skull. Some authors compare a violent head injury to throwing a pile of jelly against a brick wall. Despite this, the key to the degree of damage appears to be the position of the head.

Human and animal studies have shown that rotational forces (such as a blow to the chin) cause more severe damage than front-on blows. In addition, blows to the temporo-parietal region (above the temple), are more likely to cause concussion. Poor tackling technique is now implicated following studies where video-analysis of concussion injury was used (but obviously some of these may be accidental).

With a better understanding of injury through Neuro-Psychometric Testing (NPT) the pathophysiology (injury and mechanism) of head injury and possible long term problems are better appreciated. NPT is a series of tests to assess cognitive function. This includes speed of thinking, assimilation of information, memory recall and concentration under pressure. Computerised testing is more common with elite teams. A common simple 'pen and paper' test is the Digital Symbol Substitution Test (DSST) and is also very effective. Pre-seasonal "normal" values provide a baseline measurement.

Three final points to help you take any future head injuries seriously:

- If you have these symptoms tell your parents and your coach and seek medical treatment immediately.
- If you are regularly getting dazed when you are the tackler then seek to have this addressed. A video of those episodes may be helpful. Nobody is beyond improving their technique.
- Headgear has not been shown to protect against concussion but new research being conducted with the IRB (International Rugby Board) may show otherwise. This research is in progress and we hope to bring you the results soon.

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