Comparing AFL Injury Surveillance to other Codes

Injury surveillance is becoming more consistently recognised as a fundamental responsibility of sports governing bodies around the world[1–5]. This is especially the case with elite football competitions, for which injury rates are typically higher than other sporting codes (Table 1).

It is still difficult to compare the injury rates in different codes and competitions, because of differences in injury definitions and the nature of competitions. The injury definition used in the AFL works for our competition because it means that we can aim to achieve and deliver 100% compliance with the definition. Other football codes – such as soccer and rugby union[2–3] – have elected to use a much broader definition inclusive of more minor injuries. This certainly has some benefits but leads to difficulty with ensuring compliance[6].

Even if all other competitions used a similar definition to the AFL, it may still be difficult to compare relative injury rates. For example, in the European soccer competitions it is commonplace for teams to play two matches per week and for players to be rested from the second match with minor conditions. In the AFL, with one match per team per week there is less likelihood of this occurring.

It is also common for other injury surveillance reports to separate match and training injuries and to express the incidence of these in number of injuries per 1000 player hours. Because of the relatively high number of "overuse" injuries in Australian Football that are difficult to characterise as solely being a "match" or a "training" injury, we prefer to express injury incidence as number of injuries per club per season. We also find that this unit of measurement is easier to comprehend when reading the reports; a lay person can understand that a club will experience 6 hamstring injuries per season, on average, but reading that the rate is 8 injuries per 1000 player hours does not give the same sense of how common these injuries are.

Despite the comparative difficulties, some general trends and differences between sports can be noted and can assist the AFL in assessing whether the way our sport is played leads to an acceptable rate of certain injuries (Table 2). In the past the AFL has acted when it has felt that the rate of certain injuries was unacceptable. One example is the centre circle rule which has successfully led to a reduction in PCL injuries in ruckmen. Another example is the reduced tolerance of head-high contact, stricter policing of dangerous tackles, and the introduction of rules to penalise a player who makes forceful contact to another player with his head over the ball.

Those football codes which have the highest number of tackles occurring and allow the most leniencies within the rules with respect to tackling have the highest rates of contact mechanism injuries. On the other hand, a greater number of tackles will generally result in a more limited range of free running, and hence running-related non-contact injuries will tend to be more common in the football codes with less tackling.

Table 1 – Injury surveillance in major football competitions in Australia and around the World

Competition/body	Publications	Notes on published injury data
Australian Football League (AFL)	Annual public release since 1996 plus multiple research journal articles[4, 7–14].	Injury profile generally of a non-contact nature. Documented 100% compliance with injury definition over the past 12 seasons[6].
National Rugby League (NRL)	Internal reports published15. No external papers arising yet but related rugby league publications[16–21].	High number of injuries involving contact and tackles[15]. Annual injury prevalence at one club averaged 15%20 although statistics for the NRL as a whole are not published.
Australian Rugby Union (ARU)	No annual public release but papers arising published[22–24].	Wallaby injuries increased in the professional era to 74 per 1000 player hours[24].
Football Federation of Australia (FFA)	Injury surveillance studies commencing but no reports published yet[25].	No publications.
National Football League (NFL, USA)	No annual public release but multiple arising research publications over many years[26–31].	High rate of contact mechanism injuries including to upper body.
English Premier League (EPL, England)	Some previous journal publications[32–34].	Average 1.3 injuries per player per season with 24 days missed per injury, 78% of injuries causing a missed game[32]. Primarily non-contact profile.
National College Athletic Association (NCAA)	Annual reports released at www.ncaa.org/iss with multiple publications in sports medicine literature[35–37].	36 injuries per 1000 player games in men's gridiron[35], 19 injuries per 1000 player games in men's soccer[37].
Super League (Rugby League, England)	Multiple sports medicine journal publications[38–41].	Rates of injuries increased when the competition moved from winter to summer[38, 41].
UEFA	Annual reports to team and journal publications[1, 42–44].	High rate of lower limb injuries – low rate of upper body injuries. Average injury prevalence for Champions League clubs in 2007/08 was 13–15%[42].
Gaelic Football	No official surveillance but some published studies[45–46].	1.7 injuries per player per season reported[46].

Certainly compared to American Football, Rugby League and Rugby Union, Australian Football has fewer contact mechanism injuries but more non-contact injuries. The injury profile of the AFL is most similar to Soccer and Gaelic Football.

Compared to other football codes, Australian Football is played on a larger field. Although there is officially 80 minutes of playing time in an AFL match, there is a greater amount of time added for stoppages than in other codes, so that the average time played in an AFL match is greater than 100 minutes. This combination of a large field and extended playing duration means that Australian Football players on average generally run further distances than athletes in other codes. The aerobic demands for AFL players are possibly higher than any other football code. This possibly explains the relatively high rate of non-contact injury in Australian Football.

Despite the high physical in-game demands for an AFL player, AFL players have the advantage of a lighter playing schedule in comparison to Soccer, Rugby League and Rugby Union players. Soccer players in Europe often must play twice per week within a season that is also long in duration. Rugby League players are often required to play with less than a 6 day break between games whereas Rugby Union players have a very short off-season, with northern hemisphere tours sometimes running until November and the Super 14 season starting in February.

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Table 2 – Difference in game parameters between professional football codes

Sport	Duration of game	Size and nature of playing field	Amount of tackling	Spacing of games	Off-season length for professional players
Australian Football	Relatively long	Very large	Moderate – tacking to head, neck and legs not allowed	One week (at least 6 days) apart	Relatively long
Rugby League	Medium	Medium	Very high	Generally one week apart but sometimes shorter durations between matches, especially for representative players	Medium duration (e.g. four months)
Rugby Union	Medium	Medium	Relatively high	Generally one week apart	Very short for national level players
American Football	Very short (minimal playing time with many stoppages)	Relatively small (narrow, often artificial surfaces)	Extremely high, including players without the ball (blocking)	Generally one week apart	Very long (6 months)
Soccer	Fairly long	Medium	Low (although leg to leg tackling allowed)	Teams often play two matches per week	Very short for national level players
Gaelic Football	Relatively short	Relatively large	Relatively low	Generally one week apart	Relatively long

A paper comparing sports injury prevention in Australia and New Zealand will be presented on Thursday 15th October at **be active '09**

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Most practitioners believe that they have a good understanding of plantar heel pain, however new research has begun to challenge what we know about this condition. For example, recent research has brought back into the spotlight the humble heel spur. For many years now we have been taught that heel spurs don't cause the pain, and as a consequence they have largely been ignored as a component of the pathology. However, Kumai and Benjamin in 2002 (J Rheumatol) re-ignited the role of the heel spur in plantar heel pain with their vertical compression hypothesis. Last year Menz and colleagues' research (J Foot Ankle Research) supported Kumai and Benjamin's hypothesis; that is that plantar calcaneal spurs are an adaptive response to vertical compression, rather than due to traction. Although spurs do not contribute to all plantar heel pain, they may have a greater role in causing symptoms than currently thought.

In addition, the diagnosis of plantar heel pain is still quite a mystery. While most believe they can diagnose the condition clinically, the question needs to be asked, "what exactly are clinicians diagnosing?" Is it just pathology of the plantar fascia, or are there wider pathologies present that could be contributing to the symptoms. Diagnostic imaging has, for example, demonstrates that often there is sub-periosteal pathology in the calcaneus. Further, it is clear now that when present, heel spurs are often not associated with the plantar fascia, but are often deep to the fascia. These insights into this condition question what we understand causes plantar heel pain.

Finally, there are an ever increasing number of randomised trials that are assisting clinicians guide their treatment of plantar heel pain. Many of the common interventions used to treat this condition have little evidence to support them, or there is evidence to suggest that they are not as effective as originally thought. In his presentation, Karl will discuss some of these important findings to update practitioners on the aetiology, diagnosis and treatment of this common condition.