

# sport health

VOLUME 29 • ISSUE 1 • AUTUMN 2011

## Sports injury

# PREVENTION

Improving the outcomes

## Social media

The new frontier

## Walk this way

An interview with Mark Fenton

- **The secrets to your business success**
- **NRL injury report 2010**
- **Stumbling on... low injury rates**
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## The whole is greater than the sum of the parts



SMA National President, Tim Pain is pictured at last year's National Conference, ACSMS 2010 in Port Douglas.

Conference registration for this year's conference, ACSMS 2011 is now open. Find a conference registration form on page 33 or for more information visit [sma.org.au/conference/](http://sma.org.au/conference/)

### **SMA National President, Tim Pain discusses the proposed changes to the governance and administration structures of SMA.**

'The whole is greater than the sum of the parts' is a saying often cited. In simplistic terms it recognises the value of synergy by two or more organisations in achieving outcomes more efficiently or effectively than would otherwise have been achieved independently.

As a multidisciplinary organisation SMA has been the epitome of this in a clinical sense through its fostering of collaboration by a wide range of practitioners from a diverse range of fields. This collaboration, which many practitioners would well be familiar with, has resulted in increased and improved safe

participation and performance of participants, through a range of services including injury prevention and injury management. SMA's current membership includes practitioners from a wide range of disciplines and professions which has enriched the landscape of sports medicine practice.

The SMA National Board believes that, just as our pursuit of excellence in the area of scientific research has seen Australia become a leader of exercise and sports medicine, that we must also pursue excellence in every facet of our activity. The time has come to make improvements to our governance and operational structures if we are to fulfil our vision to enhance the health of all Australians through facilitating their safe participation in sport and physical activity.

As an organisation SMA has for much of its 48 year history operated as a federated structure. This essentially means that nine different entities (eight State SMA Branches and the SMA National Body) are constituted independently of each other, whilst working toward a similar vision in a collaborative way. As is evident from the historical accounts of the organisation, this has occurred with varying levels of collaboration. However, in general terms, most members with long memories of their SMA involvement would agree that the collaboration across the branches has generally been positive in the context of organisations of this type and structure.

Examples of this collaboration include membership and membership services, such as professional education, which are shared by States and National, and the Safer Sport Program (sports trainer courses) which is delivered throughout the country. Many of the resource developments and a number of administrative requirements such as insurances, websites and a national database and member portal are also shared across Australia.

This federated structure has served us well through our first 48 years of existence, but as we grow and mature as an organisation, and the operational limitations of large distances significantly reduce in a modern environment, the time has come for SMA to adopt a more modern structure that provides us with the best opportunity to achieve all that we can.

At the 2010 SMA AGM at Port Douglas, I outlined the intention of the National Board to pursue the formal unification of the nine bodies that make up the Federation, over the coming years. As outlined at the time, this is not a concept that is necessarily new and is not something that can occur without broad and thorough consultation with the members of SMA, including the State Branches.

**“The National Board has developed a vision to join each of the separately constituted structures that make up the Australian Sports Medicine Federation (SMA) into one organisation with a central administration and governance structure.”**

After extensive consideration of the operational and governance structures, this is anticipated to provide a stronger level of synergy and collaboration between the State and National components of the organisation. The National Board has developed a vision to join each of the separately constituted structures that make up the Australian Sports Medicine Federation (SMA) into one organisation with a central administration and governance structure.

As with any proposed change it is important that all stakeholders have an opportunity to provide input and contribute to the final solution. This article is designed to flag to all SMA members the impending discussion that is to take place and to highlight the importance of ensuring that all SMA members recognise that they have a stake in their organisation’s future structure.

However it would be remiss to not outline the key rationale for putting such an idea forward. In essence the proposal is based around simplifying the governance and administration structures of the organisation. The aim is to ultimately improve the member and community services that we provide, in part by refocusing the time and effort spent in servicing the many governance and administration requirements of SMA, and redirecting these resources toward delivering improved services to our members and the community.

Needless to say this is not as simple as it seems and as highlighted it does come with the challenges of continuing to ensure SMA engages with members at both National, State and Regional levels and to foster local differences which have evolved under the current federated system.

Over the coming months, closer consultation will occur with SMA’s key stakeholders in a variety of settings. In some sense this article is the first step in informing the wider SMA membership of the discussion that is taking place and that ultimately members will be asked to make a judgement on this future direction. Members will have the opportunity to engage with the process, largely through their State Boards, however individual thoughts and comments will also be welcomed.

As SMA approaches its 50th anniversary I see the impending OneSMA discussion as a reflection of the maturity of the organisation to seek to evolve and progress and to pursue a vision for the betterment of itself and the industry it operates in.

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Being physically active in childhood may protect against adult depression <http://bit.ly/lma62l> #SMANews

May 3, 2011

Congrats to Stawell Gift winner Mitchell Williams. To prevent and manage a hamstring injury SMA can help <http://bit.ly/dQTAwb> #SMAresources

April 27, 2011

Too many parents think injuries are ‘part of the game’ <http://on-msn.com/ibKUKR>. Kids can get active safely with SMA <http://bit.ly/hmFQO4>

April 19, 2011

Great professional development coming up in May. Pain relief, thoracic spine, imaging, asthma first aid. <http://bit.ly/dLL96i> #SMAevents

April 18, 2011

Short bursts of exercise just as good at helping prevent heart disease as longer endurance sessions <http://yhoo.it/fEo9xN> #SMAresearch

April 7, 2011

### **Sport Health Summer 2010/2011 error**

In the article “The changing world of service delivery” (p.27) John Bartlett, an orthopaedic surgeon was wrongly referred to as an osteopath. We apologise for the error.

### **Sport Health Summer 2010/2011 apology**

The Dr J article which appeared in the Summer 2010/2011 issue of *Sport Health* was not the article intended for publication. Sports Medicine Australia wishes to apologise to the Australasian College of Sports Physicians for the error and wishes to confirm that the intended article was to carry the following disclaimer:

Dr J is a sports physician who does not hold an official position on the ACSP (Australasian College of Sports Physicians) executive. This article contains Dr J’s personal opinions which are not endorsed by the ACSP.

## 5 mins with... Narelle Eather

2010 SMA Research Foundation Grant winner and SMA ACT Board Member



### What is your profession?

I am a lecturer in physical education at the University of Newcastle. I have the pleasure of working with an expanding team of some very talented researchers and educators who divide their time between teaching in the School of Education and in research, in partnership with the members of the newly formed Priority Research Centre (Physical Activity and Nutrition) at the University.

### How many years have you been in this profession?

I have been employed at the University on a full-time basis for the past four years. For the 10 years prior, I worked as a secondary health and physical education teacher in Western Sydney, and as a part-time lecturer at the University of Newcastle.

### What does your typical day consist of?

Presently, I lecture full-time and study part-time doing my PhD. I have predominantly practical tutorials in the area of physical education for primary education students and spend three to four full days lecturing. I am also in the middle of conducting a pilot study for my Fit-4-Fun project in several local primary schools (involving over 200 students) and organise my school projects around my lecturing responsibilities. Of course, I do spend a great deal of my weekends doing research but always make sure that I prioritise my family (husband and two beautiful girls) and find time for my sport. I train everyday either playing team sports (soccer, touch or netball) or fitness training (running, cycling or doing weights).

### What is your favourite aspect of your job?

I love my job, especially teaching practical physical education. I believe that I have a lot of experience, passion and energy for teaching in this area and can think of no better career than to share my knowledge with our future teachers. I also enjoy working with the staff at the University of Newcastle. My colleagues are fantastic people and I am thankful that I am able to learn from them all.

### What has been the highlight of your career?

The highlight of my career was winning the SMA research grant – my first grant. I believe that my research project that focuses on the physical fitness levels of children (Fit-4-Fun) is a really important project in improving the health of children in the short and long-term – and it was fantastic to have SMA support my work.

### When, why and how did you become involved with SMA?

When I enrolled to do my PhD in 2008, my supervisors Assistant Professor Phil Morgan and Dr David Lubans encouraged me to join SMA and to attend the annual conferences. I presented a poster at the Brisbane Conference in 2009 and thoroughly enjoyed the experience.

### How has your research flourished from winning the 2010 SMA Research Foundation Grant?

I am currently conducting a Pilot study of the Fit-4-Fun program in several primary schools in the Hunter region. This year is an important year for assessing the feasibility of the study for improving the physical fitness levels of children and I hope that a successful trial of the program will lead to a larger implementation in the future.

### What are you passionate about?

I am passionate about sport, physical activity and physical fitness for people of all ages. I would love to see everyone participating in physical activities and sports that they enjoy and to experience all the benefits that come with being fit.

### What's the best piece of advice anyone has ever given you?

My parents are firm believers of hard work and as a child it was not uncommon to hear them say, "You get what you work for," "Never give up – ever" or "There is no point doing it if you don't do it properly". I believe that their encouragement in all areas of my life has moulded the attitudes I hold today.

### Name four people, living or not, you would invite for a dinner party and why?

I would invite my immediate family as they are the people I would prefer to spend my free time with.

### Favourites

**Travel destination:** Anywhere that is hot and has a beach.

**Sport to play:** Netball, soccer, touch.

**Cuisine:** I love sweet food and would always say yes to pancakes and a caramel thick shake.

**Movie:** Top Gun.

**Song:** Eye of the Tiger by Survivor.

**Book:** Goodnight Mister Tom by Michelle Magorian.

**Gadget:** I am not good with gadgets!

## SMA Research Foundation Grants 2011: applications opening soon

SMA Research Foundation Grants, up to the value of \$2,000, are designed to support research conducted by postgraduate students and postgraduate practitioners for the purpose of advancing research in sports medicine and its relationship with disease prevention. Grants are administered by the Sports Medicine Australia Research Foundation Board. A finite number of grants will be issued in a regular allocation period.

### Eligibility

Applicants for SMA Research Grants must be a professional or student member of Sports Medicine Australia. Preference will be given to new and emerging researchers\* conducting research related to the SMA discipline fields (i.e. Sports Dietitian, Sports Doctor, Sports Physician, Sports Physiotherapist, Sports Podiatrist, Sports Psychologist, Sports Scientist).

\* New and emerging researchers are defined as less than 40 years of age and no more than three years post-doctoral at the time of submitting their application.

### Selection criteria

Applications will be judged on:

- The relevance of their research to sports medicine, and disease prevention.
- Benefits gained from the research to the individual, the profession, and Sports Medicine Australia.
- Value for money.

### How to apply

Email [smanat@sma.org.au](mailto:smanat@sma.org.au) to join the grant's mailing list and be informed of all website updates and receive a 'Sports Medicine Australia Research Foundation Application for Research Grant' form.

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*Trish Wisbey-Roth, SMA Member  
Olympic and Specialist Physiotherapist, Bounce Back*

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## Stumbling on... low injury rates



**Dr J explores the genre of sports econometrics, player wages and predicting winning outcomes.**

There is a new type of sports book I find fascinating. The genre doesn't even have a universal name. It started as Sabermetrics ('the analysis of baseball through objective evidence', derived from the acronym 'Society for American Baseball Research') however perhaps the best current generic name is 'sports econometrics'.

The book I have just read is *Stumbling on Wins* by Berri & Schmidt. Next will be *Pay As You Play* by Tomkins. I always read Michael Lewis' articles on sport (e.g. Google "The No-Stats All-Star") and follow the *Fink Tank* articles on the EPL in *The Times*. These are all sports econometric writings.

**"...you can't predict the future performance of football players based on their past performance all that well..."**

These publications began with baseball, in the late 1970s, with fan and statistician Bill James. One of his attributed quotes is 'the only thing a player over 30 can do to surprise you [performance-wise], is get older in a hurry'. For the most part, James has regularly observed, baseball players don't surprise you much and perform as expected. However, teams don't necessarily perform as expected (i.e. pay the most money to the players most likely to produce team wins). The story of when

revolution finally occurred is told in Michael Lewis' *Moneyball*, when a team general manager (Oakland's Billy Beane) ordered his coaching and recruiting staff to follow James' philosophies. *Moneyball* will soon feature as a film (starring Brad Pitt) and it will be interesting to see how true to the book it is (the movie *The Blind Side* focused – almost exclusively – on the human interest side of the book of the same name, ignoring a lot of the econometric data).

The thesis of *Pay As You Play* is an agreed-upon modern truism of soccer – that there is a huge correlation between player wages and team performance, i.e. the market is generally efficient. Manchester United has been the most successful EPL team of the past two decades and it is no coincidence they have also had the most money to spend on player wages. Sir Alex Ferguson is obviously one of the all time great football coaches, but a cynic could argue that he has only achieved what he should have given the resources at his disposal. A Ferguson fan could respond that one of the reasons why the EPL market appears to be as efficient as it does is because the best manager (coach/talent identifier) is hired by the wealthiest club and has efficiently taken the opportunity to assemble the EPL's best team of the modern era. If Ferguson was a bad manager, he could have stuffed things up (and then he would have been sacked many times over) but his genius is that he avoids stuffing up too badly to keep Man U being one of the perennially leading teams.





**“There is a new type of sports book I find fascinating. The genre doesn’t even have a universal name.”**

For researchers or sports econometricians, the null hypothesis is that player wages are correlated to player performance, and to a degree this will be true in all sports. Where things get interesting is occasions where the market is inefficient. *Moneyball* explored market inefficiencies exploited by the Oakland Athletics in the late 90s and early 00s. Unfortunately for the geeks and romantics, most of these inefficiencies are now well understood by the far-richer New York Yankees and Boston Red Sox, and the weight of money will make it hard for Oakland to ever win the World Series.

**“Manchester United has been the most successful EPL team of the past two decades and it is no coincidence they have also had the most money to spend on player wages.”**

*Stumbling on Wins* is a sequel to *The Wages of Wins* and these two books branch out from baseball to the other major North American sports. Their argument is strongest in basketball – Berri & Schmidt make a strong case that point-scoring is overrated by the NBA market ahead of shooting accuracy. As basketball is a fairly simple sport where teams roughly share possession and the majority of team possessions resulting in a shot on goal, for most players it is the ratio of shots made to shots missed that determines their true value (i.e. more than just points scored which measures ball-hogging in addition to shooting accuracy). According to Berri & Schmidt the most over-rated players are those who score highly but somewhat inefficiently, because they will demand and receive high wages purely on the basis of scoring a lot of points.

In their NFL analysis Berri & Schmidt make some interesting points. For example, black quarterbacks are underpaid compared to white quarterbacks based on performance. However, their most interesting point about football is their dullest – that you can’t predict the future performance of football players based on their past performance all that well, because the correlation is a lot lower than it is for baseballers and basketball players. Their presumption (which no doubt has some truth) is that baseball to a great extent and basketball to a lesser extent are sports of talented individuals playing in a quasi-team environment, whereas American football (along with the other football codes) is a fully ‘team’ sport in that if you put a champion player in a bad team his performance output will drop. Conversely a good team will lift the performance of the individuals within it.

**“... it is better to have 100% of your players 80% fit than to have 80% of your players 100% fit.”**

The elephant in the room for the football codes is injury. If a team has their best players out or a player is ‘carrying’ an injury, they won’t perform as well. Footballers who do perform well whilst injured are deemed most valuable because it is physically difficult in a collision sport to maintain performance at a high level (compared to baseball, cricket, basketball, golf and tennis). If it was possible to predict likely player performance in a given game, where a champion player is most likely to give you a ‘9’ (out of 10) and a rookie playing in the same position is most likely to give you a ‘6’, you would pick the champion over the rookie. However, the decision gets more difficult if the champion is carrying a mild hamstring injury – this is where the best coaches (plus their medical staff) earn their money. The old-school mentality (which includes the view that champions win games) is that it is better to have 100% of your players 80% fit than to have 80% of your players 100% fit. It’s not necessarily that simple. If the champion who is normally a ‘9’ is carrying a mild hamstring injury then he might be worth a ‘7’, which looks better than the ‘6’ you’d get from the replacement rookie. However if you play the champion, the next game he might be an ‘8’ if unscathed from the previous game, but he could also be a ‘3’ (i.e. unfit) if his low grade hamstring has progressed into a higher one. Some medical decisions should be entirely the domain of the doctor (e.g. has a player safely recovered from a concussion); however a decision on a hamstring strain might be made with varying degrees of input from coaching staff, medical staff and the player himself, depending on the philosophies of the club/medical staff<sup>2</sup>.



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**“...if a player suffers a certain injury, can the medical and coaching staff predict what effect it will have on his performance and for how long?”**

The title of the book *Stumbling on Wins* is a dig at traditional coaching and management in that Berri & Schmidt feel that in ignoring applied statistics (e.g. not understanding or undertaking regression analysis on wins achieved) most traditionalists who achieve winning in professional sport don't even understand how they do it. It is probably an unfair accusation, in that the skill of the coaches, managers and recruiters is the reason why the null hypothesis (that the highest paid players will generally be the best) generally applies. Regression analysis has a lot to add – particularly in baseball and basketball – but the EPL correlation between wages paid and wins produced is testament to the fact that the traditionalists in sport are good at their jobs. In European soccer the statisticians have mainly confirmed that the traditional ways of valuing players are accurate (i.e. most fans who look at the *Castrol Rankings*, based purely on stats, will roughly agree with the rankings). There are however still a lot of unanswered questions about ranking systems in the football codes, although it is in the interest of professional sports coaches and managers to get better at answering them. Barcelona players dominate the highest *Castrol Rankings* because of passing accuracy statistics, and controlling possession is why they are seen as the world's best club side. However, can you predict how much a given player's ranking (and therefore value) might improve (or decline) if he moved to Barcelona from a lesser team or vice versa? And if a player suffers a certain injury, can the medical and coaching staff predict what effect it will have on his performance and for how long? This doesn't just affect decisions like team selection in the short term but also retention and recruitment in the longer term.

**“I doubt that there are any sports scientists, doctors or physios who have the same impact on their teams as any of the ‘star’ players.”**

One of the chapters in *Stumbling on Wins* looks at basketball head coaches to see whether there are many (any?) who consistently make NBA players improve under their coaching. The authors came to the conclusion that players under Phil Jackson consistently improved, but for most coaches their players' performances were more a reflection of the players' inherent ability than the coaches' ability to improve them. One coach is quoted as saying, cynically, that this evidence suggests that a coach 'could be replaced by a deck chair'



if most coaches didn't statistically make a difference to their team's performance. This is unfair in that the comparison is only whether a coach can make a difference compared to another coach (with similar expertise). Although many fans have offered to do it (and none have been taken up on the offer) no one really knows how badly you could stuff up a team by putting a complete lay person in charge.



Although team doctors, physiotherapists and conditioners would like to think they are making an important contribution to team performance, there is very little solid evidence that any are better at their jobs than anyone else. What is reassuring (and taken for granted) though is that if a team sacks or loses its doctor, for example, it will give the position to someone with a medical degree and some experience working in sport. We all would be doing a lot better at our jobs than someone completely unqualified, but there is very little chance that we would be replaced by someone completely unqualified, so in terms of our value to the team in producing wins, it almost certainly isn't any greater than a journeyman who is deemed 'replaceable' as a player. I doubt that there are any sports scientists, doctors or physios who have the same impact on their teams as any of the 'star' players. Yet because injuries have such a big impact on team performance, and some of our decisions affect injury outcomes, there is a small impact that sports science and medical staff have on performance. Perhaps this impact is greater in sports in Australia where player talent is evenly spread due to salary caps. However, it is very difficult to measure.

**“The team physician market in the US is dominated by orthopaedic surgeons and not physicians...”**

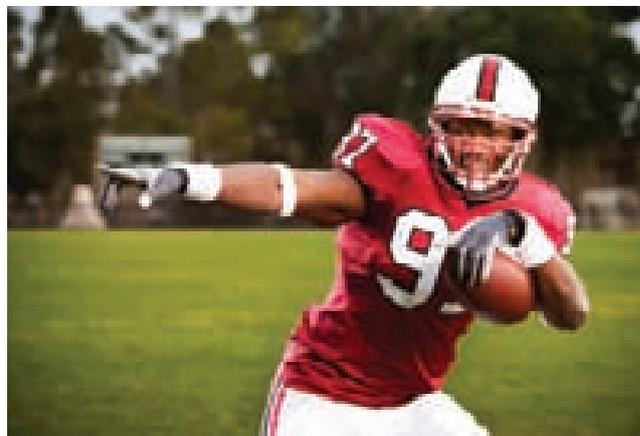
The last decade in Australia has seen a trend of increasing salaries being paid to support staff in the sports medicine and science area. In some cases, a club will pay 'overs' to someone they perceive is one of the 'best' doctors or physiotherapists or conditioners in their field, to not only aim for better results but also to create the perception for their players that they are a top-end club destined for success. However, for a baseline club the extra money being paid in recent years seems to be mainly a reflection of the extra hours that clubs demand on their staff. If a sports physician working in a non-team environment can earn, say, \$300K p.a. then a demand by a sports team for the doctor to increase time spent working at the football club from a 0.25 load to a 0.33 load should justify a pay increase from \$75K to \$100K. The CEO/CFO/coach need to establish whether a move like this would provide the club with better value as compared to buying a \$25K piece of medical or science equipment, employing an extra part-time specialist coach or even having an extra pre-season training camp for the first grade squad. In Australia, in most cases you can't actually try to directly compare the extra value of signing a \$25K junior/academy player (unless you have a rare instance of a team whose player salaries haven't hit their salary cap limit). A salary cap will mean that players are competing with each

other for cap space, whereas the off-field support (including coaching) gets to share whatever is left over. This would also explain why the market price for sports science and medical salaries in European football competitions is not much different from the Australian market (even though player salaries are 20–30 times higher). In an EPL or Champions League football team, the potential ‘value’ a doctor or sports scientist could provide the team is a lot greater because the consequences of decisions are worth a lot more money. However, 80% of even these elite teams are running at a loss (because the lack of a salary cap has meant player salaries are out of control) and there is considered more risk to the financial bottom line to upgrade sports science and medicine services than there is potential upside in terms of better injury management.

**“Even the ‘best’ sports scientists and medical staff cannot prevent most injuries in professional sport.”**

It might be thought that in the US, where they invented the salary-cap (and ironically from this the both socialist and profitable) sports league, that they might have an environment conducive to spending big on sports medicine services. Ironically it is the warped economics of their medical system that means this doesn’t happen. The team physician market in the US is dominated by orthopaedic surgeons and not physicians with an earning capacity of a measly \$300K. An individual orthopaedic surgeon might be earning \$2million p.a. and a company which employs 20 surgeons might be turning over greater than \$50million p.a. It makes sense for such a company to offset a 0.2 load of one of their surgeon’s workloads to be on the medical staff of an NFL team, as long as he directs most of the surgery to the group (which in the USA allows the surgeons to legally advertise that they operate on the local NFL team, which converts to pure marketing gold). Because of salary caps, some sports teams in the USA are a gold mine, but not as much of one as a multi-surgeon practice in a health system where proceduralists can write their own salaries. The tail is well and truly wagging the dog when a surgical group uses the local sports team as a marketing tool instead of the sports team using the setup which would best manage their injuries.

The biggest problem with injuries though is that we ‘stumble upon’ them. Even the ‘best’ sports scientists and medical staff cannot prevent most injuries in professional sport. We can do our best to fix them in the shortest possible time, but we have very little control over even the small number of risk factors that we might understand will affect our injury rates.



We generally don’t have much of a say on whether recruiting staff buy an injury-prone squad of players (and maybe this is justified if talent can be more accurately assessed/predicted than injury likelihood). Even if we suspect or have worked out that ground surface or playing schedule is a risk factor for injury, as medical staff we don’t prepare the playing surface or write the schedule. AFL teams (and the central administrators) are wrestling with the paradox that player interchanges can help the team who makes them (from an injury risk viewpoint) but harm their opponents. There is a lot that is out of our hands, but then there is a lot that we do have control over, and my gut feel (which is biased) is that we have more influence than is realised in some areas of injury management. But maybe, like coaches who might stumble on wins, the complexity of injuries means that we probably still stumble on the injury outcomes we oversee more so than we shape them. Trying to get our heads across the risk factors for injury (and do more about them) will be a big challenge for team physicians of the future.

**Dr J**

References, as indicated within the article (including book details), are available at [sma.org.au/publications/sport-health/](http://sma.org.au/publications/sport-health/)

The opinions expressed in Dr J are the personal opinions of the author.

## Social media: the new frontier



Journalist and social media expert, Daniel Hoy takes us into the ever-growing world of status updates, profiles and tweets.

### Real life example

The Sports Injury Clinic in Seaford, Victoria, have embraced social media.

By using it they make their clients feel like they are part of the 'family', updating them with news of staff babies, uploading photos of Pilates classes, giving advice on treatment and providing links back to their website.

"For us it's really beneficial as a marketing tool. It is much more interactive than traditional marketing. The key is definitely consistency and not doing it adhoc," Pippa Hanson says.

"Our clients are giving us great feedback and like the connection and the relationship that this allows us to have with them. It makes us a bit more human than just being a business or service to them. We are finding that our target market being 40+ women are big Facebook users so it's a really great way to connect to that group."

**"Almost 11 million people have a Facebook account, with Twitter at almost 3 million."**

Historically the most popular method of advertising your business, no matter what you provided, was through traditional media.

That meant newspaper, TV, radio, or magazine, the cost of which means for many businesses this is not an option.

The problem is without advertising how do you reach your target audience? And more importantly how do you engage them?

Today many companies and organisations are tackling that problem with social media.

In the last five years social media has exploded around the world, with Australia at the forefront. As a nation we are the world's biggest consumer of the medium.

Almost 11 million people have a Facebook account, with Twitter at almost 3 million.

Initially many employers saw Facebook and Twitter as major threats to productivity.

They feared their staff would be updating their status, or checking a photo from a friend's holiday when they should have been working.



## A business can use Facebook and Twitter in a number of ways:

**Branding** – Facebook and Twitter are a great way to launch a new service, or raise awareness of your business through strong branding.

**Customer engagement** – Using Facebook and Twitter applications are a fantastic way to engage your existing customers. You can communicate promotions, hold competitions and promote events. It's a captive market who you know and enjoy your service or product, and it can also entice consumer engagement with your brand, your products or your service.

**Drive web traffic** – Status updates and tweets are an excellent way to get people back to your website. The more hits you receive the more attractive you become to outside advertisers.

It can also act as your online presence – if you are yet to join the digital world, or the cost of a website is prohibitive, then launching a Facebook page or Twitter account gets you online with very little expense.

**New customer acquisition** – Positive feedback from people engaged with your Facebook or Twitter account can then lead to new customers. Don't underestimate the power of a complimentary post from a client.

**Client retention** – Once you have a client you want to make them feel as if they are part of the family. Facebook and Twitter allow them to know a little about you, it makes them feel involved in the life of your business.

**The viral effect** – You often hear someone say their business will take off once they get a bit of word of mouth going. Facebook and Twitter can multiply that word of mouth infinitum. Let's say one of your 'fans' on Facebook or followers on Twitter says something like, "had a great experience at company X." Not only do all your friends see that post, so do all of that person's friends, and so on and so on.

**Feedback** – Using Facebook and Twitter to do market research is a lot cheaper than paying a company to do a survey on your behalf. If you're thinking of introducing a new treatment or event, just ask your followers what they think, the feedback is instantaneous. The added benefit is you can then use it to promote the event or treatment.

**Recruitment** – One of the often underestimated benefits of Facebook and Twitter is recruitment. If you're looking for a new staff member simply announce the position on a status update or in a tweet and then let your followers do the work for you. Let's say you have 500 followers, each with 100–200 followers of their own, who have 100–200 followers of their own, it becomes obvious how many people you can reach in a matter of hours.

**"...in the last two years, usage of Facebook has grown 513% in the 50 plus category."**

Many of those companies responded by placing blocks on social networking sites, but the advent of smart phones, like Apple's iPhone, meant staff 'facebooked and tweeted' on their phones rather than their work computer.

Fairly quickly though the landscape changed, and many of those same businesses started to see the marketing potential of both these websites.

Fan pages for Hollywood celebrities, products, and politicians started to populate the social media world. Today no new Hollywood blockbuster is launched without a dedicated Facebook page. Most new products have a Facebook page, and President Obama engaged younger voters in the 2008 US election via Facebook and Twitter.

**"As a nation we are the world's biggest consumer..."**

By creating Facebook pages and Twitter feeds for their business companies are able to build a community of followers, they can perform market research, stay in contact with customers, recruit staff, build their brand recognition, drive sales, retain customers, the possibilities are endless.

**"Many of Australia's bigger, more forward thinking companies are hiring full time social media marketers."**

Many of Australia's bigger, more forward thinking companies are hiring full time social media marketers. It's hard to believe, but they see so much value in this new medium that they are paying a full time staff member upwards of \$60,000 to manage their Facebook and Twitter accounts.



The demographic breakdown is also interesting. As is to be expected young people were the first to adopt this new medium, but in the last two years, usage of Facebook has grown 513% in the 50 plus category.

Grandparents who do not live close to their grandchildren are joining in as it allows them to keep up with the grandkids, see photos or videos instantly. The world has never been smaller.

**Daniel Hoy**

Daniel is a Herald Sun journalist and a social media specialist. He runs a social media business called Great 2 Tweet U.

Facebook: On Facebook users are able to create profiles with photos, lists of personal interests, contact information, and other personal information. By doing this they can communicate with friends and other users through private or public messages and a chat feature. They can also create and join interest groups and 'like' pages, some of which are maintained by organisations as a means of advertising. <http://en.wikipedia.org/wiki/Facebook> - cite\_note-68

Twitter: Offers a social networking and microblogging service, enabling its users to send and read messages called tweets. Tweets are text-based posts of up to 140 characters displayed on the user's profile page. You can also load photos and website links. Businesses also use Twitter to advertise.

## Want to make friends and influence people?

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## NRL injury report 2010



**Donna O'Connor from the NRL Research Board and the University of Sydney looks at the injuries sustained in the 2010 season.**

The National Rugby League (NRL) Research Board conducts injury surveillance at both the NRL and NYC (National Youth Competition) level to gain a better understanding of the composition of injuries sustained in professional rugby league. The aim of this report was to identify the incidence, site, nature and risk factors of injuries sustained in the 2010 NRL and NYC season that resulted in missed playing time and make comparisons to the previous season.

**“The NRL injury recurrence rate has dropped from 25% in 2008 to 14% in 2009 and 2010.”**

### Method

Sixteen clubs participating in the NRL and NYC competition were asked to collect data on the injuries sustained by players during the 2010 season. The injury definition used was ‘any injury that was sustained during a first grade NRL game (or NYC game) or training session that resulted in missed game time’. There were 459 players that participated in first grade and 531 players that participated in the NYC competition during the 2010 season. Data was collected from all NRL and NYC games which included the 26 rounds plus ‘finals’ games for each competition.

### Results and discussion

Table 1 gives an overview of NRL and NYC injuries sustained during the 2009 and 2010 season. During 2010 there was an increase in the number of injuries sustained and number of player games missed due to injury at the NRL level. The incidence rate for injuries was 72.4/1,000 hours for NRL games and 50.9/1,000 hours for NYC games. This higher injury rate has been attributed to the higher game intensities at the elite level<sup>1,5,8</sup>. However the difficulty with accurately calculating this incidence rate is that clubs did not indicate training hours so we cannot determine complete exposure time. For this reason injuries that were sustained outside NRL games were not used in the calculation of incidence rates. It is also difficult to compare these rates to previous literature as the varying injury rates may be explained by the different definition of ‘injury’<sup>2,13</sup>. Definitions range from an injury resulting in missed game time<sup>12</sup> to any pain or disability that occurs during training or a game and not limited to missed game time<sup>2</sup>. For example at the professional club level, an injury rate of 44.9/1,000 hours for injuries sustained in games and resulting in at least one missed game has been reported<sup>5</sup> compared to an injury rate of 544.03/1,000 hours for any training or game injury (pain or injury reported and not limited to missed game time)<sup>15</sup>. As expected the majority of injuries occur during competitive matches<sup>2,16</sup>. Over the 2009 and 2010 season there were just over 50% of NYC players who sustained an injury compared to 75% at the NRL level. This equates to approximately five NRL players being unavailable each week of the 2010 season due to injury. The NRL injury recurrence rate has dropped from 25% in 2008 to 14% in 2009 and 2010.

**Table 1 NRL and NYC injuries during 2009 and 2010 season**

	NRL		NYC	
	2010	2009	2010	2009
Injured players	347	330	277	296
% players injured	75.8	71.9	52.2	53
Injuries	656	587	404	485
Missed games	2,029	1,477	1,504	1,463
% injuries sustained in competition matches	77	74	73	74
Incidence rate (per 1,000 playing hours)	72.4	67.9	42.3	50.9
Missed games per club	127	92.3	94	91.4
Players unavailable each week	5.0	3.8	3.7	3.8

Interestingly when analysing the 52% of game injuries where the time in the game that the injury was sustained was recorded, 52.3% were sustained in the first half compared to 46.2% in the second half of NRL games and 1.5% occurred during the warm up. This trend was reversed during NYC games with 58.6% of reported injuries occurring in the second half and 41.4% in the first half of games.

### Type of injury

Ligament sprains were the most common type of injury at the NRL and NYC level although there was a higher incidence rate during

NRL games (18.7/1,000 hours v 12.1/1,000 hours). The incidence rate for muscle strains were 12.7/1,000 hours during NRL games and 5.5/1,000 hours during NYC games. They were also the most prevalent training injury (40% at NRL and 24.1% at NYC) followed by ligament sprains (15.4% NRL and 22.4% NYC). Muscular injuries have been the most prevalent injury reported in amateur and semi-professional rugby league<sup>4,10,17</sup> whereas joint and ligament injuries are more prevalent at the professional level or when the injury definition is limited to missed games<sup>3-4</sup>. Concussions were sustained at an injury rate of 3.3/1,000 hours at NYC level compared to 4.3/1,000 hours at NRL level.

**Table 2 Percent, incidence rate and missed game by type of injury**

	NRL					NYC				
	Total injury (%)	Average missed games	Game injuries (%)	Training injuries (%)	2010 game injuries/1,000 hours	Total injury (%)	Average missed games	Game injuries (%)	Training injuries (%)	2010 game injuries/1,000 hours
Concussion	4.6	1.8	6.0	0	4.3	6.4	1.3	7.5	0	3.3
Dislocation	4.1	4.9	4.6	3.2	3.3	6.9	6.3	7.5	8.6	3.7
Fracture	9.3	4.4	9.7	5.3	7.0	8.2	5.0	10.2	3.4	4.5
Haematoma	8.1	1.5	9.7	3.2	7.0	6.7	2.4	8.8	0	3.7
Joint injury	11.3	2.5	11.5	8.4	8.3	11.6	4.3	13.3	10.3	5.5
Laceration	1.9	1.7	2.2	1.0	1.6	1.5	1.3	1.0	1.7	0.3
Ligament sprain	24.1	3.6	25.8	15.8	18.7	27.5	3.4	26.9	22.4	12.1
Meniscus	2.3	4.2	2.2	2.1	1.6	2.7	3.7	2.4	0	1.0
Muscle strain	21.3	2.2	17.5	40.0	12.7	11.9	3.1	11.6	24.1	5.5
Neural	2.3	3.1	2.6	2.1	1.9	0.7	9.0	1.1	3.4	0.4
Other	4.4	2.8	3.2	7.4	2.3	4.5	2.3	3.7	5.2	1.6
Stress fracture	0.3	1.0	0.2	1.0	0	0.7	3.3	0.7	1.7	0.2
Tendon	2.7	7.2	2.2	5.3	1.6	1.5	8.5	1.0	5.2	0.4
Unspecified	3.0					9.1		5.1	13.8	



### Injury prevalence

Table 3 outlines the number of missed games by injury diagnosis and the average number of games missed per club due to this category. For example in the NRL, there were 76 hamstring strains resulting in 188 missed games which equates to each club on average having players unavailable for 11.8 games during the season. This was an increase from 2009 (53 hamstring strains for a total of 123 missed games). There was also a substantial increase in knee MCL injuries (39 in 2010 and 15 in 2009).

#### “...26% of NRL injuries were non-contact.”

There is some variation between NRL and NYC players in the body area most frequently injured. The foot and ankle account for 21.5% of all NYC injuries with an incidence rate at 9.1/1,000 hours compared to 8.5/1,000 hours at NRL level (13.1%). Fifteen percent of NYC injuries were to the shoulder at an injury rate of 8.5/1,000 hours compared to 11.5% of all NRL injuries (9.5/1,000 hours). The upper leg (groin, hamstring and quadriceps) accounted for 21% of all NRL injuries (10% NYC)

followed by the knee at 17% (14% NYC). However the incidence rate for knee injuries was 12.9/1,000 hours at NRL and 5/1,000 hours during NYC. The head and neck have been previously identified as the most frequent body sites<sup>1,2,8</sup> to be injured although recent reports indicate the shoulder is the common injury among junior and semi-professional players<sup>1,17-18</sup>. Hamstring injuries accounted for 11.6% of all NRL injuries and 5.2% of all NYC injuries. Back in the 1992 season hamstring strains were only 4.8% of all reported injuries<sup>19</sup>. Hamstring injuries are among the most common injuries in Australian Rules football<sup>20</sup>, rugby union<sup>21</sup>, soccer<sup>22</sup> and cricket<sup>23</sup>. When compared to Orchard's<sup>6</sup> six year study of one club there was an increase in games missed from hamstring injuries whereas most other injuries resulted in similar missed games or a slight reduction in missed game time.

In 2010 the injuries resulting in most missed NRL game time include ACL injuries, ankle syndesmosis injuries, hamstring strains and leg and foot fractures. At the NYC level, shoulder sprains and dislocations resulted in the most missed game time (an average of 11 games per club) followed by knee ACL, ankle sprains and hamstring injuries.

**Table 3 Injury prevalence**

Site	NRL				NYC			
	Frequency 2010	Games missed 2010	Missed games/club 2010	Missed games/club 2009	Frequency 2010	Games missed 2010	Missed games/club 2010	Missed games/club 2009
Concussion	30	55	3.4	2.0	27	31	1.9	1.4
Facial fractures	13	40	2.5	1.3	11	41	2.6	1.8
Neck sprains	3	10	0.6	0.2	4	2	0.1	0
Other head and neck injuries	28	51	3.2	6.75	5	28	1.8	2.0
Shoulder sprains and dislocations	21	82	5.1	4.3	33	177	11.1	8.2
A/C joint injuries	25	37	2.3	0.8	9	24	1.5	2.9
Rotator cuff	4	16	1.0	0.3	5	9	0.6	0.7
Fractured clavicle	2	12	0.8	0.1	1	4	0.3	0.9
Elbow sprains or joint injuries	11	25	1.6	0.9	9	34	2.1	1.0
Other shoulder/arm/elbow injuries	27	95	5.9	2.9	20	87	5.4	1.9
Forearm/wrist/hand fracture	22	59	3.7	3.6	16	58	3.6	3.4
Forearm/wrist/hand dislocation	9	19	1.2		5	16		

Site	NRL				NYC			
	Frequency 2010	Games missed 2010	Missed games/club 2010	Missed games/club 2009	Frequency 2010	Games missed 2010	Missed games/club 2010	Missed games/club 2009
Other forearm/wrist/hand injuries	29	45	2.8	2.4	9	20		2.4
Rib and chest wall	26	58	3.6	3.4	17	24	1.5	2.3
Back	18	42	2.6	2.6	8	21	1.3	1.8
Pec major strain	6	10	0.6	1.3	0	0	0	0
Other trunk and back injuries	9	8	0.5	0.1	2	27	1.7	0.7
Groin strains and osteitis pubis	20	61	3.8	2.1	12	30	1.9	2.2
Hamstring strains	76	188	11.8	7.7	21	110	6.9	4.7
Quadriceps strains	6	10	0.6	0.8	5	6	0.4	2.5
Thigh and hip haematomas	21	24	1.5	1.6	6	10	0.6	1.4
Other hip and thigh injuries	12	35	2.2	0.6	4	7	0.4	0.3
Knee ACL	15	240	15	7.5	11	140	8.8	9
Knee MCL	39	122	7.6	3.1	14	49	3.1	4.8
Knee PCL	7	15	0.9	0.2	4	20	1.3	0.6
Knee cartilage	12	44	2.8	3.4	12	48	3.0	3.9
Patella injuries	11	56	3.5	3.2	2	3	0.2	2.6
Knee joint	11	44	2.8	2.4	5	11	0.7	0.7
Other knee injuries	11	50	3.1	2.6	10	8	0.5	0.6
Ankle sprain and joint injuries	38	81	5.1	6.4	48	135		8.6
Tibiofibular/syndesmosis injury	27	107	6.7	5.5	20	74		8
Calf strains	22	47	2.9	0.9	5	6		1.6
Leg and foot fractures	12	99	6.2	7.3	9	52		5.2
Achilles tendon injuries	5	82	5.1	0.4	4	68		0.2
Leg injury	16	19	1.2	1.1	23	46		0.8



## Injury mechanism

As rugby league is a contact sport it is unsurprising that this physical contact causes the most injuries. The number of 'tackle contests' (either executing a tackle or being tackled) in an NRL game can range from 550–650. Previous studies reveal 'being tackled' followed by 'making a tackle' are the two main causes of injuries<sup>2,8–10,13,24</sup>. When excluding the unspecified injuries, the tackle contest accounted for approximately 51% of all NRL injuries (57% in 2009) with a player 'being tackled' contributing to 33.5% of all injuries. The four predominant causes of injuries at NRL and NYC level were: being tackled; tackling; running; and collision with player/object. When injuries were classified into 'contact' and 'non-contact' injuries it was revealed that 26% of NRL injuries were non-contact. This is an area that clubs may want to look at in more depth to determine if this rate could be reduced. When injuries are sustained while *being tackled* they will generally be to the knee or ankle whereas the shoulder is more likely to be injured when *making the tackle*. The hand and head are the next two sites likely to be injured when making the tackle. These trends replicate the 2009 data. Unfortunately the mechanism for over 30% of injuries reported for the NYC season was either unknown or not specified. From the remaining injuries, 47.4% were contact injuries and 18.4% were non-contact injuries. It has been speculated that the increase in shoulder injuries in today's game may be influenced by tackle technique<sup>25</sup>.

## Severity

Severity for this study is based on the number of games missed. The following definitions were used:

- Mild: 0–1 game missed due to injury.
- Moderate: 2–4 games missed due to injury.
- Major: a minimum of 5 games missed due to injury.

Table 4 indicates the breakdown of injuries by severity and the total number of missed games under each category. There was a decrease in 'mild' injuries but an increase in the 'moderate' and 'major' incidence rates from 2009. The other significant difference is the average number of missed games for 'major injuries' – this equated to an approximate increase of 60% in the missed games per club in 2010 compared to 2009. It has previously been reported that 16–30% of injuries are 'major'<sup>2</sup>. The most prevalent injury sites for 'major' injuries for both grades were the knee, foot/ankle and shoulder. Further analysis of the major NRL injuries revealed that 47.5% were contact injuries, 28% were non-contact injuries with 24.5% recorded with the mechanism 'unknown' or 'other'.

**“...the increase in shoulder injuries in today's game may be influenced by tackle technique.”**

**Table 4 Injury severity**

	NRL %		NRL game injuries/1,000 hours		Average missed NRL games/club		NYC %		NYC game injuries/1,000 hours		Average missed NYC games/club	
	2010	2010	2010	2009	2010	2009	2010	2010	2009	2010	2009	
Mild	47.7	33.7	43.3	11.2	15.5	38.1	22.2	31.5	7.5	11.1		
Moderate	34.3	25.9	17.7	31.1	28.5	36.4	21.1	24.0	24.5	29.1		
Major	18.0	11.8	7.6	84.6	48.3	25.7	15.0	13.7	62.0	37.7		

### Days since previous game

This year we also calculated the number of days since the previous NRL or NYC game to determine whether a ‘short’ or ‘long’ week influenced whether an injury was sustained. Only game injuries were analysed and round 1 injuries were not included as we didn’t have a reliable record of when the last trial for each club had been played. Figure 1 illustrates the injury rate for a 5–17 day period between NRL and NYC games.

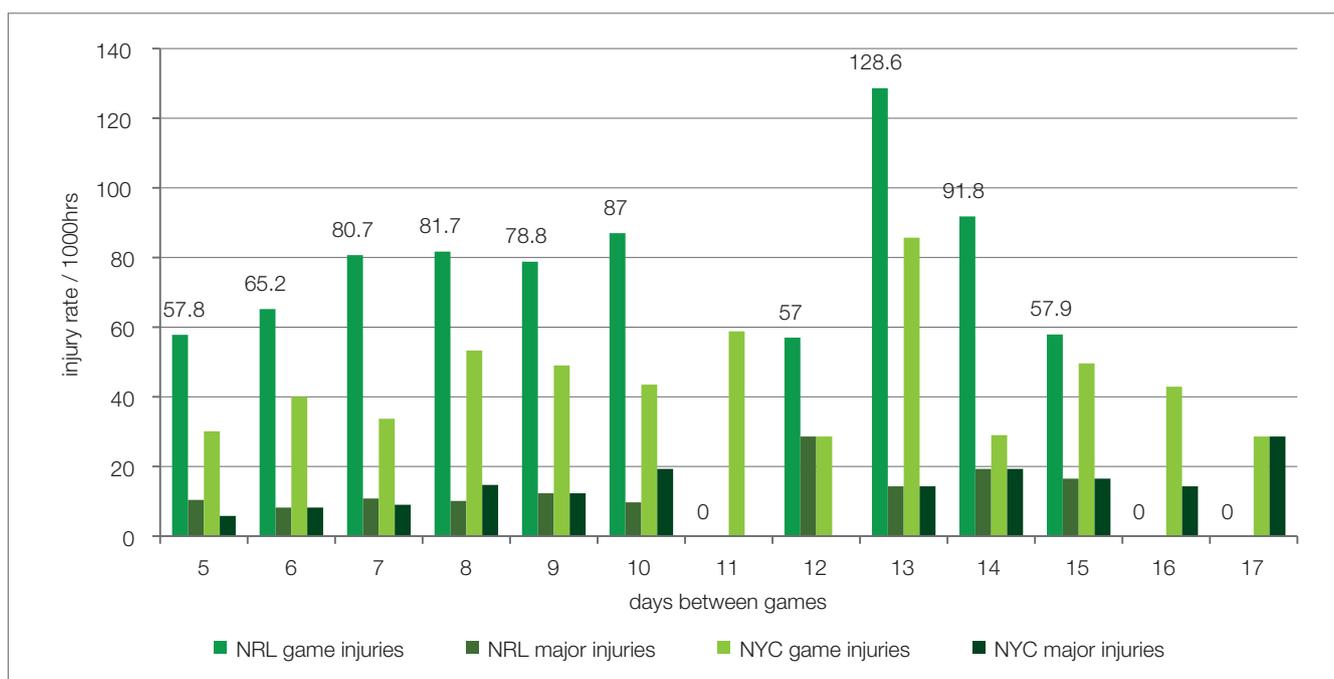
**“...the injuries resulting in most missed NRL game time include ACL injuries, ankle syndesmosis injuries, hamstring strains and leg and foot fractures.”**

Interestingly a player is not more likely to sustain an injury if playing only 5 days after their previous NRL game. The highest incidence of injury for both grades occurred after a 13 day break (NRL: 128.5/1,000 hours and NYC: 85.7/1,000 hours). There was also a higher incidence rate of major injuries (> 5 missed games) after 12 days (Figure 1). When interpreting the above results it must be noted that a small size exists for some options. For example in each grade, there were

50 occasions when a team played 5 days after their previous game, on 96 occasions there were 7 days between games but on only 2 and 4 occasions did teams have 12 and 13 days between games. However as all injuries are calculated per 1,000 hours we are able to compare across the different durations between games. This data reveals that the highest injury rate for muscle strains is in an NRL game following a 13 or 14 day break since the previous NRL game. At this stage we can only speculate why this may occur and need to determine if this trend also occurs in 2011. Perhaps clubs can review their training commitments in relation to the scheduling of games – is there a substantial reduction in training and an emphasis on recovery when a game is scheduled in 5 days compared to a 13–14 day break which allows either extra training as a ‘top up’ or several days off with no training? Fifty-seven percent of NRL injuries sustained after a 12–14 day break were contact injuries. Gabbett et al<sup>26</sup> revealed that a greater number of ‘collisions’ occur in training when there is a long break scheduled between games compared to a five day recovery period.

**“...a player is not more likely to sustain an injury if playing only 5 days after their previous NRL game.”**

Figure 1 Injury rate based on number of days between NRL and NYC games



## Summary

An NRL and NYC injury profile has now been established and will be monitored over the forthcoming years. The aim is for the NRL and clubs to work together to reduce the incidence and severity of injuries sustained in rugby league. In summary there were 75.8% of NRL players that sustained an injury during the 2010 season with an incidence rate of 72.4/1,000 hours. This equated to a 6.6% risk of sustaining an injury in an NRL game and having to miss the subsequent game. The risk of missing more than one game through injury is 3.9%. On average each team has five players unavailable for first grade each week. There were 277 NYC players (52.2%) who sustained an injury with the injury rate for 2010 at 42.3 injuries per 1,000 playing hours. There was a 4.3% risk of sustaining an injury in an NYC game.

### Donna O'Connor

NRL Research Board and the University of Sydney

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References, as indicated within the article, are available at [sma.org.au/publications/sport-health/](http://sma.org.au/publications/sport-health/)



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## Walk this way

An interview with Mark Fenton



**Sport Health Editor Dr Cristina Caperchione chats with ACSMS 2011 keynote speaker Mark Fenton on all things physical activity.**

I recently had the pleasure of speaking one-on-one with Mark Fenton, one of the keynote speakers of the Australian Conference of Science & Medicine in Sport (ACSMS), to be held in Fremantle this upcoming spring (October 19–22). Speaking with Mark I quickly learnt he is man of many trades when it comes to physical activity. First and foremost he is an avid walker and hiker whilst wearing/having worn many other ‘hats’ as a physical activity specialist. Mark is a contributing editor for *Health* magazine, was host of the ‘America’s Walking’ series on PBS television, and is author of numerous books including *Pedometer Walking* and *The Complete Guide to Walking for Health, Weight Loss, and Fitness*. He’s a facilitator with the Walkable Community Workshop series of the National Center for Bicycling and Walking and a Safe Routes to School National Program Developer and Instructor for the University of North Carolina’s Pedestrian and Bicycle Information Center. Most recently, Mark has become a recognised authority on public health issues and the need for community, environmental, and public-policy initiatives to encourage more walking and bicycling.

**“...in 1970 approximately 70% of kids walked to school or had their parents walk them to school.”**

Mark’s research experience began when studying biomechanics at the Massachusetts Institute of Technology (MIT), where he earned a Bachelor of Science and Masters of Science Degree in Engineering, and was later a researcher at the US Olympic Training Center’s Sports Science Laboratory in Colorado Springs, Colorado, and the Manager in Reebok’s Human Performance Laboratory. His work led to numerous publications related to exercise science, human performance, and athletic footwear and materials, while also providing plentiful experience on the health benefits of walking.

In anticipation for Mark’s conference presentation, I spoke with him about where his passion for walking, hiking and physical activity in general originated from; got some great tips to get moving when motivation is lacking and even managed to get a sneak peak of what he will be presenting on in Fremantle.

### **Where did your interest in walking originate from?**

I think this is two fold – I grew up participating in competitive track and field and ran cross country, and at that time New York State (where Mark grew up) had just introduced a 1 mile race walk. I gave it a shot, and tragically (I say tragically because it is probably the goofiest looking sport around) I was quite good at it. One thing led to another and when I went to MIT to study engineering I realised they had a wonderful biomechanics department, so I began studying the biomechanics behind race walking.



This led to an internship at the Sports Science Laboratory in Colorado where I worked with elite race walkers and track and field athletes. At this point I moved into the area of biomechanics and exercise science where I looked at the benefits of exercise and physical activity. I also became interested in the public health domain and the fact that most of the country was inactive and moving through an obesity epidemic (or what I have always argued an inactivity epidemic combined with a poor nutrition epidemic).

The last piece of that puzzle, after some of my work at the Olympic Training Centre, was working for Reebok in their Human Performance Laboratory. At this time I got picked up by *Walking Magazine* who liked my background: the fact that I was an elite athlete (member of US National Race Walking team and competed at two Olympic Trials), a reasonably good communicator, had an exercise science background and now a public health background. At this point I was a wealth of information and began offering advice and answering many questions on walking.

**Walking is such a simple and inexpensive way to be physically active, not to mention its physical and mental health benefits. Despite this, physical activity participation remains low at a population level. Why do you think this is?**

That is the 64 million dollar question! I would argue that there are two possible reasons, one is the socio-cultural environment and the second is the physical environment.

If we look at the socio-cultural environment, we know everyone is busy; we know the standard of living has increased dramatically and as result many households are two income households where both parents work; and we are well aware that more single parent households exist with the increase of divorce. Therefore there are more restrictions on being active due to these time constraints.

**“Many people have the misperception that they are doing enough but when they look at the pedometer and it shows they have only done 3,000 steps they are shocked and in disbelief.”**

Just as important, or I would argue more importantly, is the physical environment. Since the early 1950's we have become automobile oriented, especially with our travel infrastructure. We have seen a shift to suburbia in which housing estates are now built further away from work. As a result interstate highways and freeways were built creating a world where we drive everywhere. We don't even walk our kids to school anymore. This is highlighted by the fact that in 1970 approximately 70% of kids walked to school or had their parents walk them to school. In 2001 this was exactly reversed with 70% of parents driving their kids to school.

So all in all both the socio-cultural and physical environment lend support to a decrease in our daily physical activity which is something we need to restore.

**Mark, we know you are a keen walker and an advocate for physical activity, but surely there are times when you don't have the motivation to go for a walk/hike/bike ride. What are some tips/strategies you use to get motivated?**

You are exactly right, sometimes it is hard to get out there and get active. There are a few things I do that I believe help to keep me motivated.

- 1. Having a goal.** I have a group of friends that I do a lot of outdoor adventures and hikes with, and if I know I have one scheduled I am more motivated to train for them.
- 2. Knowing that training doesn't have to be hard.** Training doesn't have to mean going for a long run, but rather doing more activity daily, like taking the dog for regular walks or being active with my kids. For instance, my daughter loves to go cross country skiing, so now I go with her, which means we get to do something together and I also get to train.
- 3. Knowing training doesn't have to be long.** Sometimes you may have only 40 minutes. Don't think "*I can't get a good workout done in that time, so I won't do it*". Be active in the time you have. Something is better than nothing, even if it is a walk to the bank. Recognise that lifestyle activity does count!

**Mark, I am sure you are familiar with some of the tools we use to promote physical activity, one in particular being the pedometer. What are your thoughts about this tool and any others? Do you think they impact on people's motivation to participate in walking/physical activity in general?**

I fundamentally believe that different people are motivated differently. Personally I find the pedometer an innovative tool to test where I am, but I don't wear it every day because I know if I am hitting that 10,000 step mark. But for some, the pedometer is a life changing tool because it opens their eyes to how sedentary their life can be. Many people have the misperception that they are doing enough but when they look at the pedometer and it shows they have only done 3,000 steps they are shocked and in disbelief. For that denial alone, I think the pedometer is a brilliant tool! In addition, Nordic Walking Poles are another tool that is fun, add another element to walking and help get us moving.

**We are excited to have you as a keynote speaker at the upcoming ACSMS. Could you give us a sneak peak as to what you will be presenting on?**

I will revisit what we continue to refer to as the obesity epidemic and how we, the western world, are really the ones responsible for its spread. In particular the United States can stake a claim in being the ones that continue to export unhealthy diets and sedentary lifestyles. This epidemic is the cholera of our age, the public health epidemic of our age! What is more disturbing is that we continue to talk about it and how it is affecting us, but we are not doing anything about it. We know what the key issues are but we don't act on these. My talk will outline five innovative triggers, not from the traditional exercise science areas, but from other areas that we need consider when developing interventions to target this epidemic.

**“This epidemic is the cholera of our age, the public health epidemic of our age!”**

**Lastly, you seem very passionate about this research area, like many of us who study health-related physical activity and health promotion. From your perspective, why do you think this type of research is valuable? Do you think there is a continued need for this research?**

Absolutely, I truly believe that our physical health leads to our economic health and therefore I honestly think that this is the most important public health research we could be doing. Not to diminish other diseases, but if we look at the human condition we need to get our hands around physical inactivity and sedentary behaviour as this involves so many factors which we are still learning about and so many implications which can affect the population's overall health and economic sustainability. In saying this, we need to strive for powerful and convincing research to make policy makers value this research and its significance to the physical, mental and economic health of our population.

**Dr Cristina Caperchione, PhD.**

Assistant Professor  
Faculty of Health and Social Development  
University of British Columbia  
Kelowna, BC





# REPAIR, RECOVER & REFUEL.

The Melbourne Vixens netball team represent their home city in the elite Australia and NZ Championship competition. The Melbourne Vixens includes Australia's best female athletes and a new generation of netball stars, with seven Australian squad members in the team, including recent World Champions Julie Prendergast, Bianca Chatfield and two-time Commonwealth Games gold medallist Sharelle McMahon.

Sports Dietitian Kerry Leech speaks with Sharelle McMahon, captain of the Melbourne Vixens Netball team.

**Q. What is your favourite food?**

I'm a little partial to chocolate but my favourite meal is chicken and vegetable risotto.

**Q. Cereal or toast for breakfast?**

Definitely a cereal girl, eating muesli, yogurt and milk helps me to keep going through the morning.

**Q. Sharelle, you are working with Netball Victoria as well as playing and training with the Vixens - how do you fit it all in?**

I'm very busy. I manage it with a very up to date diary!

**Q. So how do you manage healthy meals on the run?**

I need to be organised and pack food each morning. It makes drinks like Sustagen important as I can have them in the car on the way to or after training.

**Q. What flavour Sustagen is your favourite?**

That's easy, Chocolate - I told you I am a chocolate girl!

**Q. How do you feel Sustagen helps your recovery?**

Netball is a hard game, I tend to come out of each game with a few bumps and bruises. Sustagen after each game helps to get the recovery process started and provides a great source of protein and carbohydrate.

**Q. So what now for Sharelle McMahon?**

The Vixens are finished for the season but the Australian team has international matches over the next few months against New Zealand and England. So plenty of training camps, travel and tough matches. No slowing down for me!



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\*One Day Registration includes one complimentary ticket to the social program for the day that you are registered.

Registered delegates receive access to all sessions being offered by the conference on their registered days only. Delegates also receive lunch, morning and afternoon teas, entrance to the trade exhibition, a Book of Abstracts, which includes a detailed Conference Program, and a Conference bag.

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## Sports injury prevention: improving the outcomes

### Vox pop

SMA took to the streets to ask members their opinions on the following question:

**What fundamental things need to be done to improve safety in sport?**



“The nature of sporting activities means that there are inherent risks involved in participating. The most fundamental action that needs to be taken is providing daily physical activity for our children. Daily PE in school provides the fundamental skills of

mobility, balance, co-ordination and fitness which are all important in mitigating injury.”

*Dr Lynda Norton, Lecturer Health Promotion, Flinders Prevention, Promotion & Primary Health Care School of Medicine, Flinders University, Adelaide, SA*



“The volitional nature of most sports safety behaviours means that players have to choose to engage in safety behaviour for it to work. Therefore, it is essential that time is taken to understand why people decide to adopt (or not) a particular sports safety behaviour.

Psychological factors such as player attitudes and perceptions are likely to impact on their adoption of these behaviours. Research should aim to determine these factors by using well-established behavioural theory. The findings can then be used to develop interventions and implementation plans that maximise the likelihood of sports safety behaviours being adopted in the ‘real world’, and ultimately improving safety in sport.”

*Dr Peta White, Research Fellow, Australian Centre for Research into Injury in Sport and its Prevention (ACRISP), Monash Injury Research Institute (MIRI), VIC*

**Professor Caroline Finch informs us of the recently introduced NoGAPS (National Guidance for Australian Football Partnerships and Safety) Project which aims to reduce the gaps within player safety in Australian Football.**

In Australia, the public health significance of sports injuries has long been recognised with national and state-specific injury data collections demonstrating the magnitude of the population burden of such injuries, including their significant impact on health service delivery and their potential to be associated with socio-demographic health inequalities. Moreover, health-related lifelong physical activity participation will only be sustained in the long-term if it is delivered in a safe way to minimise injury risk.

**“There is...a pressing need to evaluate the effectiveness of sports safety interventions in the real-world context of sports delivery to understand their public health impact...”**

It is critical that sports safety interventions have a strong evidence-base that shows that they either do, or have a strong potential to, prevent sports injuries. It is equally important that they are effective from a public health perspective and can be readily adopted in the ‘real-world’ and taken up by players, coaches and clubs. The sports injury research field has directed considerable effort over recent years towards identifying and reviewing the causes of sports injury and potential interventions to prevent them. Some of the more recent studies have shown that when these interventions are implemented into real-world community sport settings, they are not effective and do not work to prevent all injuries because few people know about them and fewer actually take them up. There is now a pressing need to evaluate the effectiveness of sports safety interventions in the real-world context of sports delivery to understand their public health impact, even if their efficacy has already been demonstrated in randomised controlled trials.

Despite the availability of some evidence-based sports injury prevention interventions, it is clear that sports safety efforts are currently hampered because limited research attention has focused on understanding the intervention implementation context and processes, including barriers and facilitators to sustainable programs. Understanding why existing evidence-based interventions are not implemented has been recognised as an international challenge for researchers.<sup>1</sup>

The implementation of sports injury interventions is known to be multifaceted, requiring a multi-agency approach across the sports delivery sector. This approach recognises that different key stakeholders and sector segments naturally approach the issue from different perspectives and have contrasting priorities. There is increasing recognition that a true partnership approach is now needed to bring the relevant stakeholder groups together and to engage them in sports injury prevention efforts that also involve researchers and program evaluators. In other words, to make sport safe for all participants, sports bodies and other key stakeholder groups (including researchers) need to jointly formulate, implement and evaluate safety policies to reduce the risks of injury.

### So what needs to be done?

A recent sports safety policy analysis in New South Wales found that the needs of state sports bodies are quite different to those of government departments/non-government organisations.<sup>2</sup> Specifically, sports organisations want *practical guidance* to help them adopt a sustainable approach to safety and to implement evidence-based interventions.

**“...to make sport safe for all participants, sports bodies and other key stakeholder groups...need to jointly formulate, implement and evaluate safety policies to reduce the risks of injury.”**

The Translating Research into Injury Prevention Practice Framework (TRIPP) argues that future advances in sports injury prevention will only be achieved if research efforts are directed towards understanding the context of the implementation for injury prevention, as well as continuing to build the evidence-base for the efficacy and effectiveness of interventions.<sup>3</sup> If interventions cannot also be demonstrated to be widely adopted and sustained, then it is unlikely that they will actually make a difference at the population level. It is now time to apply relevant health promotion frameworks (such as the RE-AIM framework)<sup>4</sup> to plan and evaluate the public health impact of sports injury interventions in an effort to improve our understanding of the contextual and policy influences of sports safety.



“Young athletes who participate in numerous different sports or the same sport at a variety of levels require ongoing monitoring after a musculoskeletal injury to ensure safe ‘injury management and return to play’. A gradual return to all or some of their sports may

be necessary until full recovery is achieved. Safety could be improved by greater communication amongst the athletes, parents, clinicians and their various coaches to better manage each athlete’s total sport involvement, to limit the development of negative consequences associated with returning to such an intense level of sport before they are physically capable.”

*Dr Deirdre McGhee (PhD), Sports Physiotherapist, University of Wollongong, NSW*



“First and foremost, a greater understanding and more empirical evidence on some of the potentially modifiable mechanisms of injuries in sport is essential to properly inform the development of appropriate injury prevention strategies and hence improve safety.

We cannot rely solely on anecdotal evidence for changes in sport safety policies. Secondly, it is a shame to see safety in sport compromised by the presence of physical hazards. Although it is difficult due to the frequent changes in sports club volunteers, particularly at grass-roots level, the need for removal and remediation of physical hazards needs to be given greater priority.”

*Dr Dara Twomey, Lecturer and Researcher, University of Ballarat, VIC*



### A way forward

Documentation of an evidence- and theory-informed approach to developing and delivering community sports safety programs, as well as evaluation of the resources required to support their widespread and sustained uptake, in community sport is clearly needed. This should involve:

1. Bringing together key agencies with a stakeholder interest in sports safety policy development and translation of scientific evidence to informed safety practice for the first time.
2. New insights into the processes of developing sports safety strategy and policy.
3. New understanding of how sports bodies, government agencies and non-government organisations identify and package evidence into practical and useful safety guidelines, as a means of translating this evidence to practice.
4. New insights into the drivers of, and barriers to, the successful dissemination and uptake of sports safety interventions in the context of community sport.
5. Better understanding of the policy context of community sport and how this could be better harnessed for public health benefits.
6. Assessing the reach, effectiveness, adoption, implementation and maintenance of a sport-specific safety intervention and identify any necessary broad policy and organisational structures to support this.
7. Generating a new strategic approach to inform the future implementation of evidence-based sports safety policy by the partner agencies for community sport nationally/statewide.

### What is the NoGAPS project?

This challenge has been taken up by the authors of this paper in partnership with the Australian Football League (AFL); Victorian Health Promotion Foundation (VicHealth); NSW Sporting Injuries Committee (NSWSIC); JLT Sport, a division of Jardine Lloyd Thompson Australia Pty Ltd (JLT Sport); Department of Planning and Community Development, Sport and Recreation Victoria Division (SRV); and Sports Medicine Australia, National and Victorian Branches (SMA). Over the next few years, this partnership will identify the factors that influence the translation of research evidence into sports injury prevention practice in the context of community sport, using community-level Australian Football as the example. It will also provide specific evidence for the effectiveness of an evidence-based lower limb injury prevention exercise-training program in community Australian Football. In addition to

collecting effectiveness evidence, this partnership will also direct significant research attention towards understanding: how sports safety policy is set, particularly at the community level; how consensus can be reached among sports safety experts in the community and sport governing body settings; and how evidence-based safety guidelines can best be developed, packaged and delivered to community sport.

Because this project partnership aims to significantly reduce a number of gaps (including the research to policy and practice gap, the efficacy to effectiveness gap, the research knowledge to translation gap and the gap between elite sport and community sport) within the context of player safety in Australian Football, this project is known as NoGAPS (National Guidance for Australian Football Partnerships and Safety).

The full details of the study plan and protocol have recently been published in the journal *Injury Prevention*.<sup>5</sup> To summarise, the NoGAPS Project has five phases:

- Phase 1 will translate the available scientific evidence for lower limb injury prevention into formal, practical exercise-training guidelines for dissemination to community Australian Football clubs.
- Phase 2 will develop a delivery plan for the guidelines developed in Phase 1 and obtain community feedback on the content and format of both.
- Phase 3 will evaluate the delivery of the developed exercise-training guidelines in community Australian Football to more fully understand the processes, enablers and barriers of implementing new evidence-based safety interventions. A randomised controlled ecological design will be used to compare two delivery modes (*supported and unsupported*) against usual practice (*control*) in community Australian Football clubs.
- Phase 4 will take the lessons learnt from Phase 3 to develop and implement a national policy action plan for the prevention of lower limb injuries in Australian Football.
- Phase 5 will consider the potential to modify and adapt the Australian Football Safety Program to other sports for safe sustained participation across a range of activities. Separate consideration will be given to the evidence-informed exercise-training guidelines and the delivery plan components.

Over future issues of *Sport Health*, the NoGAPS partnership team (listed opposite) will publish updates from the project as new insights and knowledge is obtained.

References, as indicated within the article, are available at [sma.org.au/publications/sport-health/](http://sma.org.au/publications/sport-health/)

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**“...there are millions of websites out there. Actually, hundreds of millions. Which means plenty of competition.”**

Think about it. When you want to find a tax accountant, or a good restaurant, or a guy who repairs boats, you don’t look it up in the Yellow Pages – you Google it. Trouble is there are millions of websites out there. Actually, hundreds of millions. Which means plenty of competition. And, as always, when the competition’s tough, only the hardest working rises to the top.

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So, for example, if you type ‘sports medicine’ into Google, Sports Medicine Australia appears at the top of the list. (Lucky for SMA!) But if you look a little bit closer, at the introductory blurb, it reads:

‘Sports Medicine Australia is a national multidisciplinary organisation committed to enhancing the health of all Australians through safe participation in sport and physical activity. Sports Medicine Australia achieves this through the provision of expert information, advice and leadership on a diverse range of sports medicine and related issues.’

Notice how that key phrase appears three times. It’s not the only reason SMA is at the top of the list – search engine rankings also depend on things like how many other websites link to your site – it’s a great way to move you up the list. And by adding more key words – like, say, ‘sports medicine Canberra’ – you can target better and get more hits.

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### 1 Budget and forecast

The saying 'failing to plan is planning to fail' is an old cliché but a very true one. How can you expect to achieve your goals without a plan? Only once you have set parameters around how much you earn and can afford to spend will you be able to determine excess funds available for savings or investment.

The idea of preparing a budget scares many people but it is not that complicated and doesn't need to be too detailed. The point of the exercise is not the budget document but the process in clearly identifying the income coming in and the fixed non negotiable expenses such as the mortgage, rent, rates, milk and bread etc.

Once prepared the budget shouldn't just be filed in the top drawer and never looked at again. It should be a live document that gets reviewed and compared against expenses paid and updated accordingly if things change to ensure your savings and investment goals can still be achieved.

### 2 Protect your wealth

Insurance for your car, home, contents and health are no brainers but many people forget to adequately insure against loss of work, trauma, disability or death. If you have a mortgage or other debts how would you pay for these if you stopped earning income? Who would pay these debts if you were to die? Regularly review your insurance cover and make sure it is adequate to cover your family's exposure.

### 3 Business and investment structure

Taxation in Australia varies depending on your structure with individuals, companies, trusts and partnerships all taxed differently and at varying rates. Therefore it is important to ensure that your business and/or investments are held in the correct structure to ensure that you minimise the rate of tax you pay on the earnings and any capital gains.

The top end of town spends thousands upon thousands of dollars in specific tax planning advice to ensure they don't pay any more tax than required. It is important that even small businesses and investors also seek professional advice in respect to structuring and tax planning and other legal risks. Getting the right advice at the start can help save you money in the long run.

### 4 Superannuation

Review your superannuation fund, get as much information about it as possible and make sure you understand it. Your employer must pay superannuation on your behalf and although you can't access it until you retire, it's your money so make sure it's working for you.

### 5 Update your Will

Not only is it important to protect your wealth over your lifetime, it is just as important to make sure your wealth passes to the right people on your death. Without a current and up to date Will your assets may not go to the desired people. It is also very easy for beneficiaries to contest a Will if they feel aggrieved. So make sure you review your Will and update it if needed.

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## Translating knowledge into action: the AFL Research Program

**Shane McCurry, Manager – Research & Football Projects of the AFL provides an overview of the AFL Research Program and its current projects.**

Australian Football has established itself as a world leader with injury prevention, treatment and rehabilitation, sport science, coaching, umpiring and volunteer administrators.

The AFL Research Board was formed in 1999 to administer the selection of research priorities, allocation of research funding, organisation of industry sport science and medicine events and to guide individual research projects. The work commissioned by the Research Board is one of the key reasons why the AFL has the reputation it does on the international stage.

This reputation was acknowledged recently in a world forum, where the AFL was the only professional sporting body to present a dedicated session at the 3rd IOC World Conference on Prevention of Injury and Illness in Sport in Monaco.

The projects commissioned on an annual basis have benefited the game at all levels. The strength of the program is that topics are nominated by industry partners, meaning they address problems or answer questions that people working in the industry have identified as priorities. Some of these groups include:

- AFL Clubs
- AFL Medical Officers Association
- AFL Physiotherapists Association
- AFL Sports Science Advisory Group
- AFL Football Operations Department
- AFL Game Development Department
- AFL Coaches Association
- AFL Players Association
- State and Community Football Bodies
- AFL Umpires Association

While the AFL competition projects usually receive the most attention, such as the annual AFL Injury Report (which has been running for 19 consecutive years), the projects focused on the development of the game at community level have been just as critical in ensuring the continued strength of the sport across all levels of participation.

The board comprises a mix of playing, coaching, business, administration and academic experience:

- Dr Ross Smith (Chair) – Australian Catholic University, former player and Senior Coach
- Dr David Buttifant – Sport Science Director, Collingwood Football Club



SMA member and Essendon Football Club doctor Brendan DeMorton in action.

- Brian Cook – Chief Executive Officer, Geelong Football Club
- Neale Daniher – General Manager Football Operations, West Coast Eagles Football Club, former player and Senior Coach
- Professor Peter Fricker – Acting CEO, Australian Sports Commission and Director of the Australian Institute of Sport (AIS)
- Dr Peter Harcourt – AFL Medical Commissioner and former Olympic team doctor
- Associate Professor Colin McLeod – Former AFL General Manager Marketing and Communications, currently Executive Director, Australian Centre for Retail Studies at Monash University
- David Parkin – Deakin University, former player and Senior Coach
- Dr Hugh Seward – Executive Officer, AFL Medical Officers Association and former Geelong Football Club doctor
- Dr Anthony Schache – University of Melbourne and Physiotherapist, Richmond Football Club
- Lawrie Woodman – AFL Manager Coaching, Umpiring & Volunteers
- Shane McCurry (Secretary) – AFL Manager, Research & Football Projects and Secretary AFL Laws of the Game Committee



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# BE ACTIVE 2012

OCT 31 – NOV 3 2012 SYDNEY, AUSTRALIA

In 2012, Sports Medicine Australia will host the paramount sports medicine, sports science, sports injury prevention and physical activity promotion conference event in Australia.

The Conference will incorporate the 4th International Congress on Physical Activity and Public Health, the Australian Conference of Science and Medicine in Sport, the Australian Physical Activity Conference, and the Australian Sports Injury Prevention Conference, under the banner of "be active 2012".

be active 2012 will bring together some of the finest speakers from Australia and around the world to present a comprehensive scientific forum on all facets of these fields - from elite performance to community participation in sport, physical activity and their impact on individual and public health. be active 2012 will be held at the Sydney Convention and Exhibition Centre, New South Wales, Australia from 31st October to 3rd November 2012.

be active 2012 will showcase the latest developments through keynote and invited presentations, symposia, practical workshops, free papers, posters and a trade exhibition. It will also provide extensive networking opportunities.

The anticipated outcome of be active 2012 is to assimilate, interpret and share scientific evidence with key stakeholders who are in a position to develop recommendations concerning effective policies and programs within their own jurisdictions.

Submission of Abstracts will open in January 2012 and close 31 March 2012.

We look forward to welcoming you to Sydney, Australia in 2012.

[WWW.BEACTIVE2012.ORG](http://WWW.BEACTIVE2012.ORG)



PHOTO CREDITS | Lifesavers: David Druce; Tourism NSW | Bondi baths: Tourism NSW; Sally Mayman | CBD: Hamilton Lund; TNSW | Runners: Craig Kershaw; Tourism NSW | Koalas: Tourism NSW



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P +61 2 6230 6671 | F +61 2 6230 6676 | [acsms@sma.org.au](mailto:acsms@sma.org.au)

The program has been successful in translating knowledge into action and impact across a number of different areas:

**Table 1 The AFL Research Program translates knowledge into action and impact across the sport**

Area	Project	Outcome/S
Developing the capacity of volunteers	AFL sports trainer competencies policy and training structure ( <i>Donaldson et al, University of Ballarat</i> )	Position description for football sports trainers and education recommendations
Enhancing the skills of coaches	Coaching Effectiveness and Senior Coach Recruitment & Assessment ( <i>Mitchell et al, Stride Sports Management</i> )	Identification of factors that make an effective coach and framework to use for selection, retention and assessment of senior coaches
Reducing injuries at community level	NoGAPS: Development of injury prevention guidelines for community football ( <i>Finch et al, Monash University</i> ). NHMRC partnership with SMA, VicHealth, JLT Sport, NSW Sporting Injuries Committee and Sport and Recreation Victoria	Best practice warm-up guidelines for the prevention of injury at community level
Reducing injuries at elite level	Investigation of head and neck injuries; investigation into ruck-related PCL injuries; analysis of association between interchange and injuries ( <i>AFL Medical Officers Association, Orchard et al</i> )	Rule changes to prevent head and neck and PCL ruck injuries, and reducing interchange by one and introducing a substitute at AFL level to address 1) congestion, 2) fairness and 3) injuries
Improving treatment of injuries	Guidelines for the management of concussion in Australian Football ( <i>Makdissi et al, University of Melbourne</i> )	Implementation of best practice concussion management guidelines at AFL and community level
Improving community football environments and respect for umpires	Football environment program: 'Acting with a new attitude' ( <i>Levens, Glenlyon Consulting</i> )	Framework for rewarding respectful attitudes toward officials. Kick-start of the 'Umpiring is Everyone's Business' campaign
Evaluating effectiveness of the vilification rule	Reviewing Rule 30 ( <i>Curtin University</i> ). ARC partnership with Curtin, Monash and Melbourne University, VMC and AFLPA	Further strengthening of vilification policies and education, including assisting State Government to establish best practice for other sports
Using research as the platform for policy development	Alcohol consumption among AFL players ( <i>Dietze, Fitzgerald et al, University of Melbourne</i> )	Development of AFL Responsible Alcohol Framing Policy and associated initiatives
Improving the physical development of elite underage players	Hip and groin data analysis, standardised screening protocol and 1st year player training and playing workload analysis ( <i>Gabbe et al, Monash University; Cook et al, Deakin University; Finch et al, University of Ballarat</i> )	Review of Draft Camp Testing, closer integration of AFL Clubs with AIS/AFL and State Academies for elite youth
Improving the preparation of Australian Football playing surfaces	Effect of ground surface indicators on player safety ( <i>Chivers et al, Racing Solutions &amp; University of Melbourne</i> )	Guidelines for managing preparation and testing surfaces at AFL and sub-elite venues

For further information on the AFL Research Program please visit [www.afl.com.au/research/tabid/11899/default.aspx](http://www.afl.com.au/research/tabid/11899/default.aspx) or contact Shane McCurry on phone (03) 9643 1955 or email [shane.mccurry@afl.com.au](mailto:shane.mccurry@afl.com.au).

## Thoracic spine: the root of all evil



**Specialist Sports Physiotherapist Henry Wajswelner writes that when confronted by chronic spinal pain, look to the thoracic spine.**

The passionate interest in disorders of the thoracic spine that I developed while working with elite rowers at the Australian Institute of Sport in Canberra is now an obsession. I believe that poor thoracic posture and a stiff thoracic spine are primary contributing factors for all chronic spinal pain. Why?

### **Look at the anatomy: it's meant to twist!**

We know from the work of Steve Edmondston and his co-workers that as you drop into more kyphosis (curving of the spine), you lose rotation – and the thoracic spine is meant to rotate. If you consider the facet joints of the thoracic spine, you will realise that the facets

are organised in the frontal plane and the main movement allowed is rotation; in the lumbar spine the facets are sagittal and the main movement is flexion/extension and there is hardly any rotation. If you lose thoracic rotation, two things happen: first, you get a stiff thoracic spine that won't extend, throwing your head into a forward head posture and giving you a sore neck; and, second, you have to twist more in the lower back or pelvis to do things and you hurt your lower back by over-rotating it in flexion.

### **“Good posture is therefore important.”**

This is not a new idea, but an increased thoracic kyphosis is often associated with more lumbar lordosis (inward curvature). Good posture is therefore important.





Figure 1



Figure 2

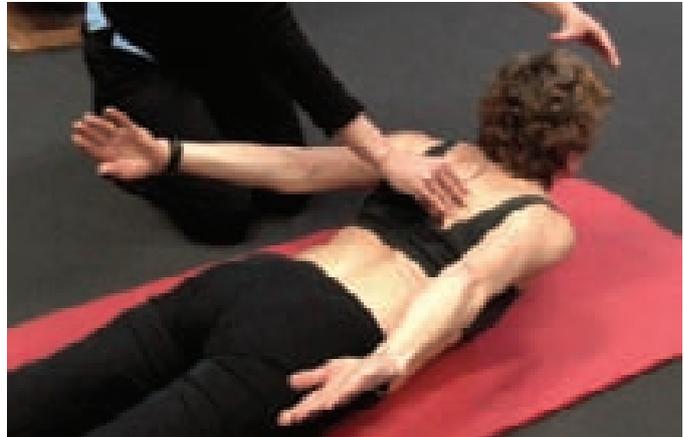


Figure 3

### As you get older, thoracic posture matters more

We know from the work of Straker et al.<sup>7</sup> that in children there is no clear relationship between posture and pain; however, we also know from a large body of research that increased thoracic kyphosis in the elderly is disastrous and associated with a host of serious morbidities like spinal pain, fractures, falls, respiratory problems, even a higher risk of death in nursing homes<sup>4,5,6</sup>.

**“When you are a child, you can get away with poor posture, but as you get older, I don’t think you can.”**

So does posture really matter? You bet it does! When you are a child, you can get away with poor posture, but as you get older, I don’t think you can.

Fon et al. (1980) measured thoracic kyphosis in children younger than 10 years and in adolescents aged 19 years and younger. In those younger than 10 years, they found that the average kyphosis was 20.00 degrees. In adolescents, the kyphosis had increased to an average of 25.11 degrees in boys and 26.00 degrees in girls. Females, on average, had slightly greater kyphosis in the thoracic spine throughout life. This difference between males and females increased past 40 years of age.

In women aged 50–59 years, the average kyphosis measured 40.71 degrees with a SD of 9.88 degrees, while men in the same age group had an average thoracic kyphosis of 33.00 degrees with a SD of 6.46 degrees.

**“This difference between males and females increased past 40 years of age.”**

In my opinion, kyphosis is evil. I measure it with the J-Tech Dual Inclinator (Figure 1). The ‘normal’ range in adults is about 30–50 degrees, but more than 55 degrees<sup>3</sup> has been associated with an increased risk of spinal fractures and other morbidities. That’s bad, and if a patient’s kyphosis is 50 degrees or more, I tell them that they have got work to do!

### Ask the chiropractors

Why is it that a chiropractor will always manipulate the thoracic spine, even if the patient has a neck or lumbar problem? The chiropractors know something. Yes, restoring thoracic mobility helps neck and low back pain, albeit temporarily. There are even high-quality randomised trials that prove that thoracic manipulation is as effective for neck pain as neck manipulation. Of course this feels great for a while and may encourage the patient to come back to have it cracked/adjusted again and again and again. I think people go back again out of habit, but all that high velocity thrust manipulation might make the thoracic joints unstable in the long term.

**“Why is it that a chiropractor will always manipulate the thoracic spine, even if the patient has a neck or lumbar problem?”**

I teach my patients to change their bad habits: maintain a good, upright sitting posture, and do daily exercises to maintain thoracic mobility. I call it ‘spinal hygiene’.

### Kyphosis in kids: prevention

Kyphosis is often blamed on Scheuermann's Disease, for which there is no good explanation. There seems to be a genetic component, but one of the theories is that habitual poor posture throws more load onto the front of the vertebral bodies, slowing the growth of the anterior vertebral bodies in relation to the back of the vertebral bodies, causing them to wedge. Briggs et al.<sup>1</sup> have demonstrated the increase in spinal loads attributable to kyphosis. Once the endplates herniate and the anterior longitudinal ligaments thicken, it's too late to correct the posture and it becomes fixed. Active thoracic extension (Figure 2), scapular exercises (Figure 3), spinal hygiene and avoidance of high repetitive loads while the spine is growing are my key preventive strategies.

**"I teach my patients to change their bad habits...I call it 'spinal hygiene.'"**

### Henry Wajswelner, FACP

Henry is a former Australian Olympic physiotherapist who has worked with elite athletes at the Australian Institute of Sport in Canberra for many years before returning to Melbourne to work in private practice.

References, as indicated within the article, are available at [sma.org.au/publications/sport-health/](http://sma.org.au/publications/sport-health/)

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## The seeking of wisdom



**Australasian College of Sports Physicians President, Dr David Hughes writes that his patients still challenge the knowledge he seeks.**

The more I experience in my occupation as a Sport and Exercise Medicine (SEM) Physician, the less I believe I understand, as a proportion of what there is to understand. Things were relatively simple when I was a 'highly educated' but relatively inexperienced physician. There were rules. The rules were accepted as fact. I was happy to pronounce the rules to my patients with great confidence, naïvely believing that I was doing them a favour.

**“Things were relatively simple when I was a ‘highly educated’ but relatively inexperienced physician.”**

The rules were many and varied and applied to all sorts of SEM patient presentations. Individuals with lower limb osteoarthritis should not run. Individuals with lower limb biomechanical disadvantages should be discouraged from running or at least be prescribed appropriate orthotics or footwear to enable them to do so. Individuals who choose to run should do so in a very graduated fashion. If patients choose to run long distances they should have a structured, progressive program which gently leads them towards a level of fitness appropriate for their chosen running distance. Individuals who run regularly should change their shoes regularly (probably every six months) and should choose a style of shoe which suits their foot type. Those with a low longitudinal arch and a pronating midfoot should wear a shoe

which provides longitudinal arch support, stability and motion control. Those with a high longitudinal arch and a supinated midfoot should wear a shoe which has a flexible, soft midsole with extra cushioning. Individuals who develop significant lower limb soft-tissue overuse injuries in the one or two weeks prior to an anticipated marathon should be dissuaded from pushing on through the pain, as attempting to run a marathon while carrying an injury will simply lead to a world of grief.

The problem is that as we progress through our professional lives we see individuals whose exercise experience simply doesn't fit with the accepted rules. Recently I saw a 59 year old, self-employed, builder who continues to play soccer on a weekly basis. His presenting complaint was of stiffness in the hip when trying to kick with his instep and an occasional ache with prolonged standing on concrete floors. Pain was not part of his presentation. Examination revealed about 30° of abduction in each hip and virtually no range of internal rotation or external rotation in each hip. Plain x-rays revealed an indiscernible joint space in one hip and a barely discernible joint space in the other hip. The marginal osteophytes were among the worst I have seen. This man's osteoarthritis had obviously been present for many years and yet he does not recall ever having any period of significant pain. The patient was looking for advice. Does he require medical intervention? Should he continue to play soccer? There was a time when I would have suggested that total hip replacement was appropriate for him. Certainly his medical imaging suggested so. The fact is that he does not have pain, he remains physically active and he enjoys his soccer. Total hip replacement is a pain-relieving procedure. This man does not have pain and therefore does not require hip arthroplasty. I would not usually recommend to a 59 year old with severe hip osteoarthritis that he plays soccer, but in the case of my patient, that is precisely what I did. There is something about his maintenance of a high level of physical activity which has protected him from the nociceptive stimulation which usually accompanies this degree of arthritis. Another patient of mine with a similar presentation is a veteran sprinter who again presented with stiffness but not pain due to a very badly arthritic hip. A third patient of mine is a lady in her 70s who continues to run daily and performs martial arts. She has a plain x-ray from 10 years ago which shows almost complete loss of the tibiofemoral joint space in one of her knees. Again she complains of stiffness in the knee but not pain. She has (sensibly) declined my offer of a further plain x-ray, given that she has no intention of undertaking any form of medical intervention.



**“...as we progress through our professional lives we see individuals whose exercise experience simply doesn’t fit with the accepted rules.”**

I enjoy running myself. But my idea of running is a session that lasts about 30 minutes at a fairly leisurely pace and in a particularly picturesque setting as a form of mental relaxation. I tell myself that I am ‘blowing out the cobwebs’ and (self indulgently) congratulate myself on being eminently sensible. This week I spent several hours providing medical coverage at the Canberra Marathon. If you ever want to challenge traditional belief systems in relation to running, fitness, pain, lower limb biomechanics and footwear, covering a community marathon is a good way to do so. To stand at the finish line and observe individuals of all shapes and sizes, a wide spectrum of ages and all manner of lower limb biomechanical constructions, is at once inspirational and humbling. Any notion that you have to be a ‘super athlete’ to finish a marathon is nonsense. Yes, you have to be determined and yes, you have to be tenacious. These non-physical factors notwithstanding, many physically ‘normal’ individuals complete a marathon and do so safely. The Canberra marathon had over 2,000 competitors and while a small proportion required medical attention (less than 50 individuals), none sustained serious injury or adverse medical event and none required medical transportation. Many of these competitors were senior in age (over 50 years) and moved with an awkward gait which suggested lower limb stiffness of one sort or another. I suspect many of these individuals would have radiographic evidence of lower limb osteoarthritis, should they be unfortunate enough to be sent for medical imaging.



This 59 year old man continues to enjoy soccer without pain.

Having a conversation with an individual who has just finished a marathon is even more revealing. Several individuals I spoke with had completed what I would consider ‘inadequate’ ground work for the marathon, not having run more than 10 km at any stage during their preparation. Had they asked my advice beforehand, I would have advised that they were at risk of developing significant overuse injuries such as bony stress injury, ITB friction syndrome, Achilles tendinopathy etc, given that they were intending to undertake a run that was four times the duration of anything they had attempted in training. There were individuals who were overweight and some significantly so. How is it that someone can run 42 km with a physique which suggests anything but a puritanical life of sensible nutrition and appropriate running?

Observation of the footwear worn by the marathon competitors simply served to further entrench my cynicism in relation to the science behind the sporting shoe. We have seen the pendulum swing in footwear science over the past decade from a highly prescriptive model where certain foot types demanded a certain type of shoe (almost completely unsupported by appropriate research) to a situation where there is a huge drift towards an ‘almost barefoot’ style footwear which provides little if any foot support. Such lightweight foot apparel was extremely popular in the recent marathon. I did not observe any correlation between lower limb overuse injury and lack of support for the longitudinal arch.

**“If you ever want to challenge traditional belief systems in relation to running, fitness, pain, lower limb biomechanics and footwear, covering a community marathon is a good way to do so.”**

For all the diversity the vast menagerie of humanity undertaking the marathon exhibited, the common binding factor was of heartfelt gratification at crossing the finishing line. The facial expressions were varied and the form of celebration was diverse but the satisfaction was ubiquitous. Some gave a steely grimace, others danced across the finish, some collapsed sobbing with joy into the arms of fellow runners or supporters. I saw no competitor and spoke with no competitor who was the slightest bit contrary in disposition. There was a universal feeling of elation and exhausted contentment. They had overcome the physical distress and the tyranny of the years. They had overcome the genu valgum, the leg length discrepancy, the excess kilograms, the lack of training and the ‘dodgy’ footwear. They had believed in themselves and been vindicated.

**“How is it that someone can run 42 km with a physique which suggests anything but a puritanical life of sensible nutrition and appropriate running?”**

When dealing with our patients, the aim is to deliver a better quality of life through good health and well-being. A positive state of mind obviously underpins such goals. A community marathon illustrates the fundamental truth that physical performance is as much about belief systems as it is about physical prowess and that well-being is experienced, not observed.

**“I would not usually recommend to a 59 year old with severe hip osteoarthritis that he plays soccer, but... that is precisely what I did.”**

Australia and New Zealand have a wealth of excellent resources for training in the sports sciences. As with all areas of education however, formal teaching provides a base, while it is experience which delivers the lesson. I feel very lucky to work in a field where my learning curve has no end in sight. My patients continue to challenge the wisdom that I seek – and I am immensely grateful to them for doing so.

**Dr David Hughes**

President, Australasian College of Sports Physicians

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## Building SMA's position statement on drugs in sport: the responses

Last issue we featured an article aimed to stimulate discussion about what position SMA should take on drugs in sport. Here are a few of the responses we received.

### **“The point of view adopted by the author argues by exception rather than well-founded research.”**

“The point of view adopted by the author argues by exception rather than well-founded research. A distinction should be made between ‘performance enhancing drugs’ and so named ‘recreational drugs’. Whilst most people speak about drug use by sportspeople there are examples in high achievement personnel in other areas. For example, Eugene Fodor, an international violin soloist, recently died from complications developed from multiple usages of addictive drugs. Whilst SMA is primarily focused on sports players it may be useful to circulate any findings of research to other high profile personnel.

Further, whilst there are examples of drug use for performance aids, the recreational usage is one area not usually considered. The two styles of recreational drug usage are ‘pyramiding’ and ‘stacking’. The first exists when a number of drugs are consumed similar to steps up a pyramid. When the apex is reached, the drugs are reduced stepwise down the pyramid. The second exists when the drugs are stacked as with dinner plates, consumed and then letting them wear off. Examples exist already of high profile people who have died by using one of these methods. Ultimately this type of drug use will affect performance levels.

At all levels of sport from local country clubs with which I have had many years experience, one would live in a fool's paradise to not know that there is evidence of multiple levels of taking drugs and the excessive use of alcohol and tobacco, elevated levels of depression associated with the drug use and the finality of suicide.

SMA may be able to use resources to collect information for all forms of addictive substance abuse and to use such data in an attempt to educate to deter and to stop, providing there are well resourced centres for rehabilitation.”

**Bruce Warhurst**

### **“Drug testing is a counsel of perfection thwarted by reality.”**

“Drug testing is a counsel of perfection thwarted by reality. Doping in sport has been with us from the pre-Christian era and has never been overcome. The question is, ‘should it be banned?’ There is a need to review the whole problem and formulate an acceptable plan.

The main reasons expressed for banning doping are that it is unfair and that it is dangerous to the individual. These theories need review.

Drugs are available to all athletes so that unavailability is not a reason for banning. Some may not wish to take them and that is their right but it should not affect others. If an athlete does not wish to train six days per week, should that prevent others? Some athletes have genetic advantages over rivals and this is not considered a problem. There are athletes who are paid to train. This is unfair to those who are not but is accepted as the norm. There are many examples similar to this which we simply accept. A similar position should exist in the drug field.

Drugs are dangerous. These substances are used every day in medical treatment without calamity so what is the problem with athletes? They are managed by money hungry backyard dealers and given excessive amounts of drugs with advice based on ignorance and this is doomed to cause trouble. We read of cancer of the liver occurring with anabolic steroids but these are mainly in patients suffering from blood dyscrasias where the steroid is being used as therapy. The patient dies from their disease and these tumours are found at autopsy. They lack the hallmark of cancer, namely metastases. Steroids have been accused of causing heart trouble but the same problems occur in non-users. Similar anomalies exist with other drugs where emotion plays more part than reason and facts in forming a policy. If danger is a reason for bans, should we not ban boxing, football and horse riding which are associated with deaths?

The application of the rules leaves much to be desired. The substance is banned and that applies to everyone. Insulin is a banned substance but diabetics are allowed to use it for treatment for their disease. Beta-blockers are banned and cardiac patients with angina of effort who participate in bowls or sailing are not allowed to use the drug. This is totally inconsistent. HMB is a banned substance. This is a metabolite of leucine, an essential amino acid. An athlete cannot take HMB but can swallow leucine by the kilogram with the same effect.

The administration of the rules leaves much to be desired. In the Seoul 100m final Johnson was banned. Lewis and Mitchell had been positive a year before the race and were excused by their association and Christie was positive for pseudoephedrine on the day and was excused by the medical commission! Athletes are not the only cheats.

The whole system needs review to protect all athletes. The present state costs millions of dollars which could be better spent elsewhere. We could do without the program.”

**Anthony P Millar**

## Discipline group news and events

### The Australasian Academy of Podiatric Sports Medicine (AAPSM)

#### News:

- The AAPSM continues to be busy in planning its contribution to the annual ACSMS conference delivered by SMA.
- The individual States under the leadership of the State Trustees are holding regular continuing educational events with an interesting array of speakers.
- Considerable discussion is also being held over the planning of a College of Specialist Podiatrists which is arguably the most exciting development to occur within AAPSM in its history. This will include new and updated pathways to achieve Fellowship status. Further information will be announced as developments take place.

#### Upcoming events:

- Contact your State Trustees of the Academy for educational activities within your State.
- Dr Richard Bouche DPM is one of the keynote speakers at the SMA Conference in October 2011 in Fremantle. More information in the next edition, but suffice to say 'don't miss him!'

For more information visit [www.aapsm.org.au](http://www.aapsm.org.au)

### Australasian College of Sports Physicians

#### News:

- The recent ACSP Clinical Sports Medicine 2011: Knee Conference was attended by a mix of GPs, Occupational and Rehabilitation Physicians, Physiotherapists, Exercise Physiologists and Osteopaths. Twenty Sport and Exercise Medicine Physicians were involved, presenting talks on functional anatomy, a general approach to the assessment of knee pain, management of common knee pathology such as patellofemoral pain, ACL rupture and osteoarthritis, as well as clinical workshops teaching examination, use and interpretation of imaging and injection techniques. Two invited knee surgeons also provided a lively debate on the pros and cons of using hamstring tendon v LARS ligament in ACL reconstruction. Next year's event focusing on the Upper Limb will be held on March 4, 2012.

#### Upcoming events:

- **26th ACSP Annual Scientific Conference**  
November 13–16, 2011  
Hyatt Coolum, Coolum Beach QLD  
Registrations will open shortly

For more information visit [www.acsp.org.au](http://www.acsp.org.au)



### Australian Psychological Society College of Sport and Exercise Psychologists (CoSEP)

**News:**

- The CoSEP is currently experiencing its largest membership base in its history to-date.
- The transition to national registration and the introduction of endorsed area of practice (i.e. 'sport and exercise psychology') as part of formal registration is almost complete for most practitioners. The APS and specifically CoSEP have played a significant role in assisting its members through these changes.
- The next focus for CoSEP has been to assist members to navigate the new changes to the Continuing Professional Development (CPD) requirements that are now part of registration – with specific needs identified for those psychologists that hold endorsed areas of practice.

**Upcoming events:**

Australia

- CoSEP Themed Day – APS Annual Conference 2011  
October 4–8, 2011, Canberra (date TBC)  
[www.apconference.com.au](http://www.apconference.com.au)
- CoSEP AGM – APS Annual Conference 2011  
October 4–8, 2011, Canberra (date TBC)
- Career Counselling, Coaching and Assessment Workshop by Dr Jim Bright FAPS  
September 14–16, 2011, Sydney  
(CoSEP endorsed activity)  
[www.brightandassociates.com.au/3-day-flyer-2011.pdf](http://www.brightandassociates.com.au/3-day-flyer-2011.pdf)
- CoSEP National and State Section CPD events  
[www.groups.psychology.org.au/csep/events/](http://www.groups.psychology.org.au/csep/events/)

Overseas

- NASPSPA Annual Conference 2011  
June 9–11, 2011, Burlington, Vermont, USA  
[www.naspspa.org/about-the-conference/about-the-conference](http://www.naspspa.org/about-the-conference/about-the-conference)
- 13th European Congress of Sport Psychology 2011  
July 2011, Madeira, Portugal  
[www.fepsac2011madeira.com/](http://www.fepsac2011madeira.com/)
- AASP Annual Conference 2011  
September 20–24, 2011, Honolulu, Hawaii, USA  
<http://appliedsportpsych.org/conference>
- BASES Annual Conference 2011  
September 2011, Essex, UK  
[www.bases.org.uk/BASES-Annual-Conference](http://www.bases.org.uk/BASES-Annual-Conference)
- 6th ASPASP International Congress 2011  
November 11–14, 2011, Taipei, Taiwan  
[www.aspasp.org/welcome.html](http://www.aspasp.org/welcome.html)

**For more information visit [www.psychology.org.au](http://www.psychology.org.au)**



### SPORTS INJURY FACT SHEETS

*Sports Medicine Australia members can now display valuable sports injury prevention and management resources within their practice and even customise them with their own address and contact details.*



**For more information or for an order form visit <http://sma.org.au>**

## Exercise & Sports Science Australia (ESSA)

### News:

- ESSA will be launching Exercise is Medicine® Australia at the General Practitioners Conference & Exhibition (GPCE) in Sydney on May 20. Exercise is Medicine™ is a global initiative started by the American College of Sports Medicine (ACSM) that aims to make physical activity a key consideration of every patient visit to a GP.

Professor Steven Blair, one of the world's leading exercise scientists from the University of South Carolina, will present an overview of Exercise is Medicine – Its Role in Primary Care at this conference. As author of over 495 published papers and over 25,000 citations, Professor Blair will discuss EIM's benefits to health and the prevention and treatment of many chronic diseases.

Since its inception EIM has developed a presence around the globe, in countries such as Italy, Canada, Mexico, Costa Rica, Columbia, Portugal, Brazil and now Australia.

### Upcoming events:

- ESSA Business Forum 2011  
May 28–29, 2011, Melbourne

For more information visit [www.essa.org.au](http://www.essa.org.au)

## Sports Dietitians Australia (SDA)

### News:

- Save the date! SDA is pleased to announce the 2011 SDA Conference, October 14–15, 2011, Melbourne.
- SDA's Nutrition for Exercise and Sport Course continues to be popular with health care professionals, booking out weeks prior to registration closing. For a course in your state see below.

### Upcoming events:

#### ■ Nutrition for Exercise and Sport Course

One day professional development course tailored to meet the needs of fitness and health care professionals interested in nutrition for the active person. Accredited with Fitness Australia, Kinect and ESSA.

Course dates:

New South Wales – June 4 & August 27, 2011

Queensland – June 18, 2011

Australian Capital Territory – June 25, 2011

Victoria – August 20, 2011

Western Australia – September 10, 2011

For more information visit [www.sportsdietitians.com.au](http://www.sportsdietitians.com.au)

## Sports Doctors Australia (SDrA)

### News:

- The SDrA committee remains active, behind the scenes, developing ties with related organisations and working on sports medicine education programs.
- SDrA will again offer the one day Sports Medicine Emergency Care Course at the ACSMS 2011 in Fremantle. This is always a popular course, so we encourage you to apply early as numbers are strictly limited.

For more information visit [www.sportsdoctors.com.au](http://www.sportsdoctors.com.au)



## Top 10 hottest articles of the *Journal of Science and Medicine in Sport* July to September 2010

The *Journal of Science and Medicine in Sport*, published by Sports Medicine Australia (SMA), is the major refereed research publication on sport science and medicine in Australia. The Journal provides high quality, original research papers to keep members and subscribers informed of developments in sports science and medicine. Produced for SMA six times a year by Elsevier Australia, it reflects SMA's commitment to encouraging world-class research within the industry, and its commitment to the continuing education of its members. Journal articles can be found at [jsams.org](http://jsams.org).

The following highlights the most popular article downloads at [jsams.org](http://jsams.org) over recent months.

1. Does warming up prevent injury in sport?  
*Vol. 9, Iss. 3, June 2006, pgs. 214–220*  
*Fradkin, A.J.; Gabbe, B.J.; Cameron, P.A.*
2. Does plyometric training improve strength performance? A meta-analysis  
*Vol. 13, Iss. 5, September 2010, pgs. 513–522*  
*Saez-Saez de Villarreal, E.; Requena, B.; Newton, R.U.*
3. Heart rate and blood lactate correlates of perceived exertion during small-sided soccer games  
*Vol. 12, Iss. 1, January 2009, pgs. 79–84*  
*Coutts, A.J.; Rampinini, E.; Marcora, S.M.; Castagna, C.; Impellizzeri, F.M.*
4. Vertical jump in female and male basketball players? A review of observational and experimental studies  
*Vol. 13, Iss. 3, May 2010, pgs. 332–339*  
*Ziv, G.; Lidor, R.*
5. Maximising performance in triathlon: Applied physiological and nutritional aspects of elite and non-elite competitions  
*Vol. 11, Iss. 4, July 2008, pgs. 407–416*  
*Bentley, D.J.; Cox, G.R.; Green, D.; Laursen, P.B.*
6. Effect of water immersion methods on post-exercise recovery from simulated team sport exercise  
*Vol. 12, Iss. 3, May 2009, pgs. 417–421*  
*Ingram, J.; Dawson, B.; Goodman, C.; Wallman, K.; Beilby, J.*
7. Negative effect of static stretching restored when combined with a sport specific warm-up component  
*Vol. 12, Iss. 6, November 2009, pgs. 657–661*  
*Taylor, K.L.; Sheppard, J.M.; Lee, H.; Plummer, N.*
8. A new framework for research leading to sports injury prevention  
*Vol. 9, Iss. 1–2, May 2006, pgs. 3–9*  
*Finch, C.*
9. A systematic review on the effectiveness of external ankle supports in the prevention of inversion ankle sprains among elite and recreational players  
*Vol. 13, Issue 3, May 2010, pgs. 309–317*  
*Dizon, J.M.R.; Reyes, J.J.B.*
10. Fundamental movement skills among Australian preschool children  
*Vol. 13, Iss. 5, September 2010, pgs. 503–508*  
*Hardy, L.L.; King, L.; Farrell, L.; Macniven, R.; Howlett, S.*



### Podcasts

Listen to interviews with authors discussing their work and the latest from JSAMS, via podcast at [jsams.org](http://jsams.org) or through iTunes by searching *Journal of Science and Medicine in Sport*.

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