

Football Australasia: controversies in 2003

Hugh G Seward, John W Orchard and Andrew D Jowett

DURING AUSTRALIAN FOOTBALL LEAGUE (AFL) grand final week in 2003, a three-day Football Australasia conference was held in Melbourne on 23–25 September, immediately after the annual conference of the Australasian College of Sports Physicians. The Football Australasia conference was attended by over 300 delegates, including doctors (sports physicians, general practitioners, orthopaedic surgeons and rheumatologists), other experts (such as physiotherapists, podiatrists and conditioning coaches), and representatives from Australian football, rugby union, rugby league and soccer. One of the achievements of the conference was the sharing of information across the football codes. Each topic (which focused on a body area, such as “shoulder injuries”, or a general issue, such as “career ending injuries”) established a list of controversial practical and research issues to be examined in over 100 presentations or posters and assorted panel discussions.

Knee injuries

The recent developments in autologous chondrocyte implantation for knee chondral defects¹ were outlined by Ian Henderson (orthopaedic surgeon, Melbourne), who concluded that most professional footballers would find the 12 to 18 months currently required for satisfactory rehabilitation too lengthy. Merv Cross (orthopaedic surgeon, Sydney) spoke on the dilemma of meniscal tear repair for the professional footballer who must weigh up the short-term gains from early return to football after resection against the long-term benefits of retaining the meniscus, but taking a longer time to return to match play. Although current research supported the use of glucosamine after the development of joint degeneration,² its role in prophylaxis against joint degeneration remains uncertain. Despite this, anecdotal evidence suggests that many professional footballers use glucosamine for this purpose (Geoff McColl, rheumatologist, Melbourne, personal communication).

The prevention of anterior cruciate ligament (ACL) injury in footballers brought together experts in biomechanics, agronomy and epidemiology. Previous studies have implicated ground conditions as a potential cause of ACL injuries,^{3–5} and recent research conducted by Ian Chivers and David Aldous (turfgrass experts, Institute of Land and

Food Resources, University of Melbourne) suggests that grass type and thatch depth, rather than ground hardness, is more closely linked with the incidence of ACL injury in AFL players. Julie Steele (biomechanist, Biomechanics Research Laboratory, University of Wollongong) reported on using supervised repetitive jump landing training to increase knee flexion angle and therefore reduce the risk of ACL injury from knee hyperextension.⁶ David Lloyd (biomechanist, School of Human Movement and Exercise Science, University of Western Australia) presented an update of ongoing research on balance training with single-leg stance on a wobble board (compared with traditional weight training), and indicated that balance training subsequently reduced stress on the ACL during side-stepping techniques.⁷

Vigorous debate raged over the choice of patellar versus hamstring tendon for surgical reconstruction of the ACL. The consensus was that previous injury to these structures and surgeon's preference were the main determinants. Julian Feller (orthopaedic surgeon, Melbourne) outlined the results of a recent randomised controlled trial which supported the notion that patellar tendon grafts lead to higher morbidity, but greater stability, than hamstring grafts,⁸ a finding consistent with other studies.^{9,10}

Shoulder injuries

For a first-time glenohumeral subluxation or dislocation episode, Martin Raftery (Medical Coordinator, Australian Wallabies) broached the controversial subject of whether to manage this condition surgically or conservatively, favouring a trial of conservative management until the end of the season provides an opportunity to consider surgery.¹¹ Brett Robinson (General Manager, Australian Rugby Union High Performance Unit, Sydney) disclosed that repetitive micro-traumas to the glenohumeral joint in rugby lineouts, scrums, rucks and mauls (both in games and training) led to progressive instability, subluxation, possible internal impingement and, finally, rotator cuff tears. According to Daniel Biggs (orthopaedic surgeon, Sydney), the results of arthroscopic stabilisation of the shoulder were potentially similar to open shoulder stabilisation,¹² except if there was significant bony abnormality, when an open procedure is preferred.

Concussion

Michael Makdissi (Medical Officer to the AFL–Australian Institute of Sport U18 team) presented evidence that most AFL players who have concussion return to competition without missing a game, with no detrimental effects in performance, no increased risk of injury and no persistent defects in neuropsychological functioning. Testing after concussion increasingly involves a computer program that

AFL Medical Officers Association, Melbourne, VIC.

Hugh G Seward, MB BS, FACSP, President.

South Sydney Sports Medicine, Sydney, NSW.

John W Orchard, MB BS, PhD, FACSP, Conjoint Senior Lecturer, University of New South Wales and Senior Fellow, University of Melbourne.

Olympic Park Sports Medicine Centre, Melbourne, VIC.

Andrew D Jowett, MB BS, FACSP, Team Physician, Collingwood Football Club.

Reprints will not be available from the authors. Correspondence: Dr John W Orchard, South Sydney Sports Medicine, 111 Anzac Parade, Kensington, Sydney, NSW 2033. johnorchard@msn.com.au

tests cognitive performance,¹³ which, in conjunction with clinical assessment, can be used as a guide to determining the safety of returning to sport.

Hamstring and groin injuries

John Orchard (Team Physician, Sydney Roosters) identified the mechanisms of hamstring injury in football as overstriding when sprinting, bending to pick up the ball while running, or attempting to break out of a tackle.¹⁴ The risk of recurrence is high, and persists for 3 months after return to play, because players often return with subtle strength deficits, biomechanical compensations, or both.¹⁵ Geoff Verrall (sports physician, Adelaide) presented research identifying the role of magnetic resonance imaging (MRI) in predicting safe return to play (without recurrence) from hamstring strains by measuring the size of the lesion,¹⁶ whereas Uwe Prosko (physiologist, Melbourne) explained that hamstring length could be moderated with eccentric exercise as a preventive measure against strains.¹⁷ Sallie Cowan (physiotherapist, School of Physiotherapy, University of Melbourne) reported research that identified delayed onset of transversus abdominis contraction in individuals with chronic groin pain. She hypothesised that this change in coordination of abdominal activity may leave the pubic symphysis unprotected from reactive forces, resulting in osteitis pubis. Geoff Verrall described a correlation between increased MRI signal intensity in the parasympyseal bones and pain and tenderness in this area among athletes.

Ankle sprains

There was debate over the role of preventive ankle taping (strapping to reduce the risk of inversion sprain) in footballers. It was concluded that players who benefit most from taping are those with a past history of ankle sprains. Gordon Waddington (physiotherapist, School of Physiotherapy, University of Sydney) discussed football boots and injury prevention, including improving joint position discrimination by enhancing sensory stimulation to the plantar sole through insole design,¹⁸ and elite soccer players choosing to play in smaller-size boots to enhance proprioceptive feedback, ensuring better control of foot and ankle position, which perhaps enhances function and reduces injury. Andrew Jowett (Team Physician, Collingwood Football Club) suggested the characteristics of studs used on football boots may have an impact on the risk of ankle sprain in a similar way to their role in some knee injuries.³⁻⁵

Related issues

That retired AFL players have a fourfold increase in risk of hip replacement and a twofold increase in risk of knee replacement compared with the normal population was confirmed by a survey reported by Matthew Hopkinson (physiotherapist, Melbourne).¹⁹ John Orchard reported that a 10-year survey of AFL doctors indicated that injury was a factor in 29% of players who are delisted from their clubs, with the proportion highly correlated with increasing player age. Hugh Hazard (Chief Medical Officer, National Rugby

League [NRL]) spoke on the research that will contribute a basis for the NRL's heat policy through predicting the meteorological factors (such as ambient temperature and humidity) that contribute to players' heat stress (as measured by weight loss and core temperature increase).

The conference clearly showed that football has become a fruitful area of research into prevention and management of sports injury and athletes' performance. The AFL established a Research Board in 1999 to fund research into many aspects of football, and sports medicine has been a beneficiary of this support. The Australian Rugby Union is following suit, and it is hoped that the profile of broad research initiatives at the conference will prompt the NRL and the new Australian Soccer authorities to take similar initiatives. The attitude taken by the professional football bodies is praiseworthy, especially as research efforts are directed not only at the elite level, but also at more amateur levels.

Competing interests

None identified.

References

1. Henderson I, Tuy B, Connell D, et al. Prospective clinical study of autologous chondrocyte implantation and correlation with MRI at three and 12 months. *J Bone Joint Surg Br* 2003; B85: 1060-1066.
2. McColl G. Pharmacological therapies for treatment of osteoarthritis. *Med J Aust* 2001; 175: S108-S111.
3. Orchard J, Seward H, McGivern J, Hood S. Rainfall, evaporation and the risk of non-contact anterior cruciate ligament knee injuries in the Australian Football League. *Med J Aust* 1999; 170: 304-306.
4. Orchard J, Seward H, McGivern J, Hood S. Intrinsic and extrinsic risk factors for anterior cruciate ligament injury in Australian footballers. *Am J Sports Med* 2001; 29: 196-200.
5. Orchard J. The AFL Penetrometer study: work in progress. *J Sci Med Sport* 2001; 4: 220-232.
6. Cowling E, Steele J, McNair P. Effect of verbal instructions on muscle activity and risk of injury to the anterior cruciate ligament during landing. *Br J Sports Med* 2003; 37: 126-130.
7. Besier T, Lloyd D, Ackland T. Muscle activation strategies at the knee during running and cutting maneuvers. *Med Sci Sports Exerc* 2003; 35: 119-127.
8. Feller J, Webster K. A randomized comparison of patellar tendon and hamstring tendon anterior cruciate ligament reconstruction. *Am J Sports Med* 2003; 31: 564-573.
9. Anderson AF, Snyder RB, Lipscomb AB. Anterior cruciate ligament reconstruction. A prospective randomized study of three surgical methods. *Am J Sports Med* 2001; 29: 272-279.
10. Bartlett RJ, Clatworthy MG, Nguyen TNV. Graft selection in reconstruction of the anterior cruciate ligament. *J Bone Joint Surg Br* 2001; 83-B: 625-634.
11. Eriksson E. Should first-time traumatic shoulder dislocations undergo an acute stabilization procedure? *Knee Surg Sports Traumatol Arthrosc* 2003; 11: 61-62.
12. Stein D. Arthroscopic stabilization of anterior shoulder instability: a review of the literature. *Arthroscopy* 2002; 18: 912-924.
13. Makdissi M, Collie A, Maruff P, et al. Computerised cognitive assessment of concussed Australian Rules footballers. *Br J Sports Med* 2001; 35: 354-360.
14. Orchard J. Biomechanics of muscle strain injury. *N Z J Sports Med* 2002; 30: 92-98.
15. Orchard J, Best T. The management of muscle strain injuries: an early return versus the risk of recurrence [editorial]. *Clin J Sport Med* 2002; 12: 3-5.
16. Slavotinek J, Verrall G, Fon G. Hamstring injury in athletes: using MR imaging measurements to compare extent of muscle injury with amount of time lost from competition. *Am J Roentgenol* 2002; 179: 1621-1628.
17. Brockett C, Morgan D, Prosko U. Human hamstrings adapt to eccentric exercise by changing optimum length. *Med Sci Sports Exerc* 2001; 33: 783-790.
18. Waddington G, Adams R. Football boot insoles and sensitivity to extent of ankle inversion movement. *Br J Sports Med* 2003; 37: 170-174.
19. Deacon A, Bennell K, Kiss Z, et al. Osteoarthritis of the knee in retired, elite Australian Rules footballers. *Med J Aust* 1997; 166: 187-190.

(Received 10 Nov 2003, accepted 9 Feb 2004)

