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Cover photograph: John Orchard
Launch of SMA Sports Injury Prevention Programs

By Gary Moorhead

On Monday 22 September, the Federal Minister for Sport, the Hon Kate Ellis MP, launched Sports Medicine Australia’s (SMA’s) two latest injury prevention initiatives at Sports House in Melbourne.

The launch represents a watershed in SMA’s efforts to advance the cause of sports injury prevention in this country. In the last edition of Sport Health (Winter 2008), mention was made of an SMA-promoted “Consensus Statement about Sports Injury Surveillance and Prevention in Australia.” This Statement was to be the focus of SMA’s lobbying efforts in the field of sports injury prevention into the future. However, since the publication of the Consensus Statement, the Federal Government has announced a major review into the operation of sport in Australia and SMA has been invited (unofficially at this stage) to make the Consensus Statement the basis of a formal submission to the enquiry.

The enquiry is to look at the operation of sport both at the elite and the grassroots level. At the elite level, the focus will particularly be on the operation of the AIS and the various state and territory academies and institutes; at the community level, one of the major focuses will be on reducing barriers to participation in sport: dare we mention injury!

In the light of the pending inquiry, it is interesting to reflect on the remarks made by the Minister and by other speakers at the Launch.

Michael Kenihan

President of SMA, Michael Kenihan set the scene by describing SMA’s long history of working to reduce injuries in all levels of sport. Michael reminded the meeting that SMA had been founded before the Melbourne Olympics by a group of local doctors who were concerned about the level of care that would be provided to athletes visiting for the 1956 Olympic Games. Since then, SMA has underpinned sports safety in this country by developing and promoting guidelines (such as the updated Safety Guidelines for Children in Sport also being launched by the Minister), by developing and promoting other injury prevention programs and by the running of the Safer Sport Program which accredits more than 5000 Sports Trainers and First Aiders annually.

Caroline Finch

Professor Caroline Finch, the internationally renowned sports injury epidemiologist, described the fundamental requirements of sports injury prevention: good data collection, good research programs to develop countermeasures based on the data and most importantly, good translation of the research outcomes into policies and practices on the sports field. Professor Finch highlighted Smartplay as an example of the latter, with its substantial suite of resources based on years of careful research by Monash, Deakin and Ballarat Universities.

Kimberly Crow

A more personal reflection was provided by Kimberly Crow, an elite athlete who represented Australia in the rowing (women’s pairs) at the Beijing Olympics. Kimberly had originally been a runner, but had been forced to abandon the track after problems with stress fractures. This too close familiarity with sports injury was exacerbated by a wrist injury close to the start of the recent Beijing Olympics. Kimberly described a harrowing regime of treatment that had been necessary to get her to the starting line – and a good reminder that sometimes the best remedy for persistent injury is simply to stop doing what’s causing the problem…and rest!

Steven Herbert

Steven Herbert MP, the Victorian Parliamentary Secretary for Education (representing the Victorian Sports Minister), predictably (and correctly) made reference to the leading role that the State of Victoria had played in developing sports injury prevention programs. Suffering from a significant sporting injury himself (severe laryngitis as a result of barracking loudly for Hawthorn at the recent football final), Mr Herbert none the less was able to detail Victoria’s role in extending and enhancing the Smartplay program after its origin in South Australia and also in launching a unique new online community sports injury database – Injury Tracker. Injury Tracker was developed by the SMA Victorian branch.

Mr Herbert also made the point that declining participation in school sport, especially in government schools, was a major concern and that there was no doubt that injury and fear of injury played its part. An ageing teacher work force and increased concerns about liability for injury had also contributed. The Victorian Parliament was currently holding an inquiry into teacher education that would welcome a submission from SMA on increased emphasis on sports injury prevention education for school teachers.

Kate Ellis

Sports Minister Kate Ellis said that the Federal Government recognised the importance of tackling the problem of sports injuries – both to reduce the costs to individuals and the health system and also to try and remove injuries as a barrier to participation. Ms Ellis said that the revised Safety Guidelines for Children in Sport – which were being sent to all schools in Australia (and which are also available as a download from the SMA website) would be a
significant step in overcoming some of the issues described by Steven Herbert.

“These Guidelines and the Smartplay program provide clear and practical advice to people involved in sport to introduce uniform safety practices based on good preparation, correct techniques, appropriate equipment, safe sporting areas, protective equipment and modifying rules for children within community sport,” Ms Ellis said.

The Launch was attended by a number of SMA members, including State President David Bolzonello and former Victorian SMA State and ACSP President (and noted sports medicine author and AFL commentator) Peter Bruchner. There was also a strong contingent of sports injury researchers from the University of Ballarat, including Head of School Leonie Otago. A number of sports were represented at the event, including AFL, Netball, Basketball, Squash, Rowing and Lacrosse as well as the AFL Players Association and a contingent of staff and students from Maribyrnong College, a school with an enhanced sports program.

The Smartplay materials and the Children’s Guidelines will also be distributed to all graduating Sports Trainers and available through them to their clubs or associations or can be downloaded from the SMA and Smartplay website. (www.sma.org.au and www.smartplay.com.au)

Correspondence: gary.moorhead@sma.org.au

Sports Doctors Australia (SDrA)

In a recent Presidents Report, SDrA outlined the previous year’s achievements as:

• Our response to the AMC re the ACSP submission for specialist status for Sports Medicine and the subsequent meeting in Sydney.
• The development of closer ties with the ACSP via numerous calls to and face to face meeting with David Humphries and Jeni Saunders. Future ties will depend on the specialist status question and their response to our submission.
• Development of closer ties with RACGP and NRF through workshops and curriculum review.
• Further development and promotion of our Emergency Medicine workshop coordinated by Shane Brun and the purchase for around $9,000 of all the mannequins and equipment for this.

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Dr J

We like to be critical of the Chinese - but how much better are we?

Watching the recent Beijing Olympics, I was reminded about one of my all-time favourite sports medicine patients. I can’t remember her name but I clearly recall the history and diagnosis. We doctors get fairly accused of thinking like this, although in this situation it means that, fortunately, I won’t be breaking patient confidentiality. I saw this Chinese woman as a patient in the mid 1990s. She was working cash-in-hand as a waitress in Sydney but was a retired elite volleyballer. So elite, in fact, that she had previously played in the Chinese team for many years and was an Olympic medallist.

She came to see me about a knee injury. It occurred when she landed awkwardly during a volleyball match, playing for China, in the 1980s. She knew that something was badly wrong with her knee. However, her coach and whatever passed for medical care in charge of training the team didn’t believe her. They told her she just had to forget about the injury and keep playing. She tried to keep playing but found the knee kept collapsing on her. The next match for the Chinese volleyball team was in Australia and, whilst here, she made the decision to run away from her team and illegally settle in Sydney. She told me that if she hadn’t performed in that tour, that she would have been sacked from the team. This would have meant that she would have also been kicked out of her apartment, which was provided for her by the Chinese government solely because she was on the volleyball team.

As many of you would have diagnosed from the history alone, my examination confirmed that she had torn her anterior cruciate ligament in that landing ten years earlier while playing for China. I then started to tell her that the injury could be fixed but it would require surgery. Unfortunately it would cost her many thousands of dollars. I wasn’t actually sure whether she was an illegal immigrant and whether she was eligible to join a public hospital waiting list, so I started to outline the costs of getting the operation done privately.

At this point she started crying. I started to feel bad too, thinking that I was in the excluded company of an Olympic medallist but one who was so poor, through no fault of her own, that she couldn’t afford to get a knee reconstruction. However, on seeing my sad expression she stopped me. She said I didn’t understand her tears. She was no longer worried about fixing the knee. She was crying tears of joy because I was the first doctor she had seen that explained to her that the injury to her knee was genuine. My opinion meant that she realised she had made the right decision to run away from China. A small part of her had worried that maybe the coaches were right and there wasn’t anything wrong with knee and she should have kept playing. Because I told her that she couldn’t have returned to sport without surgery, she now knew there was no chance she would have had a better life had she remained in China. The knee injury meant that her destiny was that she had to move to Australia.

This is a somewhat heart-warming story that most Australians will love, and it might confirm prejudices that we live in the best country in the world. One of the reasons we believe that we do, amongst many others, is because we yet again have finished as a top nation on the Olympic medal count. Australia is such a terrific sports-loving nation and we are proud that we punch above our weight at the Olympics every time. We note that we would easily beat countries like China and the USA on the “per-capita” medal table. And popular opinion has it that the Chinese treat their elite athletes like caged animals. Their gymnasts are rumoured to be all 13 years old and start training at the age of 4 to deliberately stunt their growth so they are more likely to win Olympic medals. Then it is claimed that they falsify their birth certificates to get them competing at an illegal age. Their injured athletes are supposedly cast aside and replaced by clones who managed to survive the ridiculously-arduous training programs. Regardless of the accuracy of these assertions, we are so lucky that we can do so well on the Olympic medal tally without treating our athletes like the Chinese.

I don’t want to defend China at all for how they treat their athletes, but would argue that in many ways Australia walks on the same side of the street.

Like the Chinese government, Australia’s primary government investment in sports and exercise has been devoted to achieving Olympic success. It has not been a stated goal of the Australian government that a certain percentage of the population should be exercising. By contrast, it has been a clearly stated goal of our government that we want to finish high on the medal count at the Olympics as possible. Our Federal governments of the last 30 years have clearly held the view that the public wants the taxpayer to fund elite sport to achieve international success, but that the public does not want to taxpayer to fund exercise programs as a form of preventive medicine. The Rudd government has been talking the talk (a la 2020 Summit) about needing to devote more resources to preventive health, but it has yet to walk the walk. There are some positive signs that this
might be about to change but I will keep the champagne corked until it actually does. It has been said that Kevin Rudd has “hit the ground reviewing” which is an apt descriptive of the first nine months of his government. If they really do start spending big on preventive and participation programs then they will be worthy of accolades. At the moment most of the Howard money for elite athletes is still there, but the money for encouraging sports participation and preventing injury is still only ‘under consideration’.

Therefore, we still don’t have a national goal for physical activity, or even the pronouncement from our government that it is completely unacceptable that only half the population is adequately physically active for health benefit. This government has not yet seemed to have strayed from the well beaten track that they will only support initiatives that will win them more votes. Olympic medals are an opiate for the masses, but preventive health apparently isn’t. Hence our government will continue to pay to import Chinese gymnastic coaches to teach our gymnasts how to train like Chinese gymnasts.

However, will it fund programs to try to turn around the recent increases in Type II diabetes and obesity in the general population? Public hospitals will be forced to continue to treat the cardiovascular disease, mental illnesses and cancers caused by the inactivity epidemic. Will the Federal Health Ministry set a concrete goal of, say, 80% of the population meeting physical activity guidelines and vow to keep increasing programs until we have met that goal? Although the Rudd government apparently doesn’t want to increase overall government spending, this is an area akin to smoking cessation in that every dollar you put in to it would pay itself back tenfold in savings over future years.

And what of the Chinese Olympic volleyballer - how would she have been treated if she was an Australian at the time? Of course if she was in the national team, she would have had access to high quality physiotherapists, sports physicians and orthopaedic surgeons. The ACL tear would have been diagnosed and surgically managed, paid for by the elite athlete program. She would have been given every chance to return to the national team. We would have given her this type of management in the 1980s, even if China is struggling to provide it today.

However, what about a girl from one of Kevin’s ‘working families’ in country or outer suburban Australia in 2008? What happens if she tears her ACL playing volleyball or netball? She will probably attend a bulk-billing GP and an emergency department, both of which are still most likely to miss the diagnosis. She would have an X-ray ordered which would probably be normal. Like the Chinese volleyballer she may get told “there’s nothing badly wrong with your knee” if she complains that it doesn’t feel right. Perhaps a physiotherapist would suspect the diagnosis, but what if she doesn’t get to a physiotherapist because she has no private health insurance and can’t afford the fees? It is unlikely she’ll see a sports physician because according to our government (who refuses to fund the training of sports physicians), these doctors are a luxury item who aren’t required in the outer suburbs and country. Her family might get understandably frustrated with the mainstream medical system and suggest she go to see an alternative practitioner of some sort because the regular doctors haven’t been helping her. If she is very lucky she might end up on a public hospital waiting list for 12 months and be told “not to play any sport in this time”. There she might have this difficult surgery done by a fully-qualified orthopaedic surgeon, but equally she might have a registrar working unsupervised and using her knee as practice for the real world of private medicine.

You might say that this girl’s biggest mistake was not choosing a stockbroker father or lawyer mother so her family could have afforded to pay for private health insurance and to see a top knee surgeon. Equally you could say that her biggest mistake was not to have been born in New Zealand, Switzerland or one of the Scandinavian countries. In these countries everyone is properly insured for the consequence of this sort of injury. In New Zealand, she would have had free physiotherapy, sports medicine, MRI and private orthopaedic surgery consultations paid for by the ACC. She would receive compensation for the time that she was off work and hence her surgery would have been done promptly.

New Zealand doesn’t have the mining riches of Western Australia or Queensland, hence their government is running on a much tighter budget than ours. But they can afford to make sure that all of their citizens who suffer a serious sporting injury get properly looked after. We obviously could afford it in Australia, but we choose not to. We pump the money into elite athlete programs ahead of sport for the community. And it shows. We smoked New Zealand in the Beijing medal tally. Now all we have to do is catch China. And if we beat China in the medal tally, would this prove how much we really love sport in Australia? Or should we be trying to look after injured athletes in the community better than our poor neighbour New Zealand does?
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Measuring the Impact of the Healthy Club Sponsorship Program via an Observational Audit.

By Christina Mills*, Fiona Boys#, Michael Rosenberg* & Deb Bow#

* Health Promotion Evaluation Unit, Edith Cowan University (HPEU@ecu.edu.au)
# Sports Medicine Australia - WA Branch (fiona@smawa.asn.au)

Summary

A ‘Healthy Club’ is an organisation that provides and promotes a healthy and safe environment for players, coaches, officials and spectators1. In Western Australia, the Healthway Healthy Club sponsorship program provides financial support to local sporting clubs to develop, promote and implement Healthy Club policies and practices conducive to healthy and safe sporting environments. Since 2001, over 1400 clubs have participated in this program.

The findings contained within this report are based on the results of the 2006/7 Healthway Healthy Clubs sponsorship audit. The audit formed part of the evaluation of this program, the second component being a sponsorship survey. This field study pilot tested the observational audit tool to assess if sponsored clubs used items provided to them in the ‘Healthy Club Kit’, if they implemented Healthy Club policy and if they complied with smoke free guidelines. Overall, the Healthway Healthy Club sponsorship program was found to be cost effective and successful at promoting smoke free, sun protection, alcohol and nutrition initiatives at audited clubs.

Introduction

In conjunction with the Western Australian Health Promotion Foundation (Healthway), Sports Medicine Australia WA Branch (SMAWA) has managed the Healthway Healthy Club Sponsorship Program since 20012. The main role of SMAWA is to assist sporting clubs to develop, promote and implement Healthy Club policies and practices. For example, in their first year of funding, sporting clubs work with SMAWA to develop a policy that addresses a range of health issues and in subsequent years clubs receive assistance to expand and review this policy. SMAWA also provides access to a range of education and training courses e.g. injury prevention, sports nutrition, drugs in sport, sports first aid and responsible service of alcohol (RSA) training.

Sponsorships of up to $2500 are provided to a variety of sporting clubs to support health, safety, education and

Table 1: Type of Club

<table>
<thead>
<tr>
<th>Type of Club</th>
<th>Number of Audits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch Football</td>
<td>1</td>
</tr>
<tr>
<td>Triathlon</td>
<td>1</td>
</tr>
<tr>
<td>Surf Life Saving</td>
<td>2</td>
</tr>
<tr>
<td>Tennis</td>
<td>2</td>
</tr>
<tr>
<td>Baseball</td>
<td>1</td>
</tr>
<tr>
<td>Cricket</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
</tr>
</tbody>
</table>
participation initiatives. The overall aim of this program is to:

- encourage sporting clubs to develop, promote and implement policies that ensure a healthy and safe environment for all;
- increase participation in physical activity; and
- improve administration and sport delivery through increased education and training opportunities.

Clubs that receive funding are required to become completely smoke free in all indoor areas (N.B. this was a funding obligation prior to the enactment of indoor smoke free laws) and to develop and implement health strategies relating to nutrition, smoking, alcohol and sun protection. To assist clubs to achieve these aims SMA provides them with a Healthy Club kit. Each kit contains a Healthy Club banner; Healthy Club information and policy booklet; posters (e.g. Healthy Club, No Smoking, Sport Safety); sponsorship merchandise (e.g. ice packs, water bottles, magnets, clothing, stickers), and health information (e.g. nutrition, sport safety, injury management, sun protection, alcohol and tobacco use).

In Western Australia, health sponsorship of sporting organisations has been shown to be effective in promoting health messages although it is unclear how effective sponsorship kits are at influencing policy and structural change (e.g. smoke free environments). Therefore, the aim of this field study, was to develop an evaluation tool to assess if sponsored clubs used the Healthy Club kit provided to them; if they implemented Healthy Club policy and if they complied with smoke free guidelines, which was a criteria of grant acceptance.

**Method**

In February 2007, SMAWA sponsorship officers attended various Healthy Club events and conducted the audits. Nine clubs (two country and seven metropolitan) were selected to participate. As shown in Table 1, various types of clubs were included in the pilot audit. Clubs were aware that SMAWA sponsorship officers would be visiting their events.

**Audit tool**

The observational audit was developed by the Health Promotion Evaluation Unit (HPEU) in conjunction with SMAWA. The audit was adapted from environmental audits previously developed by HPEU for large scale sponsorship evaluations. The audit contained two sections. The first section collected information about sponsorship strategies and allowed auditors to document and score the signage, announcements, clothing and campaign material seen/heard at a club event. The second section contained a ‘Health Policy Checklist’ which required auditors to record whether or not clubs had initiated and/or complied with certain smoking, alcohol, sun protection and nutrition policies. On average the audits took 20 minutes to complete.

**Results**

**1) Sponsorship Promotional Strategies and Health Policy**

As shown in table 2, eight of the nine clubs displayed the Healthy Club signage provided in their kits (i.e. banner, posters etc). Promotional material was used at four of the nine clubs (i.e. Healthy Club stickers, water bottles, t-shirts/bucket hats), two of the nine clubs displayed their Healthy Club policy on a club notice board and one club made a Healthy Club announcement about sun protection and hydration.

**2) Health Policy Checklist**

All nine club events were smoke free (i.e. the auditors did not smell any cigarette smoke or see anyone smoking at the events). At seven of the nine clubs ‘No Smoking’ signage was seen, however the auditors did not see any signage ‘directing smokers to an outdoor smoking area’ or see any signage ‘that an outdoor area was a non smoking area’. Alcohol was available at four club events. All four of these clubs provided non/low alcohol alternatives and water was available for free at two events. Sun protective clothing (e.g. sun glasses, hats, long sleeve shirts etc) was worn by participants.

<table>
<thead>
<tr>
<th>Table 2: Audit Results</th>
<th>% (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sponsorship Promotional Strategies</strong></td>
<td></td>
</tr>
<tr>
<td>Signage (banners, posters, etc)</td>
<td>89%</td>
</tr>
<tr>
<td>Merchandise (clothing, stickers, water bottles, etc)</td>
<td>44%</td>
</tr>
<tr>
<td>Healthy Club policy displayed on club notice board</td>
<td>22%</td>
</tr>
<tr>
<td>Announcements</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Health Policy Checklist</strong></td>
<td></td>
</tr>
<tr>
<td>Club was smoke free</td>
<td>100%</td>
</tr>
<tr>
<td>Alcohol available at the club event</td>
<td>44%</td>
</tr>
<tr>
<td>Sun protective clothing worn</td>
<td>100%</td>
</tr>
<tr>
<td>Shaded areas provided</td>
<td>89%</td>
</tr>
<tr>
<td>Sun Screen provided</td>
<td>44%</td>
</tr>
<tr>
<td>Food available</td>
<td>67%</td>
</tr>
</tbody>
</table>
HEALTHWAY HEALTHY CLUB AUDIT 2006/2007

Venue: __________________ Event: __________________

Estimated attendance: ___________ Time arrived at event: ___________ Time left event: ___________

Time audit started: ___________ Time audit finished: ___________

Which health sponsor(s) were noticeable? (e.g. Healthway, Sports Medicine Australia, National Heart Foundation etc)

- None
- Healthway
- Other (please specify) ___________________________

Which commercial sponsor(s) were noticeable?

- None
- Other (please specify) ___________________________

Which health message(s) were noticeable at the event?

- Healthy Club
- Other (please specify) ___________________________

SCORE

<table>
<thead>
<tr>
<th>Evidence of Health Sponsorship</th>
<th>Score</th>
<th>Comment / describe what was seen or heard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SIGNAGE</td>
<td></td>
<td>(Above) (Message, number of signs, % staff in clothing)</td>
</tr>
<tr>
<td>Large banners or signs</td>
<td></td>
<td>e.g. Healthy Club banner</td>
</tr>
<tr>
<td>Small signs</td>
<td></td>
<td>e.g. No smoking signs</td>
</tr>
<tr>
<td>Posters</td>
<td></td>
<td>e.g. Healthy Club, sports safety</td>
</tr>
<tr>
<td>2. ANNOUNCEMENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA Announcement</td>
<td></td>
<td>acknowledgment of the health message/sponsor</td>
</tr>
<tr>
<td>MC Acknowledgment</td>
<td></td>
<td>acknowledgment of the health message/sponsor</td>
</tr>
<tr>
<td>Endorsement</td>
<td></td>
<td>a performer/participant at the event acknowledges the health message</td>
</tr>
<tr>
<td>3. CLOTHING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.g. Healthy Club hats, t-shirts, etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. CAMPAIGN MATERIAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merchandise</td>
<td></td>
<td>stickers, water bottles, etc</td>
</tr>
<tr>
<td>5. OTHER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Modelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactive activities</td>
<td></td>
<td>e.g. food tasting</td>
</tr>
<tr>
<td>Notice board/health display</td>
<td></td>
<td>boards/areas set up displaying the health message</td>
</tr>
</tbody>
</table>

SCORE

<table>
<thead>
<tr>
<th>NA</th>
<th>Activity was not assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No evidence of this type of promotional activity whatsoever</td>
</tr>
<tr>
<td>1</td>
<td>Low evidence, promotion activity present but probably noticed only by a minority of patrons (&lt;50%)</td>
</tr>
<tr>
<td>2</td>
<td>Medium evidence, promotion activity present and probably noticed by the majority but not all patrons (50% to 75%)</td>
</tr>
<tr>
<td>3</td>
<td>High evidence, promotion activity present and probably noticed by all patrons (&gt;75%)</td>
</tr>
<tr>
<td>Section</td>
<td>Question</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Health Policy</strong></td>
<td><strong>Checklist</strong></td>
</tr>
<tr>
<td></td>
<td>Did you see any signs relating to health?</td>
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<td></td>
<td>Did you see any “Healthy Club” signs?</td>
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<tr>
<td></td>
<td>Did you hear any announcements relating to health?</td>
</tr>
<tr>
<td></td>
<td>Did you hear any “Healthy Club” announcements?</td>
</tr>
<tr>
<td><strong>1. Smoking</strong></td>
<td>Did you smell any cigarette smoke at the event?</td>
</tr>
<tr>
<td></td>
<td>Did you see anyone smoking at the event?</td>
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<tr>
<td></td>
<td>Did you see any no-smoking signage?</td>
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<tr>
<td></td>
<td>Did you see any signage indicating or directing smokers to an outdoor</td>
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<tr>
<td></td>
<td>smoking area?</td>
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<td></td>
<td>Did you see any signage indicating that an outdoor area was a no-smoking</td>
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<tr>
<td></td>
<td>area?</td>
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<tr>
<td><strong>2. Alcohol</strong></td>
<td>Was alcohol available at the event?</td>
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<td></td>
<td>Were low alcohol alternatives available?</td>
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<tr>
<td></td>
<td>Were non alcohol alternatives available?</td>
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<tr>
<td></td>
<td>Was water available for free?</td>
</tr>
<tr>
<td><strong>3. Sun Safe</strong></td>
<td>Were shaded areas provided for participants?</td>
</tr>
<tr>
<td></td>
<td>Were shaded areas provided for spectators/audience?</td>
</tr>
<tr>
<td></td>
<td>Was sun screen provided?</td>
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<tr>
<td></td>
<td>Was sun protective clothing worn by participants?</td>
</tr>
<tr>
<td></td>
<td>Was sun protective clothing worn by staff/officials?</td>
</tr>
<tr>
<td><strong>4. Food</strong></td>
<td>Was food available at the event?</td>
</tr>
<tr>
<td></td>
<td>Was fresh fruit offered?</td>
</tr>
<tr>
<td></td>
<td>Were fresh vegetables offered?</td>
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<tr>
<td></td>
<td>Were low fat alternatives offered?</td>
</tr>
<tr>
<td></td>
<td>Were vegetables or salads included as part of a meal?</td>
</tr>
<tr>
<td><strong>5. Other</strong></td>
<td>Did you see any staff/officials wearing “Healthy Club” hats/clothing?</td>
</tr>
<tr>
<td></td>
<td>Did you see any players wearing “Healthy Club” hats/clothing?</td>
</tr>
</tbody>
</table>

**NOTES:**
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staff and officials at all nine events. At eight of the nine clubs, shaded areas were provided for participants and spectators. Four of the nine clubs provided participants with sun screen. Food was available at six club events. Four clubs included vegetables/salad as part of a meal. Three clubs offered low fat alternatives and fresh fruit.

**Conclusion**

In Western Australia, Healthway in conjunction with SMAWA and other health organisations have used sponsorship as a method of encouraging health reform. Once sponsorship funds have been awarded however, the implementation and enforcement of healthy policies and structural supports can be difficult, therefore methods of evaluation are important to inform this process.

This field study pilot tested an observational audit tool to assess if sponsored clubs used items provided to them in the Healthy Club kit; if they implemented Healthy Club policies and if they complied with smoke free guidelines. Evidence of a variety of environmental supports were observed at audited events, of which the most popular method for promoting the healthy club sponsorship was via the signage provided in the Healthy Club kit. Overall, all clubs complied with the smoke free policy as smoke free environments were observed at all clubs. The Healthy Club sponsorship program was also successful at promoting other health initiatives relating to sun protection, alcohol and nutrition.

As the Healthy Club Audit was found to be useful at gathering information about sponsorship strategies and health policy it will be used at future events to evaluate the success of this sponsorship program. This tool may also be of use to other sporting clubs wishing to review or expand their health policies and practices. A limitation of this study was that the audits were only conducted at nine events and that the audits were implemented by SMAWA officers. Therefore, in 2008 the number of events audited will be increased and to avoid the possibility of measurement bias, the audits will be conducted by an independent survey research company. Overall, the wording and format of the audit was found to be functional and compatible with questions asked in the sponsorship survey, therefore, the audit will be reused in 2008, however, questions relating to sport safety will be added (e.g. Were players seen warming up before the game?).

The Healthy Club Sponsorship program provides encouragement and support for local sporting clubs to implement Healthy Club policies and practices in return for a small amount of financial support. Overall, the majority of sporting clubs that participated in this study were observed to be proactive in implementing Healthy Club initiatives and the audit tool developed to assess the impact of the Healthway Healthy Clubs sponsorship program was found to be of value to the evaluation process.

**REFERENCES**

Jurassic Park Revisited: Research and science meets the dinosaur

By John Buchanan

Like all sports, the sport of cricket has its special brand of uniqueness. The time it takes to play, the rules, the equipment, the wicket, the history and so on. For me though what makes it so different is the way in which it has virtually shunned the new world.

It can be argued that Kerry Packer, technology, stadia, professionalism of athletes are all signs of a sport that has embraced change, and has advanced into the 21st century.

However, in my opinion, many aspects of cricket still exist as relics of the past – a dinosaur within the modern era. For cricket to make significant strides of change, it needs to not only embrace research and science, but also harness the power of these tools of change and create the new Jurassic Park of modern sport.

Let me briefly touch on some of the areas that I have seen where research and science can greatly assist the acceleration of this evolution. My horizons are quite limited, but with due priority given to this whole area, the possibilities will be endless!

Firstly background, the players’ perspective - I view the game from four main skill perspectives, technical, physical, mental & tactical.

In terms of technical skills, the game has and continues to unearth new skills due to individuals and the game structure (Twenty20 to Tests, different countries and conditions, Bradman to Lara, Grimmett to Warne & Muralitharan etc). Through improved coaching and injury prevention strategies, the game has gained, but also lost – difference. Different skill sets are one of the key ingredients to the success of any team, individual and business. What were or are the technique differences that allowed Bradman, Hobbs, Verity, Sobers, Akram, Gleson, Thomson, Murali, Saqlain, Tendulkar, Hadlee and Pollock to exist successfully on the world stage? Here we can explore different bat grips, bat swings, feet positioning at point of impact of bat, ball grips, transfer of momentum from run-up to action, relationship between body type-bowling action-speed or spin or swing. Physical skilling is one area of the game that we continue to operate in the dark. We have little information on the specific physical training needs of fast bowlers of different body shapes across the different games, Wicketkeepers, batsmen, allrounders, fieldsmen – what are the physiological demands of the game that should help drive their specific training programmes? How well do they recover? What nutritional programme gives a cricketer the best chance of recovery, plus appropriate energy levels for specific game demands? What constitutes cricket fitness? What does our future cricket athlete look like?

• Prozone – cameras in stadium which allow for 3D analysis, sophisticated tracking
• GPS equipment to give us all a better appreciation of workloads, intensity, etc
• Hawkeye which provides precise bowling analysis
• Virtual reality skills training
• Vision testing
• Musical training for variety and improving the strength and dexterity of fingers
• Develop wrist and forearm strength for increasing acceleration of heavy mass bats
• Sharing talent id of young athletes with 3 or 4 sports to enhance the physical, technical, social & emotional development of young athletes
• And the 200kph bowler, or the athlete who can play equally well from both sides of his body

The final two skill areas (mental and tactical) will enhance the first two (technical and physical). If we have technically and physically skilled athletes, the ability to fully utilize these advantages will come from the ability to make consistent, high quality decisions under the intense scrutiny of competition. Such skilled decision making relies on their mental and tactical games.

• Placing athletes in classroom and outdoors problem solving situations, situations of increasing risk and physical challenge
• Examination of decision making of international players
• Using organizations such as ONETEST which uses a battery of metric tests across a range of behavioural, social, organizational and personal areas to assist in identification of persons with best ‘fit’ to certain situations
• Increased ‘game sense’ training

Other significant areas of challenging the “dinosaur” are –

• Umpire skills training – improvement of skills and virtually undertaking a similar approach to the cricket athlete

>> to Page 40
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!
Hamstring Strains; Is an MRI necessary?

Comparing MRI with clinical assessment in AFL footballers with a hamstring strain.

By Price Warren

A standard clinical assessment of an acute mild or moderate hamstring strain provides a more accurate diagnosis and estimation of the severity of injury than MRI investigation.

This is a clinical sports medicine review paper of a study (Am Jnl Sports Med, 34 (6), 2006, 1008-1015) where a physical examination consisting of 2 flexibility tests, a manual muscle test, an active slump test and palpation was compared to an MRI investigation in hamstring injured AFL footballers examined within three days of injury. While many physicians evaluating hamstring strains at AFL clubs utilise an MRI to support their diagnosis and management of the injury, this was the first research paper comparing how MRI compares to the clinical evaluation in confirming the diagnosis and establishing the severity or potential duration of rehabilitation required. In 34% of hamstring strains where the clinical and MRI prognosis differed, often significantly, the clinical assessment was more accurate in every case than that of the MRI.

While both clinical examination and MRI findings correlated reasonably well with the actual time required to return to competition and the correlation between them was moderate this study showed that MRI is not required for estimating the duration of rehabilitation of an acute hamstring strain in elite footballers.

Hamstring strains are the most common injury in the AFL.

In the Australian Football League (AFL), the elite level of competition, hamstring strains are the most common injury, resulting in the greatest number of lost playing days. Greater than 30% of hamstring strains in the AFL recur within the season, despite concentrated rehabilitation and prevention efforts.

This is one of the reasons that physicians evaluating hamstring strains in professional footballers utilise magnetic resonance imaging (MRI) to support the clinical diagnosis and management of the injury.

Muscle injuries are usually imaged with either ultrasound, computerised tomography or MRI. MRI has been proposed as the preferred modality in recent years and has offered a highly detailed imaging analysis of the extent of injury for elite athletes. Sonography is equally as sensitive as MRI in assessing the presence of a hamstring injury in the acute stage, however, a more detailed analysis of the injury profile is achieved using MRI, particularly during the healing phase. Both the longitudinal length of muscle injury on MR imaging, and the abnormal area, as measured in cross section are useful predictors for the time required to return to full competition.

In studies of elite Australian footballers MRI negative hamstring strains have a significantly faster rehabilitation interval compared with MRI positive strains.

It is questionable whether the costs involved and the additional perceived benefits of imaging, in assessing the time of rehabilitation required are worthwhile in most cases for mild (grade 1) and moderate (grade 2) hamstring strains. The pain and restriction associated with such hamstring injuries usually resolve within a couple of weeks at most and players appear clinically without abnormality and, in most instances, resume training and competition soon thereafter. The underlying pathology may persist for several weeks longer with persistent injury demonstrated by MRI, at times, many weeks after players have successfully returned to competition. Is the assessment of the presence and degree of pain and restriction as measured during a clinical assessment an equal or better indicator of the prognosis than radiological findings using MRI?

With little information available to assess how MRI compared to the clinical evaluation in establishing the duration of rehabilitation required for a hamstring strain this study was undertaken with the aim to a) compare estimates of rehabilitation duration based on either a clinical diagnosis or based on MRI findings with the actual time required to return to competition and b) to analyse the level of agreement between clinical and radiological assessment with regard to presence or absence of injury.

Fifty-eight AFL footballers with a hamstring strain underwent a clinical assessment and an MRI within 3 days of injury.

The players, identified from the 10 Victorian based AFL clubs during the 2002 season, were examined using a 1.5T superconducting unit (Sigma LX, GE Medical Systems, Milwaukee, Wis) with a phased-array surface coil (Shoulder Array; Medrad, Indianola, Pa) strapped over the thigh centred over the region of maximal tenderness. The injured area was identified and the following six radiological measures assessed: injured muscle(s) involved, site(s) of injury within the muscle unit, injured area (% cross-section), length of injured area (mm), and presence of intermuscular and intramuscular haematoma. MRI findings were considered abnormal if abnormal signal intensity or echotexture could be detected. If more than one muscle was injured, the muscle with the
HAMSTRING STRAIN

greater area of signal or echotexture abnormality was considered the primary site of injury and assessment criteria were taken for that particular muscle.

An experienced musculoskeletal radiologist interpreted the MRI scans and recorded the pathology characteristics including the length of injury as observed on coronal views. An estimation of the recovery time was made for each case. Recovery time was defined as the number of days from the initial injury until return to competition.

Following MR imaging, the players underwent a clinical assessment conducted by an independent experienced physiotherapist who was blinded to the radiological findings. The clinical assessment consisted of five tests assessing hamstring flexibility, neural mobility, pain provocation and site of the injury. The tests selected were commonly used clinically11, referenced in the literature 12-14 and reliable 11, 15, 16.

The passive straight leg raise (PSLR) test provided an indication of hamstring muscle length (17) with the knee in full extension. The active knee extension (AKE) test is another measure of hamstring muscle length taken in a position of 90º hip flexion (Figure 1). The reliability of the tests had been established by Gabbe et al. 16 and the method described by these authors was used. The active slump test assessed pain-sensitive neuromeningeal structures that have been suggested as a potential source of pain in the posterior thigh in hamstring injuries 18-21. A test of pain provocation evaluated whether the hamstring pain could be elicited by isometric contraction of the hamstring muscles. This was performed in prone lying with 15 degrees knee flexion and then repeated with the knee in 90º flexion. The examiner also palpated the hamstrings in prone lying to locate the region relating to the player’s pain.

If at least one positive finding was demonstrated during any of the PSLR, AKE, and manual muscle tests, the player was classified as having a hamstring injury. The active slump test finding was used as additional information in cases where the other clinical tests were negative with the suggestion that adverse neural tension may be the source of the players’ inability to continue training or playing. Criteria for grading of the injuries were based on the description by Oakes 11.

Correlation between successful return to competition and clinical and radiological findings were carried out.

The median (range) time from injury until examination was 2 (0-3) days. The mean (range) age of the players was 24 (17-33) years while the mean (range) height and weight was 186 (174-200) cm and 88 (74-107) kg, respectively. The time taken to return to competition ranged from one to 8 weeks with a median of 26 days. Twenty-six players (44%) returned to competition within three weeks.

Equivalent diagnoses were made in 38 of the 58 cases (65%). In 18 cases (31%) players recorded pain and/or painfully reduced flexibility during the clinical examination but there was no injury demonstrated on the MRI. In contrast, two cases (3%) showed significant injury on MRI, but the clinical tests were carried out without eliciting any pain or reduced flexibility.

The duration of rehabilitation based on both the clinical assessment and the MRI significantly correlated with actual time to successfully return to competition. The correlation coefficient of the radiological estimation of the rehabilitation period was lower, but still correlated well with the actual time taken to return to competition. The correlation coefficient between clinical estimates of rehabilitation and MRI was moderate.

The clinical analysis performed better than MRI in estimating the time required to return to competition. Where the MRI and clinical prognosis differed the physiotherapy assessment was more accurate in every case.

In 20 of the 58 cases investigated (34%), the clinical and radiological diagnoses disagreed with regard to the presence or absence of injury. In 2 cases clinical assessment indicated minimal signs of injury in the hamstring muscle complex, but extensive muscle fibre damage was seen on MRI. The first player had an injury to the biceps femoris involving 80 mm of muscle suggesting a significant injury, with mild intermuscular hemorrhage, as well as a chronic injury to the semitendinosus (Figure 2). This player had no abnormality with active slump testing, was pain free several days after the injury, and returned to competition 14 days after the assessment. During his first competitive game, prior to which he had completed 3 full training sessions, he re-injured the biceps femoris at the same location identified on MRI 2 weeks earlier.

Clinical tests in the second player similarly suggested a mild hamstring strain, this time to the semitendinosus. On MRI, however, he had a 100-mm-long injury to the semimembranosus muscle at the musculotendinous junction (Figure 3) suggesting a rehabilitation period of at least 3 weeks. This player returned to competition 13 days after injury and remained injury free for the remainder of the season.

In the other 18 hamstring strains where the MRI result disagreed with the clinical assessment the MRI examination revealed no intramuscular hyperintensity suggesting muscle fiber damage or injury. Clinical testing in all cases except one in this group suggested the presence of mild injury. Eight of those players were able to return to competition within 1 week; 4 within 2 weeks; and 1 at 3 weeks. The one exception in this group was a player who was classified with a moderate injury to the biceps femoris on the basis of the clinical assessment, with a predicted rehabilitation period of at least 21 days. This player returned to competitive play 28 days after the injury. The MRI scan demonstrated no abnormality. This player had no
abnormality on active slump testing suggesting that the relatively slow return to competition was more likely due to intrinsic hamstring injury rather than, for example, referred pain.

In 3 other studies where hamstring strains were examined by MRI, 18%, 19%, and 45% of posterior thigh pain, clinically diagnosed as a hamstring strain, was without abnormality on MRI. Lower back-related nerve impingement was suggested as a cause of hamstring pain and stiffness in one study, where previous back injury was identified as a significant risk factor for hamstring-related injuries. While this study had only 31 participants, in those players with a negative MRI result, length of rehabilitation was significantly shorter (6.6 days) than in the group with a positive MRI result (20.2 days), indicating that a positive MRI result was a good indicator of time required to return to full training.

Eight players with a negative MRI result returned to competition after 1 week and did not record a further hamstring injury for the remainder of the season, an outcome similar to that reported in the MRI study by Gibbs et al. In contrast, those players with a positive MRI result needed almost twice the time for successful rehabilitation (22.9 days).

MRI performs better in moderately severe hamstring injury than in cases of mild injury.

While the results of this study demonstrate that both a clinical and a radiological evaluation of a hamstring injury can be useful predictors of the duration of rehabilitation required the clinical evaluation is more accurate than MRI. MRI performed better in cases with more serious injuries, those with an injured area >60 mm in length or >10% on cross section. In those cases, the correlation between estimated and actual recovery was high, whereas mild injuries appear difficult to evaluate using MRI with regard to duration of recovery. Clinical tests were significantly more accurate in estimating recovery times in mild injuries.

The absence of injury on MRI does not rule out a mild strain and MRI confirmation of injury, particularly with an injured area >60 mm in length or >10% on cross section, combined with clinical assessment suggesting a moderate strain confirms a greater than 3 week duration of rehabilitation. However, on the basis of this study, there is no indication for MRI investigation of an acute mild or moderate hamstring strain.

The outcomes reported in this study should provide valuable guidance to physiotherapists and doctors working with professional football players, as well as other footballers and athletes with hamstring strains.

Acknowledgement

The Australian Football League is acknowledged for financial support of this study.

The full results of this AFL funded scientific study have been published in the American Journal of Sports Medicine, Volume 34, Number 6, June 2006, Pages 1008-1015. Price Warren was invited to participate as the clinical examiner; he had previously been an AFL club physiotherapist for 11 seasons and was, at that time, not associated with any club. He carried out a survey of AFL physiotherapists and members of Sports Physiotherapy Australia which revealed the most popular clinical...
examination techniques for a hamstring strain. The results of this survey, plus clinical examination techniques used in the literature, particularly those associated with reliability studies, formed the basis of the clinical assessment used in this study. The results of further analysis, “Clinical Predictors of Return to Competition and of Recurrence following Hamstring Strain in Elite AFL Footballers” (Master of Physiotherapy Thesis) suggest that the physiotherapy assessment can be improved, resulting in greater accuracy in predicting both the duration of rehabilitation required for a hamstring strain and the likelihood of a recurrence.

References


Centre for Health, Exercise and Sports Medicine, School of Physiotherapy, University of Melbourne, Melbourne, Australia

Richmond Physiotherapy Clinic, 361 Church St, Richmond 3121, Melbourne, Australia

Price Warren is an APA Titled Sports Physiotherapist, Master of Physiotherapy (Research-Hamstring injuries in AFL football), an AFL club physiotherapist, and long term SMA and SPA member. This is a clinical summary of a paper published in the American Journal of Sports Medicine, Volume 34, Number 6, June 2006, Pages 1008-1015.

Correspondence: price@richmondphysiotherapyclinic.com.au

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Decision on Recognition of Medical Specialties

The Minister for Health and Ageing, the Hon Tony Abbott MHR, has decided that a case has been made for recognising the discipline of Sport and Exercise Medicine as a medical specialty. This follows advice on the matter from the AMC. This completes Stage 1 of the AMC recognition process.

This decision does not automatically lead to the inclusion of the specialty on Schedule 4 of the Health Insurance Regulations 1975, which would grant patients access to rebates through Medicare Australia.

Applications for accreditation of specialist level training and education programs in this discipline may now be considered by the AMC. This is Stage 2 of the recognition process. It is important to note that such applications are not restricted to Stage 1 applicants. Any organisation believing that it might comply with AMC standards for the provision of training in these disciplines may apply.

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Coming up……

The influence of body position on leg kinematics and muscle recruitment during cycling by Andrew Chapman

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Thermoregulatory responses of junior lifesavers wearing protective clothing by Wade Sinclair

A comparison of fitness and skill among playing positions in sub-elite rugby league players by Tim Gabbett

JSAMS would like to welcome Gregory Kolt as the new Editor in Chief as of January 2008.

Professor Gregory Kolt is the Head of the School of Biomedical and Health Sciences at the University of Western Sydney. Prior to this he spent 7 years in New Zealand as Professor of Health Science, Associate Dean (Research), and Founder and Co-Director of the Centre for Physical Activity and Nutrition Research in the Faculty of Health and Environmental Sciences at Auckland University of Technology.

Gregory Kolt has an academic background that spans several disciplines including psychology (specifically health psychology and sport and exercise psychology), physiotherapy, sport and exercise science, and education. He has worked in research, teaching, and psychology and physiotherapy practice. His extensive research experience has covered areas including physical activity and health (in child, adolescent, and older populations), primary health care, health promotion, psychological aspects of injury and rehabilitation, adherence to rehabilitation, and injury epidemiology. Professor Kolt has been the recipient of several large research grants from national health research funding agencies and has worked with government bodies to develop and shape the national research agenda for physical activity and health in New Zealand. He has also served on review panels for several national research funding agencies, has supervised many doctoral research students, and has been a keynote speaker at a number of international conferences.

Gregory Kolt is the editor of the comprehensive books Physical Therapies in Sport and Exercise (now in its 2nd edition and published in 4 languages) and Psychology in the Physical and Manual Therapies. He was also one of the Founding Editors of the international journal Physical Therapy in Sport where he served as Editor from 1999-2008.

Many thanks to Caroline Finch for her dedication and hard work in driving JSAMS to where it is today. We wish her well in her future endeavors.
Open water (OW) swimming has gained a great deal of media and public exposure over the last few years since it was included as a medal event at the Beijing Olympics (10km). The environment and physiology of OW swimming events presents competitors with some very interesting and unique nutrition challenges. The physiological demands of the 10km race could be compared to that of the marathon or Olympic distance triathlon in terms of intensity and duration. More recently, the prospect of gold at the Olympics has drawn pool swimmers across to the sport. This has led to an evolution of race tactics and outcomes – changing what was a previously calm water event into a ‘washing machine’ environment. This presents competitors and the professionals who work with them with completely new challenges. With very little research into OW swimmers as a discipline, practitioners need to look at what current scientific evidence is available for other similar sports and how it may be implemented in such a harsh race environment.

What can be taken from the literature?

Although training for OW swimming is similar to training for pool-based distance swimming, racing has entirely different characteristics. The 10km event differs in physiological and nutritional requirements to its closest pool event, the 1500m free style. Due to its extended duration nutritional recommendations for OW swimming are more closely related to events like the marathon or Olympic distance triathlon. To-date, there are no specific studies on issues of race nutrition for 10km OW swimmers. Therefore, the current practices of these swimmers have evolved from trial and error by coaches and athletes or have been extrapolated from other sports of similar duration and intensity.

Glycogen depletion during racing is of particular concern to OW swimmers, as the ability to maintain very high intensities throughout the event is essential to success. Research has shown that distances similar to the 10km event lead to near total glycogen depletion of type I muscle fibres (slow twitch) and a marked reduction in type II muscle fibres (fast twitch). This leads to a reduction in distance per stroke, and an increase in energy cost of swimming associated with the reduction in stroke efficiency. This is of particular significance to OW swimmers as an increase in swimming velocity during the last 1km of an event is a typical racing strategy and often culminates in maximal efforts of up 800-600m. The ability to produce the required maximal effort may be hampered by muscle glycogen depletion.

Carbohydrate loading may benefit OW swimmers as it has been shown to improve performance in exercise of similar duration and intensity. The performance benefits associated with carbohydrate loading are due to the increased ability to maintain speed during the later parts of a race, rather than an increase in starting speed above usual race pace. This of great importance to pool swimmers who are capable of swimming at higher maximal velocities. Their ability to reach that maximum speed at the end of a 10km race is what will set them apart from the average OW swimmer. Carbohydrate loading would be expected to provide the swimmer with sufficient substrate to delay fatigue and avoid reductions in stroke efficiency, thus providing the ability to generate maximum velocity in the closing stages of races. The recommended carbohydrate loading protocols incorporate 8-10g kg\(^{-1}\) day\(^{-1}\) of carbohydrate accompanied by marked reductions in training load over the 36-48hr period leading into the event. Many swimmers see this as an excuse to consume high energy foods, but this is a time when carbohydrate specifically should be the main focus and unnecessary consumption of other nutrients (e.g. fat) should be avoided. The practical aspects of achieving such a protocol should not present a problem at events like the Olympics where the 10 km OW race is scheduled well after the pool events. However, at other competitions, such as World Cups or World Championships, the swimmer may be competing in several distance events in close succession. At such events specific carbohydrate loading protocols will become more difficult to fit into a busy racing schedule.

Dehydration has been shown to compromise convective thermoregulation due to the reduction in plasma volume. Even in an aqueous environment, swimmers have been shown to incur sufficient fluid losses through sweating to lead to performance decrements. One way of overcoming this significant reduction in plasma volume and reduce the need to drink throughout a race may be through the use of hyperhydration protocols. Hyperhydration is the practice of increasing pre-exercise plasma volumes by loading the body with fluid. Consuming an agent providing an osmotic presence, such as glycerol, in combination with this fluid load has been shown to be effective in retaining the fluid load, increasing plasma volumes and improving endurance performance. Typically, protocols which have added 1g kg\(^{-1}\) of glycerol to a fluid load of 22ml kg\(^{-1}\) have been shown to increase body water content by ~ 600 mls. These protocols would allow OW swimmers to offset plasma volume losses and potentially negate the need to stop to consume fluids during a 10 km race. This is a useful strategy since it can achieve a desired nutrition goal without sacrificing time in the race.
The provision of carbohydrate during the race itself may supply extra carbohydrate sources to help offset muscle glycogen usage and prolong intensity in later stages of racing. Targets for carbohydrate intake of ~30-60g h\(^{-1}\) or 1g kg\(^{-1}\)hr\(^{-1}\) have been recommended for promoting performance in endurance exercise\(^4\). Currently, carbohydrate can be consumed during exercise in a variety of forms or sources, but many of these are either impractical or unpalatable in the open water setting. Recent research has suggested the ingestion of “multiple transportable carbohydrates” (a combination of different types of carbohydrates with different routes of intestinal transport) may increase the total amount of exogenous carbohydrate that can be oxidised during exercise and improve endurance performance\(^2\). Therefore it would be advisable for OW swimmers to choose a race fuel source providing different carbohydrate types; a product providing a ratio of 2:1 glucose to fructose has been identified as a well-absorbed combination. Given that the action of obtaining or consuming carbohydrate during OW swimming may affect race pace per se, a further issue of interest is to find the minimal amount of carbohydrate that can be consumed to achieve a beneficial effect on 10 km swimming performance

Other ergogenic aids may also help to prolong intensity over the final stages of a race. Caffeine has been shown to enhance the performance of distance pool events (ie 1500m)\(^3\), as well as other sporting activities lasting greater than 90min\(^6\). Swimmers who are interested in trialling caffeine for performance enhancement should consider low doses of around 1-3mg kg\(^{-1}\) taken in the hour before racing or in small regular doses in conjunction with carbohydrate throughout the race\(^3,8\).

Race strategies like drafting (swimming in the slipstream of another competitor) may also help in reducing glycogen depletion due to the reduction in energy expenditure experienced in the drafting position. Research has shown that drafting at distances of up to 50 cm behind the feet of a swimmer, reduces drag by 20%\(^5\). This finding suggests that minimising time spent in open water or leading a pack of swimmers may benefit in reducing the metabolic cost of swimming and hence spare muscle glycogen.

**How does the environment affect feeding strategies?**

Although OW swimming is of similar duration and intensity to sports like marathon and Olympic distance triathlon, the race environment has a variety of logistical characteristics that impact on the intake of food and fluid. It is difficult to deliver nutrition supplies to swimmers in an open water environment, just as it is difficult for the swimmer to obtain and consume these supplies. Finding solutions to these difficulties, or alternative ways to provide adequate nutritional support to the swimmer with minimal effect on the rhythm of their swimming will undoubtedly enhance race performance.

Traditionally, OW swimmers have received race food from handlers stationed in individual boats along the course. However, the advent of more “spectator friendly” multi lap courses has lead to the use of a common feeding “pontoon”. The intake of food and fluid from a feed vessel on the end of an extended pole has become a well developed skill in OW swimmers. This new manner of feeding had created a chaotic environment around the feed station as each swimmer tries to spot their handler and obtain their feed, at the same time as contending with other competitors trying to achieve the same outcome. This can lead to significant disruption of rhythm and time losses.

**Table 1: Nutrition recommendations for competition 10 km open water swimming**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate Loading</td>
<td>Carbohydrate intakes of 8-10g kg(^{-1}) d(^{-1}) should be consumed with a reduction in training load in the 36-48hrs leading into competition. If a swimmer is competing on consecutive days in extended race distances (ie. 5,10,25km) then higher levels of carbohydrate intake may be required between events to see similar glycogen supercompensation.</td>
</tr>
<tr>
<td>Intake during races</td>
<td>OWS should identify the minimal amount of carbohydrate and fluid required during races to maintain stroke efficiency and velocity in the later stages of racing. Intakes of around 30-60g hr(^{-1}) may be sufficient to meet requirements.(^1)</td>
</tr>
<tr>
<td>Hyperhydration</td>
<td>To minimise the effects of fluid loss and its impact on thermoregulation, cardiac output and potentially performance OWS should follow hyperhydration protocols to maximise pre race hydration status.</td>
</tr>
<tr>
<td>Caffeine</td>
<td>1-3 mg kg(^{-1}) 1hr prior to the start of the event or in smaller doses of ~1-1.5 mg kg(^{-1}) taken with carbohydrate throughout the duration of the race.(^3,8)</td>
</tr>
</tbody>
</table>

Note: OWS=open water swimming

**SPORTS DIETITIAN**

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companies and athletes develop innovative nutrition delivery vessels that can be used in aquatic sports to deliver contents with a minimal requirement for dexterity and tearing.

References

Greg Shaw is a Sports dietitian at the AIS
Correspondence: Greg.Shaw@ausport.gov.au

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2006 Commonwealth Games Gold Medallist
2004 Olympic Games Silver Medallist

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Adventure racing has become increasingly popular in Australia over the last few years. Adam Smith outlines his experiences both as a competitor and as a sports physiotherapist, and highlights what a physiotherapist needs to consider when treating those training for longer races.

Adventure races vary in distance, ranging from 4–6 hours to up to 10 days. Events require competitors to race in teams of three or four, and consist of a variety of disciplines including mountain biking, kayaking, running, trekking, coasteering, snorkeling, rock climbing or abseiling. Teams must navigate their way to checkpoints (orienteering-style markers), often over unforgiving terrain, and in longer races in the dark. Most races require the team to decide the best route between checkpoints, depending on their strengths and weaknesses. Competitors require skills in a variety of sports and the ability to map read and navigate.

Expedition length adventure races require competitors to cover a distance of 800+ km of which they have up to 10 days to complete. The focus of this article will be on the longer events (24 hours–10 days).

Training

Competitors in longer adventure races train around 15–20 hours per week. Most of this training is at a high volume but at a low intensity. In general, most of the time is spent on the bike with smaller amounts spent trekking/running and kayaking. Disciplines vary slightly in each event, and so too does the length of each discipline. Training, therefore, is centred on increasing aerobic capacity in each of the core disciplines. The course location and structure is released to the competitors either just prior or during the event. During the recent XPD Whitsunday’s race (Australia’s expedition length adventure race), teams were required to do about 600 km biking, 100–150 km trekking, 100 km kayaking and a small amount of snorkeling. In this case, teams were given rough estimates of length of each discipline prior to the race.

Adventure races may be continuous where the first team over the line wins, or they may be rogaine-style in which the greatest number of collected points wins. During longer races over 24+ hours, the race does not stop so competitors can sleep. During expedition length adventure races, the competitors have a compulsory 6-hour stop at the halfway checkpoint. Other than that, teams develop their own sleep strategy depending on the course and individuals’ requirements. When making this decision, teams also need to weigh up the detrimental effect of sleep deprivation versus loss of time spent whilst sleeping. With this in mind, it is common for teams to sleep about 1–3 hours each night and then have a ‘big’ sleep (about 4 hours) at the halfway point. Competitors sleep anywhere along the course or sometimes at the checkpoints (these are often loud, with other competitors coming in and out). More sleep allows less fatigue and better decisions to be made about navigation. Less sleep may result in poor navigation or strategic decisions and consequently lost time.

Nutrition and hydration

Competitors are required to carry their own food and fluid requirements throughout the race. They can restock their food and fluid at specific checkpoints along the way (these can be up to 36 hours apart). One of the core challenges of an adventure race is to maintain hydration throughout the event. Competitors carry with them low-weight, high-calorie foods and need to consider the availability of drinkable water along the course. To ensure safety, competitors will often use water purification tablets and sports drink powders, which are also good sources of carbohydrate and electrolytes. A smart nutrition strategy is for competitors to set the alarm on their watch for every 45 min–1 hr to remind them to eat and drink. As the treating physiotherapist, it is important that you make the athlete aware of the significance of hydration and recommend that they drink 500–1000 mL/hour. The urine colour test is an easy way for competitors to monitor their hydration. A competitor in expedition length races who becomes dehydrated will show detrimental effects for up to 3–4 days after, and obviously this impacts on the team’s performance.

Injuries

Several studies have looked at the epidemiology of injuries in adventure racing athletes.1–3 These small studies show essentially the same injury distribution as triathletes, where chronic / overuse injuries present more commonly than acute injuries. It is interesting to note that acute injuries are more common in adventure racing athletes than triathletes.1 This could be due to the fatigue nature of the sport and the demands of the environment.

Overuse injuries

Blisters

Blisters are the most common complaint among competitors during a race, and they can easily become a very debilitating injury. About a third of competitors require medical assistance for blisters during an expedition length event.4 As with most injuries, prevention is better than cure, and blisters are no exception. From the start, all competitors should be encouraged to tape around each toe and only wear shoes (and orthotics) that they have used regularly.
Injury Prevention Resources for Sports Trainers

Smartplay is a sport safety and injury prevention program. Smartplay aims to reduce the incidence and severity of sport and recreation injuries by educating sports participants, coaches and administrators about simple safety options. The Smartplay program and Smartplay resources are an additional resource available to Sports Trainers in their work of sports injury prevention.

Smartplay carries the slogan ‘Warm Up, Drink Up, Gear Up, Fix Up’ which represent simple, yet important injury prevention practices. ‘Warm Up’ for pre and post game injury prevention exercises; ‘Drink Up’ for appropriate hydration to help avoid heat illness; ‘Gear Up’ as a reminder to use the protective equipment appropriate to your sport; ‘Fix Up’ for the remedies that make recovery and return to sport more rapid.

Information about the safety practices is available in a large range of print and web downloadable materials available from Sports Medicine Australia (SMA). Web downloads can be found from www.smartplay.com.au

These resources include information around the four themes (i.e how to warm up and stretch, appropriate hydration levels for different individuals playing different sports at different intensities, the appropriate protective equipment for different sports and how to deal with sports injuries if they happen.) There is also injury prevention information specific to more than twenty sports, including the football codes, cricket, netball, basketball, squash, tennis – even lawn bowls – as well as sports such as skiing, surfing and street skating. Additional information is available for participants who may have medical conditions such as asthma and diabetes and for women concerned with the impact of sport on pregnancy and other female conditions.

With assistance provided by the Commonwealth Department of Health and Ageing and state government agencies such as VicHealth in Victoria, graduating Sports Trainers and Sports First Aiders will be provided with a set of Smartplay resources and information about obtaining additional copies.

How do I get extra Smartplay resources? To obtain additional copies of the resources you need to contact your local Sports Medicine Australia state branch and provide information about your club or other injury prevention work you undertake. A list of contacts for SMA branches is provided in the course materials or can be found at www.sma.org.au

Preference will be given to Sports Trainers affiliated with sports clubs or engaged in medical coverage by Sports Medicine Australia.
in training. To further decrease the risk of blisters, socks should be made from ‘Coolmax’ or a similar material and have separate compartments for each toe to reduce friction. During a race, a competitor’s feet will swell (due to the time spent trekking) and they may also become wet. To help compensate for swelling of the feet, competitors should be encouraged to buy shoes that are about half a size too big.

Low back pain
Low back pain is also a very common complaint among competitors while racing. This is for several reasons. Competitors need to carry a backpack throughout the event, which may weigh between 5 and 10 kg. (It consists of food, water and compulsory gear: thermals, raincoat, and first aid kit.) This, combined with the amount of time sitting on the mountain bike and kayaking, can lead to ongoing flexion-related back pain. A preventative flexibility program comprising gluteal and hamstring stretches will help to decrease the amount of lumbar spine flexion and prolonged loading of the posterior structures of the lumbar spine during the bike and kayak. McKenzie-style extension stretches and lumbar spine rotation stretches are useful for the competitors to do whenever possible during the event.

Lower limb injuries
Poor lower limb biomechanics is essential to address prior to a race as minor pains / niggles can easily become big issues as the event progresses and fatigue sets in. Common pathologies seen in adventure racing competitors are PPFS, ITBFS and MTSS. Anterior compartment syndrome is also quite common among adventure racers. This seems to be quite prevalent in adventure racers due to the repeated and prolonged downhill walking and consequent eccentric loading of the muscle of the anterior compartment (tibialis anterior, extensor hallucis longus and peroneus tertius). Pain is felt lateral to the tibia and may present with paraesthesia in the first web space. Prior to racing, a thorough assessment of lower limb biomechanics including calf and ankle ROM is essential. During a race event, calf stretches, lowering of the heel in the shoe and the use of a trekking pole can be useful to help decrease pain. If you are treating a competitor it is important to show them strategies that they can use during the race (where there is little time and resources) to help relieve pain. These may include taping, self massage and / or stretching. Often it is useful to show a team-mate how to tape the affected area.

Shoulder / arm pain
Some competitors complain of shoulder or arm pain whilst kayaking. As mentioned earlier, most training is done on the bike (in a flexed position) and consequently when kayaking, the competitor lacks thoracic extension and rotation and becomes too reliant on their arms. Thoracic extension and rotation exercises are essential prior to the event. A useful stretch to improve rotation is the ‘bow and arrow stretch’ (Figure 1).

Traumatic
Ankle sprains
The most common traumatic injury seen during expedition length races is a sprained ankle. This is because when trekking, competitors are fatigued, walking on uneven ground, in the dark and navigating (so looking up and around). To decrease the risk of an ankle sprain, dynamic proprioceptive work when fatigued (i.e. at the end of a session) should be encouraged prior to the event. This may include hopping or stepping onto uneven and / or unknown surfaces. If a competitor has suffered a previous ankle sprain, preventative taping throughout the event is recommended. Teaching a competitor how to strap an ankle can also be a race-saving option.

Falls off the bike
Competitors may fall off their bike, which might result in a fracture. The most common fracture site is the clavicle followed by the scaphoid. Prior to the event, competitors should practise riding on bush tracks at night to help hone their skills and increase their confidence.

Recovery
Traditional recovery strategies are very useful following the event. Competitors in endurance races often feel flat, tired and hungry for at least 7–10 days post-event. It is important to encourage sleep and eating post-event. Compression garments and elevating the legs when sleeping are useful adjuncts to aid recovery and decrease swelling of the feet.

Adventure racers have unique requirements from the treating physiotherapist, and understanding the complex and variable nature of the event will help you to develop an appropriate rehabilitation and preventative program.

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2) Townes D. Wilderness Medicine, Strategies for provision of medical support for adventure racing, Sports Medicine 2005; 35 (7), 557-564.

Adam Smith is an APA Sports Physiotherapist who is Practice Principle-Kelvin Grove (Brisbane) for Optima Sports Medicine.
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“Second Japanese Exchange just as successful as first; Sports Medicine Australia (SMA)”

By Patricia Donoghue, Project Manager, SMA-ACT

2007 saw the start of an exciting new exchange program between students from Fukuyama Heisei University in Japan, and SMA-ACT Branch. The program, which was established to assist students studying to be athletic trainers, was so successful that on September 9, a handful of students returned to Australia to take part in the 2008 program. The returning students acted as a valuable asset to the intercultural exchange which SMA-ACT started in 2007. Using feedback received from the experiences and expectations in 2007, SMA-ACT was able to tailor its Athletic Trainers program for 2008 to broaden the course learning outcomes, teaching curriculum and encourage student international experience, through the interaction with home stay families.

“It was really meaningful for us to have studied sports medicine at the seminar while we were able to learn the local cultures and languages and to promote an international exchange with the extremely friendly people.”

“It was especially a precious experience for us to have been able to accompany one of the doctors to see their operations.” Mr Ishibashi, teacher, Fukuyama Heisei University

During the visit, students from Radford College, Canberra, provided home stay placements as well as the use of their senior school facilities for the course. This provided a rewarding and educational experience for both Radford and Fukuyama Heisei students, as well as providing the returning students from last years program with new and different opportunities. One of the key successes of the home stay experience was the international network of friends and acquaintances which these students have made.

“I was impressed with the opportunity of the Australian home stay, which made me feel very wonderful of the Australian people. We wish to express our gratitude to Patricia who planned this experience for us. She did wonderful work more than the expectation. We also wish to express our gratitude for Radford College that cooperates in the home stay and the seminar, too. I am looking forward to working with you again in the near future. SMA is just as excellent as its reputation. I truly give SMA credit.” - Mr Ishibashi

The program was set up to provide more than simply an educational experience, and as such provided students with the opportunity to obtain a genuine inter-cultural understanding, and offered them educational tools from a different perspective. This program promotes the ability for students to gain a real understanding of the Australian culture and society, through a cutting edge, ‘hands on’ interactive system of learning. This course would not have been possible without the assistance of Mr. Yoshikawa, who liaised between SMA-ACT and the Fukuyama Heisei University.

Hiroshi Yoshikawa, President/American Dream Inc. wrote “Following the result of the success of the last year, I thought we would have an easy time to realise this program this year, BUT it proved to be a challenging process, with the rising costs.
of the Fuel Surcharges, which were rising like a rocket. Many students wishing to attend needed to withdraw from the program due to this additional cost.”

“However, the number of returning students from last year and Patricia’s creativity motivated us to overcome these difficulties. Fukuyama Heisei University students learned, that there is always a way to solve a problem and if you keep trying, there is somebody who is willing to support you.”

This year’s course was enhanced through offering and incorporating a combination of the Sports Trainers curriculum, and rehabilitation, along with test methods to evaluate injury. The end of the course saw a panel comprising of a Sports Doctor, Sports Physio and Exercise Physiologist, present to the students four case studies. Aimed at bringing all learning outcomes together in an interactive and stimulating way, the objective of this panel was to extend the visiting student’s knowledge, exposing them to different Sports Medicine Professionals. This developed a greater understanding of the role which an athletic trainer plays within the injury cycle of an athlete. We hope that the students will take this knowledge back and use within their chosen sport.

Mrs. Dianne Burgess, Head of Language Department at Radford College wrote “I was pleased to be able to have the opportunity from SMA-ACT to help in the hosting of the Fukuyama Heisei University students at Radford College. Mr Mulford (Headmaster) and Mr Leyshon (Head of Senior School) were very kind in allowing the use of the facilities of the Senior College for the course to run efficiently. Some of the Radford students, currently studying Japanese took the opportunity to provide home stay for the visiting students, which provided a great opportunity for them to use their Japanese and to learn about life as a University student in Japan.”

“During the course, some of the students studying Japanese had the opportunity to attend sections of the course and hear interesting information being spoken in Japanese. They also had the opportunity to get some skills in bandaging and strapping!”

The students experienced various forms of Australian hospitality during their stay. Visits to the Physiology lab at the Australian Institute of Sport (AIS), as well as working with the sports trainers at Canberra Raiders Rugby League team, enabled the students to put their theory into practice. Providing this ‘hands on’ experience added to the overall learning and culture experience. However, the course was not all work and no play; before returning home, the students undertook a day of site seeing around Canberra, taking in the National Museum and the National Zoo and Aquarium. On the final evening in Canberra, the students and their host families all congregated together for an Australian BBQ, which included a game of Aussie back-yard cricket. This was a great climax to the over all experience of the exchange.

“The barbecue at the end of a very short time was an enjoyable experience. Both home stay students and the Japanese students got stuck into playing our game of cricket and then after the barbecue started to play Japanese games around in a circle. It was obvious to all that the exchange of cultures and opportunity was a huge success!” - Mrs. Dianne Burgess

These overseas exchanges not only build relationships which foster lasting, international friendships and acquaintances, however also enables Sports Medicine Australia to promote a sharing of knowledge throughout the world. We look forward to with anticipation the 2009 exchange, and the marking of an annual program.

Patricia Donoghue is the Project Manager for the A.C.T branch

Correspondence: trish@sportsmedicineact.org.au
### Australian Psychological Society College of Sports Psychologists (APSCSP)

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**TAS**
- 31 October and 1 November 2008
  - Autism Spectrum Disorder Workshop

**NSW**
- 3 November and 4 November 2008
  - Evidence Based Group Depression Treatment

**VIC**
- 6 November and 7 November 2008
  - Evidence Based Group Depression Treatment

**WA**
- 7 November and 8 November 2008
  - Autism Spectrum Disorder Workshop

**TAS**
- 10 November and 11 November 2008
  - Evidence Based Group Depression Treatment

**NSW**
- 15 November
  - Psychopharmacology for Use in Psychological Practice

**QLD**
- 16 November to 19 November 2008
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### Australian Association for Exercise and Sports Science (AAESS)

**Upcoming events**

**Perth**
- 25 October 2008
  - Metabolic syndrome workshop
    - This workshop provides Accredited Exercise Physiologists an update on the clinical management of patients with metabolic syndrome which consists of four discrete but inter-related pathologies – obesity, hypertension, dyslipidemia and type II diabetes and insulin resistance.

**Brisbane**
- 1 November 2008
  - Pre surgery management of end-stage osteoarthritis of the hip and knee and early rehabilitation following total joint replacement
    - This workshop is designed to provide Exercise Physiologists with the knowledge and practical experience to design and implement exercise rehabilitation services to patients following Autologous Chondrocyte Implantation (ACI).

**Adelaide**
- 29 November 2008
  - Diabetes Education for Exercise Physiologist
    - This workshop will cover: pathophysiology of diabetes, how exercise affects diabetes, complications associated with diabetes, best practice in the exercise management of diabetes, medications and their effects and inter-professional practice.

For more visit www.aaess.com.au

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**2009 South East Coast Conference of Science and Medicine in Sport**

**January 31st & February 1st 2009**

- The 2009 South East Coast Conference of Science and Medicine in Sport will be held at the Coach House Resort in Batemans Bay on the South Coast of NSW.
- The conference program has been sent to the RACGP for adjudication. It is expected that this conference will attract a total of 30 points as an Active Learning Module (ALM) if attending both days, single day registration will attract 2 points per hour.
- Registration for attending GP’s is at SMA member rates.

**Schedule**

The conference will be held over the weekend of January 31st & February 1st 2009 and the schedule promises to offer something for everyone! The conference is open to all and the schedule is designed to enable delegates to enjoy all that the south coast of NSW has to offer. On the Saturday, presentations will run from 9am-3.30pm with the conference networking dinner to be held on the Saturday night by the pool. On Sunday the program begins at 9am and concludes at 3pm.

Email [admin@sportsmedicineact.org.au](mailto:admin@sportsmedicineact.org.au) for expression of interest.
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**be active ‘09** brings 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 ‘09** showcases 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 ‘09** 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 2009 and close 31 March 2009.**

**be active ‘09** will be held 14 – 17 October 2009 at the Brisbane Convention & Exhibition Centre.

More information will be made available on [www.beactive09.com](http://www.beactive09.com) or contact the Conference Secretariat on acsms@sma.org.au

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POST  ☐ Please find my cheque to Sports Medicine Australia enclosed
Professional Taping DVD Offer, Sports Medicine Australia, PO Box 78, Mitchell, ACT 2911
In September-October 2007 I travelled with the Australian cricket team to India for a series of one day matches. Australia will play away cricket matches against the Asian teams many times over the next few years. In cricket Australian players will also be regularly involved in the Indian Premier League (IPL) and rebel competition Indian Cricket League (ICL). In addition the Commonwealth Games will be staged in New Delhi in 2010. This article details some of the unique medical challenges for caring for athletes in India.

**History of Medical Care for Australian cricket teams on the subcontinent**

According to Mike Coward it was traditional in the late 1970s and early 1980s for Australian teams to travel to India and Pakistan with accompanying doctors. In the past, many players were affected by serious illnesses, such as hepatitis, Dengue fever and severe dehydration from gastroenteritis. The most serious outcome from illness was on the 1959 tour of India, where four players were affected by Hepatitis A. One of these, Gordon Rorke, had his first class cricket career effectively ended by the long-lasting effects of hepatitis.

At Brabourne Stadium at Mumbai CCI, the scorecard of a famous victory for India by 2 wickets against Australia in a Test in 1964-65 is displayed (see figure). The scorecard reveals that Norman O’Neill, despite selection as one of the Australian XI, was unable to bat in the game due to illness. Hence this game was part of the tradition of Australian teams being severely affected by illness in the subcontinent.

Coward reported that the decision in 1984 to cease the practice of taking a doctor was made for two reasons. First it was felt (correctly) that compared to a doctor, a physiotherapist would provide more value for money in terms of treating injuries on tour, as injuries were more common than illnesses. Secondly, by that stage, comprehensive vaccination was available and it was thought that illnesses such as Hepatitis A, cholera, typhoid and malaria would be very rare events due to the modern vaccinations available.

The most serious medical episode involved Dean Jones, who was apparently not far from death from heat stroke during the Tied Test in 1986 in Chennai (Madras). Dean Jones pays tribute to Errol Alcott for “saving his life” in terms of providing oral rehydration and taking him to hospital in an ambulance for intravenous rehydration once his momentous innings had finished. The situation may have been managed slightly differently if a medical practitioner travelled with the team, as intravenous fluids could have been administered during a lunch or tea break once the diagnosis of severe dehydration and heat stroke had been established. Although Jones’ innings is now part of classic Australian cricket folklore, in the fully professional era of cricket it should be remembered that intravenous rehydration is available as a technique for qualified medical practitioners that significantly reduces the likelihood of serious outcomes.

As of 2008, intravenous infusions are a banned procedure under WADA rules, but are permitted “if medically indicated” and a full Therapeutic Use Exemption (TUE) is submitted. These can be approved retrospectively. Prompt emergency medical treatment should be administered prior to getting approval for a TUE.

In 2007 Cricket Australia made the decision that both a doctor and physiotherapist should accompany the national men’s cricket team to matches in the Indian subcontinent.

**Preparation for Touring**

**Licence to Export Restricted Items**

A printed licence to export restricted medications through customs needs to be obtained from the Commonwealth Department of Health & Ageing. The can be ordered from: TMU@health.gov.au Ph: 02 6160 3252, Fax: 02 6160 3260.

This permit is primarily (but not exclusively) for the benefit of Australian customs, as Indian customs (for example) will generally treat visiting sporting teams as they would royalty on arrival in the country!
Supplementary Medical Defence Obtained

Medical defence organisations need to grant supplementary insurance to cover overseas work with a sporting team. Outside of the USA, this insurance can be obtained for a nominal amount (approx $300).

Upskilling of intravenous cannulation technique

On the presumption that intravenous rehydration was quite likely to be required on the tour, I voluntarily decided to revise my skills in this area. All Australian doctors would have learnt this skill during their training, but sports physician practice does not lend itself to regular practice of intravenous cannulation skills. Due to this, I attended 5-6 operating lists and successfully inserted about 25-30 IV cannulas in patients who were happy to volunteer to have me do the procedure under the supervision of their anaesthetist.

Player and Personal immunisation

As a first-time traveller to India I needed more personal immunisation updates than most players, who had regularly travelled and hence were up to date with most immunisations. I had a blood test which showed current immunity to Hepatitis A and B and Varicella-Zoster. I was given injections for Adult Diptheria and Tetanus and typhoid, meningococcal and took the oral Dukoral cholera vaccine. I decided against pertussis and polio updates as I had undergone the regular childhood shots and a booster when a medical student.

During the trip I took Travelan with most meals and one doxycycline on most days for the first three weeks. [On the last week of the tour I was ill with an upper respiratory infection myself and changed my antibiotic to azithromycin].

Personally I was very conservative with food and drink, only drinking water and cold drinks from bottles, even brushing my teeth only with bottled water. I generally avoided cold food and ate well-cooked (generally Indian) food for most meals. I used Aerogard and sunscreen whenever outside. This advice was given to all players and touring staff members and it was generally followed (as most were familiar with touring the subcontinent). However, I doubt that players were completely fastidious about brushing teeth with bottled water and avoiding uncooked fresh food.

Ordering of additional medical supplies

Prior to the tour additional supplies needed to be ordered for my medical kit. In particular, intravenous fluid bags, antibiotics and anti-vomiting medications plus associated equipment (e.g. giving sets, tape) were ordered.

It is notable that pharmaceuticals are readily available in India and generally at prices that are 90% less than the same products in Australia. When we did run out of supplies (notably oral antibiotics towards the end of the tour) it was very easy to buy cheap replacement products. However, the quality control of the pharmaceutical industry in India is not the same as in countries like Australia, New Zealand and England. It is probably higher for those companies based in Western countries that import to India than for local companies. My concern regarding the quality of Indian drugs did not extend to assuming that it was likely that a medication may be contaminated by a banned substance. It would be more costly for a cheap Indian antibiotic to have, for example, an anabolic steroid included and therefore the likelihood of this being the case was probably miniscule (comparable to the likelihood, for example, of hotel food being contaminated with anabolic steroids).

The concern with Indian drugs relates more to efficacy (for example, it is quite conceivable that the real dose of the drug would be lower than that stated on the packet or that the correct expiry date may not be printed).

Where a drug brought over from Australia was available it obviously was the preferred item, but a dilemma was presented when we had run out of an Australian medication and it was the choice between an Indian one or nothing. I had enough confidence in the Indian drugs available that I was willing to offer them to players. Supporting this viewpoint is that fact that no Indian player (of which I am aware) has ever tested positive for a banned substance reported to be from inadvertent use from an incorrectly-labelled tablet.

My degree of confidence in Indian pharmaceuticals does not extend to
Indian supplements (such as creatine, which would be relatively more likely to be ‘laced’ with banned agents) and therefore I would strongly discourage players from using Indian supplements.

Management of illness on tour

As expected, illness was very common in India and in fact ‘medical’ rather than injury problems represented 37 of 93 significant player consultations on tour (about 40%).

The most important and significant management was the use of intravenous medications and fluids in players with prolonged vomiting (+/- diarrhoea). Intravenous (‘IV’) fluid use in sport is somewhat controversial but it remains a very important standard and legitimate medical treatment for dehydration outside sport. The WADA approach to intravenous fluid use is that it must be for “legitimate medical indications”. Certainly there have been past cases in sport which have crossed this line when it was previously a legal practice [particularly the Brisbane Lions in the AFL 2001-2002 prior to the practice being outlawed. In this scenario the team was routinely using IV fluids on 6-8 ‘fit’ players in each half-time break]. In the NFL it is also apparently fairly standard to use IV rehydration during matches.

I would suggest that the line in terms of acceptable use of IV rehydration (for dehydrated players) is when players are unable to orally rehydrate due to vomiting.

Quinine use for prevention of cramps

Quinine, a component of tonic water, has a long history as a therapeutic drug. Its major indications are prevention of both malaria and muscle cramps. As an anti-malarial, it has limited effectiveness compared to other options (particularly chloroquine and doxycycline). Its most common usage is for prevention of night cramps, which most commonly affect elderly females, although it is also used for the athletic cramps’ associated with heat stress and dehydration.

Almost all of the published research on quinine involves night cramps in the elderly and from this it has been concluded that quinine has mild-moderate efficacy but with a significant risk of major side effects (particularly thrombocytopenia and atrial fibrillation). Because of this, the TGA (Aus) and FDA (US) have both removed prevention of cramps as a therapeutic indication of quinine, although this recommendation relates particularly to night cramps in the elderly. Quinine has not ever been ‘indicated’ for prevention of sporting cramps but only because there has never been adequate research for this use.

For 14 years, I have personally supervised the use of quinine by professional football teams in Australia to prevent cramps. At the Swans, over 4 years, I would estimate that on hot days 25% of the team would have taken 1 x 300mg quinine sulphate (10% on cooler days). I only saw one complication, which was a presumed allergic reaction to the sulphur component. At the Roosters, over 10 years, I would estimate that on hot days 40% of the team would use one quinine tablet (15% on cooler days). I have not witnessed a complication in this time. It has been very rare for a player to have significant cramps over my entire tenure as those
players with a tendency have taken quinine on days in which they were susceptible.

Alex Kountouris (the current Australian team physiotherapist) relayed to me a similar experience with the Sri Lankan cricket team, where he gave approximately 5 players per match (on average) a quinine tablet over 7 years. This resulted in no side effects and was extremely impressive in preventing cramps. John Gloster, the Indian physio, reported similar experience to us and was using quinine in Indian players.

I am therefore strongly of the belief, based on long-term anecdotal evidence, that quinine prevents muscular cramps in footballers and cricketers. Ideally an RCT would be the best way to confirm this observation.

**Treating people as a “Good Samaritan”**

It is worth reporting that I made 33 additional consultations with touring staff members, match officials, members of the media, liaison officers and even a couple of members of the public (young cricketers) on the tour. Some of those outside our touring party approached me on the basis that they trusted a Western doctor more than the Indian medical system. I had a personal dilemma in some of these cases as my personal medical insurance only covers “members of the touring party” and not outside parties in India. However, my own philosophy as a doctor is that I would prefer to uphold Hippocratic principles than deny giving advice out of practising ultra-defensive medicine (NB I would probably take the opposite tack in an ultra litigious society like the USA). Acting as a “Good Samaritan” for no fee is a relative defence against medicolegal action and hence it is best that any contract for services on the tour only include athletes.

**Standard of medical care in India**

Unfortunately quality sports medicine practitioners in India are few and far between (and hence one of the justifications for taking a doctor on tour in the first place). Despite plenty of income from cricket, India is still stuck in the bad old days where the match day doctors can be drawn from any medical specialty, no matter how irrelevant this practice is to sports medicine (e.g. gynaecology, paediatrics). In partial defence of the various local cricket boards, there are many cities where quality options with respect to sports medicine are probably non-existent. There were some fortunate exceptions of orthopaedic surgeons with Western training/experience and up to date knowledge in the field of sports medicine, who were a pleasure to interact with.

One positive factor about the Indian medical system worth mentioning is the accessibility of cheap MRI scans. Although the quality is variable, the prices of scans are universally reasonable by world standards. The 1.5 Tesla scanners are comparable in quality (machine wise) to those found in Australia, with some 0.5 Tesla scanners available and of reasonable quality for some body parts. The reporting quality appeared to be poor, but because electronic copies were available we were able to email and have radiologists in Australia give an extra report, which was useful.

In conclusion, the standard of sports medicine care in India is a lot lower than in Australia, but there are some surprising positive aspects to the Indian medical system. The lucrative TV rights for cricket in India will require and also ensure rapid growth and improvement of sports medicine services in India. The majority of physiotherapists working for cricket teams in India (especially IPL and ICL) are Western (Australian, English and South African in particular). It is also expected that there will be excellent high-salary opportunities for Australian sports physicians and other sports medicine & science staff in India over the next decade.

**References**

Your directors present their report on the financial report of the company for the year ended 30 June 2008.

**DIRECTORS**

The following persons held office during or since the end of the financial year.

<table>
<thead>
<tr>
<th>Information of Directors</th>
<th>Qualifications</th>
<th>Experience</th>
<th>Board Meetings Attended (eligible in brackets)</th>
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<tbody>
<tr>
<td>Mr. Michael Kenihan</td>
<td>Physiotherapist</td>
<td>Vice President - until Oct 2007</td>
<td>3 (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>President - from Oct 2007</td>
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</tr>
<tr>
<td>Dr. Bruce Mitchell</td>
<td>Sports Physician</td>
<td>President - until Oct 2007</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Dr Anita Green</td>
<td>Sports Doctor</td>
<td>Vice President - from Oct 2007</td>
<td>3 (3)</td>
</tr>
<tr>
<td>Mr. Tim Pain</td>
<td>Podiatrist</td>
<td>Finance Director</td>
<td>3 (3)</td>
</tr>
<tr>
<td>Ms. Jocelyn Young</td>
<td>Physiotherapist</td>
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</tr>
<tr>
<td>Dr. Rob Reid</td>
<td>Sports Physician</td>
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</tr>
<tr>
<td>Ms. Karen Schneider</td>
<td>Physiotherapist</td>
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</tr>
<tr>
<td>Mr. Duncan Haskard</td>
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<tr>
<td>Prof. Kerry Mummery</td>
<td>Academic</td>
<td>QLD Director</td>
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<tr>
<td>Dr Peter Harcourt</td>
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<tr>
<td>Dr John Orchard</td>
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<td>NSW Director - from Oct 2007</td>
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<tr>
<td>Mr Paul Crisford</td>
<td>Podiatrist</td>
<td>TAS Director - from Oct 2007</td>
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<tr>
<td>Ms. Marilyn Feenstra</td>
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<tr>
<td>Ms. Rosemary Riley</td>
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**PRINCIPAL ACTIVITIES**

The principal activities of the company during the course of the year were to promote the practice of sports medicine and science throughout Australia.

**OPERATING RESULTS**

The net results of operations of the company for the 2008 financial year was an operating surplus of $49,497. The operating result of the 2007 financial year was also a surplus of $31,655.
**Australian Sports Medicine Federation Limited ABN 54 002 794 998**

**Income Statement for the Year Ended 30 June 2008**

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<th>2007 $</th>
<th>NOTE</th>
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<td>(47,330)</td>
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<td>31,655</td>
<td>Total changes in equity</td>
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**BALANCE SHEET**  
**AS AT 30 JUNE 2008**

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### 2007

#### CASH FLOW FROM OPERATING ACTIVITIES

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### 2008

<table>
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#### CASH FLOW FROM INVESTING ACTIVITIES

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#### CASH FLOW FROM FINANCING ACTIVITIES

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#### References

2. 2nd World Congress of science and medicine in cricket, Abstracts, 5-9 Feb, 2003, RA Stretch, TD Noakes, CL Vaughan.
4. John Buchanan was the Australian Team Coach 2000-2007, Cricket Australia.

---

>> from Page 13

- Purpose built stadia – at least one in each major cricket playing country to host everything from Twenty20, ODI, Test matches etc which will be fitted with Prozone camera system, retractable roof, drop-in wickets which can be altered for each day to change game conditions (if required), on-field batting cages for batting preparation, bowling pens for warm-ups, the wickets will measure all forces at delivery, every bowling action can be accurately filmed at high speed for analysis, special graphics displayed for crowds and TV audiences
- Use the ‘Moneyball’ concept in cricket to mathematically analyse the game to potentially unearth unique information into the process of “what wins a cricket match” and “patterns of predictability”
- Changing the view of traditional cricket stats to enhance the technical development and promotion of the game, e.g. fielding stats, catching – what type of catch, levels of difficulty, % success rate in all positions etc
- Continued equipment modifications with keeping gear, bodysuits and clothing, boots, hats flexural and vibration properties
- Dealing with social change including – health & fitness of young population, access to sporting facilities and coaching especially in the ‘bush’, influx of different ethnic populations, impact of all forms of media, new games like Twenty20
- Better management of Junior sport with children not suffering from specialization, not suffering from the elite squads conveyor belts, not suffering from well meaning but poorly trained and equipped coaches
- Quality control on the new employment niche of player management
- From a coaching perspective, the transference of information to the athlete – the link between theory & research to practical applications is critical to allowing science to awaken the slow moving dinosaur and help develop the Jurassic Park of modern sport.

**REFERENCES**

John Buchanan was the Australian Team Coach 2000-2007, Cricket Australia.