

## be active 2014 conference research

A snapshot of some of the free papers on offer at this year's conference, from neuromodulation to unhealthy product sponsorship

### **A spotlight on the Federal Budget**

Dr J questions when are we going to get an evidence-based medical system in Australia?

### **Sports nutrition for the adolescent athlete**

The newly released position statement for athletes aged 12–18 years

- Hip arthroscopy for intra-articular pathology
- Running retraining in the management of lower limb injury
- ACL reconstruction: return to sport and return to sport after revision
- Understanding athlete wellbeing
- The Physical Education Deprivation syndrome
- Legal risk management and the prevention of injury in the fitness industry

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20



36



44

<b>be active 2014: reaching new heights</b>	<b>2</b>
A look forward to the be active 2014 conference, promised to be the best yet. Nello Marino	
<b>Member news</b>	<b>4</b>
<b>5 minutes with... Professor Garry Allison, ACSMS Conference Committee and Chief Judge of the Australian Sports Medicine Federation Fellows Awards</b>	<b>6</b>
<b>When are we going to get an evidence-based medical system in Australia?</b>	<b>9</b>
A critical review of the recent Federal Budget. Dr J	
<b>be active 2014: research sneak peak</b>	<b>17</b>
<b>Running retraining in the management of lower limb injury</b> – Dr Christian Barton	18
<b>Wii can't fix it</b> – Professor Leon Straker	20
<b>Can mobile technology and new classroom environments help students to sit less, move more and behave better?</b> – Erin Howie	22
<b>The Healthy Active by Design Project</b> – Trevor Shilton, Jo Appleby, Paula Hooper, Fiona Bull and Robina Crook	24
<b>Time to reward the ride</b> – Rohan Greenland and Stephen Hodge	26
<b>The Physical Education Deprivation syndrome</b> – Dick Telford	29
<b>ACL reconstruction: return to sport</b> – Stephanie Filbay	34
<b>ACL reconstruction: return to sport after revision</b> – Associate Professor Kate Webster	35
<b>Unhealthy product sponsorship of Australian national and state sports organisations</b> – Rona Macniven	36
<b>Total versus reverse total shoulder replacement</b> – Elie Haddad	38
<b>Neuromodulation: frontiers in treating hard to reach pain areas</b> – Dr Bruce Mitchell	39
<b>Another gap to close: using physical activity to reduce premature mortality for people living with serious mental illness</b> – Simon Rosenbaum	42
<b>Legal risk management and the prevention of injury in the fitness industry</b> – Professor Patrick Keyzer	44
<b>Understanding athlete wellbeing</b> – Dr Matthew Dunn	46
<b>The keys to business success</b>	<b>50</b>
<b>Sports nutrition for the adolescent athlete</b>	<b>54</b>
The newly released Sports Dietitians Australia position statement for athletes aged 12–18 years. Alison Patterson (Garth)	
<b>Hip arthroscopy for intra-articular pathology</b>	<b>58</b>
A systematic review of outcomes with and without femoral osteoplasty. Joanne Kemp	
<b>The Journal of Science and Medicine in Sport</b>	<b>62</b>
<b>Discipline group news and events</b>	<b>64</b>
<b>Be active</b>	<b>65</b>
The importance of the prescription of exercise. Hamish Ashton	

## be active 2014: reaching new heights



SMA CEO, Nello Marino visited the Asics store in Elizabeth Street, Melbourne recently to show his support for the Wallabies in the Bledisloe Cup. Asics is an Official Partner of the Qantas Wallabies and is one of the major Sponsors of the upcoming be active 2014 conference.

### **SMA CEO, Nello Marino looks forward to the upcoming be active 2014 conference, set to be the best one yet.**

The SMA conference cycle is quite unique and continues to be a feature of the sports medicine and science calendar. Following an unforgettable Phuket conference in 2013,

the 2014 conference reverts back to the traditional capital city structure featuring three events in one, truly befitting of a multidisciplinary program with something for everyone.

We're delighted to return to Canberra following an absence of 11 years, which many may not realise was featured in the *New York Times* as a city for great food, refined culture and its serene, green environment. Quite contrary to the green upholstered environment overlaid by the heated debate of parliament which we have become all too familiar with in recent times. Clearly a lot has changed in 11 years.

For those unfamiliar, be active 2014 will again combine three distinct yet related events which have been the hallmark of the multidisciplinary nature of SMA conferences for some time: The Australian Conference of Science and Medicine in Sport, The National Sports Injury Prevention Conference and the National Physical Activity Conference will again run parallel, enabling greater opportunity for exposure of ideas across a range of disciplines and professions.

be active 2014 features some of the cream of the Australian sports medicine, sports injury prevention and physical activity participation research and practice, along with a number of prominent international presenters that add the cherry to the program.

This issue of *Sport Health* features a little more detail of some of the content conference attendees can expect from be active 2014. Each of these articles is a sample of the free papers that have been submitted and provide a taster of things to expect in Canberra in October. In addition to these features are a host of keynote and invited speakers, further highlighting the quality of the 2014 program.

The keynote presenters include:

- Refshaug Lecturer, Winthrop Professor Danny Green whom many would remember giving a stunning presentation in 2011 incorporating an update on the latest in exercise as cardiovascular medicine and its impact on heart health.
- Dr Darren Burgess who has been featured prominently in the success of Liverpool FC in the EPL and more recently Port Adelaide in the AFL. Darren will address load management, one of the hottest issues in sports performance and sports injury prevention. Darren's history in both academia and at the coal face of sport makes him a compelling presenter who provides a genuine insight into the modern day world of sports team performance management.

- Professor Neville Owen is one of the true legends of the Australian and world physical activity and behavioural epidemiology. Neville's work spans several decades and he has been a major influence on the careers of many of our brightest stars in physical activity and sedentary behaviour change research. The conference will be a great opportunity to recognise Neville's influence on physical activity and public health policy in Australia and beyond.
- Stuart Biddle is Professor of Physical Activity & Health in the School of Sport, Exercise & Health Sciences at Loughborough University, UK. Stuart is a world renowned researcher in sedentary behaviour and played a key role in the development of the UK physical activity and sedentary behaviour guidelines. Stuart has spent some time at the University of Queensland as an Honorary visiting professor and will shortly take up a role with Victoria University in Melbourne. His insight into the multi-disciplinary approach to behaviour change is very much in accord with the principles of be active as a multidisciplinary event.

Add to these a leading cast of Dr Tim Gabbett, Professor Paul Hodges, Dr Andrew McIntosh, Professor Jill McNitt-Gray, recently recruited Associate Professor Catrine Tudor-Locke and a host of invited presenters which are ever growing and it will be a conference to remember.

Make sure to keep up with latest developments by visiting [www.sma.org.au/conferences-events/conference/canberra/](http://www.sma.org.au/conferences-events/conference/canberra/).

## SMA and the APA partnering in Asia

Speaking of reaching new heights we are delighted to announce that SMA in partnership with the Australian Physiotherapy Association (APA) have secured a grant from Australian Trade Commission (Austrade) to explore opportunities for delivery of sports medicine and sports physiotherapy services in China. The grant is perhaps the most obvious demonstration of the collaboration that has taken place between the APA and SMA in recent years and is anticipated to provide new opportunities for many of our members and the broader profession in the Asian region. We look forward to keeping members and the broader industry up to date with the developments of this important project.

## JSAMS hits new heights

The *Journal of Science and Medicine in Sport* (JSAMS) again hit new heights recently by achieving an Impact Factor of 3.079 for the 2013 year. Recently released rankings of all Journals shows JSAMS also increased ranking from 10th to 9th amongst 81 Sport Sciences Journals. Congratulations to all concerned with the publishing and distribution of JSAMS, in particular Editor in Chief, Professor Greg Kolt under whose leadership the Journal has continued to go from strength to strength. As an aside, SMA members should be delighted to know that they receive two 'top ten' journals in the Sport Sciences category as part of their SMA membership, given the *British Journal of Sports Medicine* (BJSM) also increased its Impact Factor and held its ranking of 6th.

### Nello Marino

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Are you getting enough exercise? Prof. Jo Salmon looks at how you can meet the new PA guidelines [bit.ly/UtT8M8](http://bit.ly/UtT8M8) via @TheNewDaily\_ – July 24, 2014

Media alert: Sports medicine experts available for comment during #Glasgow2014 Commonwealth Games [bit.ly/1jUoaJs](http://bit.ly/1jUoaJs) – July 23, 2014

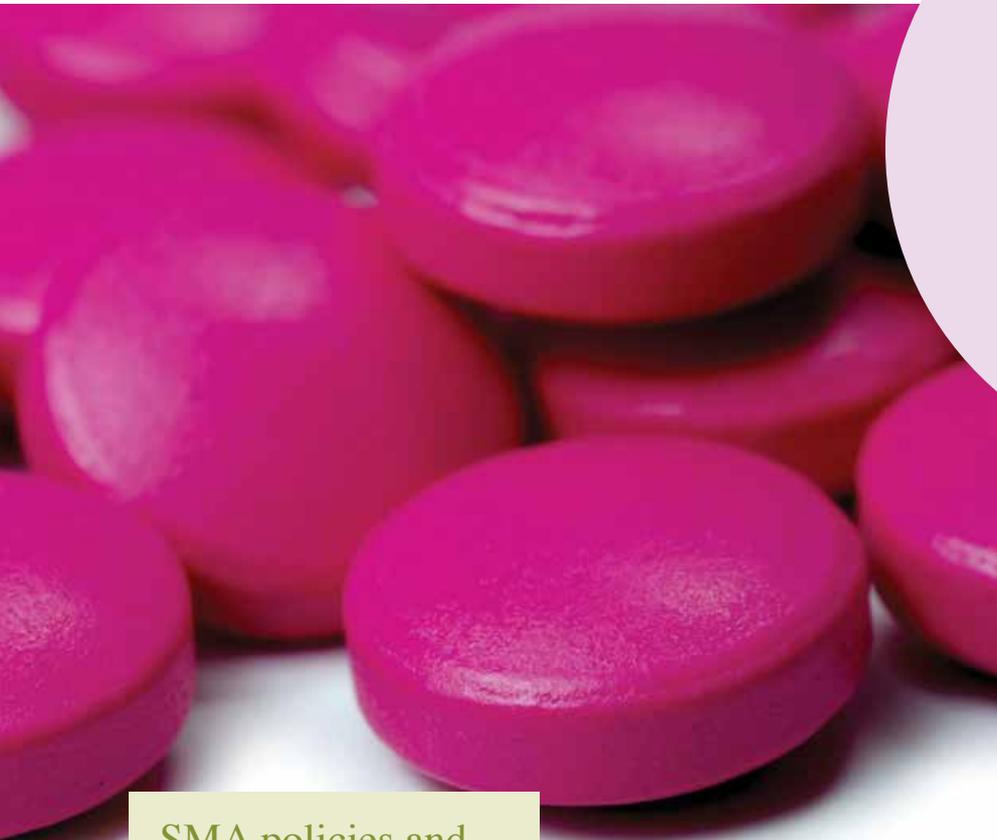
Have you checked out the new @\_JSAMS podcast? Listen to Dr Bridget Kelly discuss fast food sponsorship of kids sport [bit.ly/1mbVaHI](http://bit.ly/1mbVaHI) – July 19, 2014

Obesity cuts lifespan more than smoking, the largest-ever study of the effect of extreme obesity on mortality finds [ab.co/1oldk6w](http://ab.co/1oldk6w) – July 11, 2014

#SMA QLD President Julie Gilbert featured in @abc730 story last night on teenage supplement use in sport. Watch: [abc.net.au/7.30/content/2...](http://abc.net.au/7.30/content/2...) – July 10, 2014

Stay safe on the slopes this snow season with #SMA's injury prevention tips [bit.ly/1vulSjZ](http://bit.ly/1vulSjZ) – July 2, 2014

## Member news



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### SMA policies and position statements

Thanks to the great response from SMA members, we now have four working committees in place to develop policies and positions statements in the following areas:

- Drugs and supplements in sport
- Concussion in sport
- Pregnancy and exercise
- Infectious diseases

Please note this will be an ongoing process and we encourage members with expertise in other areas who wish to be involved to contact SMA CEO, Nello Marino on [nello.marino@sma.org.au](mailto:nello.marino@sma.org.au)

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### SMA online store

Keep an eye out for the SMA online store coming soon. SMA members and accredited sports trainers can take advantage of discounts all whilst shopping for first aid kits and supplies. **Watch this space.**



### Use the SMA logo to enhance your brand!

Did you know that as a professional member of SMA you can download our logos from the Member Portal? With high and low resolution logos available you can use the SMA logo on anything from business cards and letterhead to your website. The SMA logo is a trusted brand and shows your patients that you are a member of a world leading organisation in the area of sports medicine. To download the logos log onto the Member Portal via [sma.org.au](http://sma.org.au) and click on the 'logos' heading.



## SMA mentorship program

Mentors and mentees of the 2014 program seem to be cementing firm friendships, as is demonstrated with Mentor, Nick Stepkovitch and Mentee, Brendan Limbrey (above) who catch up weekly at their local pub.

*"The SMA mentoring program has provided the platform for a great learning, networking and development opportunity with an experienced practitioner in Nick Stepkovitch. Having the opportunity to openly discuss clinical systems, staff management and business operation matters has been tremendously beneficial. It has also been intriguing to hear the journey that Nick's sports physiotherapy career has taken him on and what he has learnt along the way."*

– Brendan Limbrey, Mentee

*"I have found the opportunity to mentor a like-minded and enthusiastic Physiotherapist such as Brendan, both challenging and rewarding at this stage*

*of my career. I hope to save him much of the angst I had encountered over 28 years of operating and establishing practices, and employing over 180 physiotherapists. I aim to provide him an accelerated opportunity to take his professional and practice development further in order to continue to be a leader in sports physiotherapy. We have managed to overcome our first hurdle of ensuring regular and timely meetings by scheduling these at a mutually agreeable Pub with decent meal facilities. Our only other hurdle was working around NRL's 'State of Origin' nights."*

– Nick Stepkovitch, Mentor



### Australian sports medicine has Asia in its sights

Sports medicine will be the latest Aussie export to hit China, with Sports Medicine Australia and the Australian Physiotherapy Association securing a \$30,000 grant to raise the profile of Australian sports medicine in Asia. Read more about this initiative at [sma.org.au](http://sma.org.au)



## 5 minutes with... Professor Garry Allison

ACSMS Conference Committee and Chief Judge of the Australian Sports Medicine Federation Fellows Awards, Dean of Research and Graduate Studies in Health Sciences and Professor of Neurosciences and Trauma Physiotherapy at Curtin University, long term SMA member and titled Sports Physiotherapist



### What path led to your involvement with Sports Medicine Australia?

I have been an SMA member for over 20 years. I was committed to sport – playing (water polo) and coaching – and this directed my education with an Hons in Physical Education (Sydney University, so I could play water polo with Balmain) and Masters degree at UWA Human Movement (so I could play water polo in Western Australia). I then undertook Physiotherapy (before it became popular to obtain the double qualification) and took on coaching (water polo) and rehabilitation and training (AFL). I received life membership for the WAFL club West Perth and was the inaugural Australian Institute of Sports Research Fellow in 2007. I am committed to a wide range of rehabilitation strategies with research spanning spinal pain syndromes, athletes, neurological rehabilitation including traumatic brain injury and spinal cord injury and stroke. My recent work looks at motor control systems in mobility and robotic rehabilitation. I also have links with the health system and service's research examining models of care across a wide range of services and conditions. I also sit on the Board of the Collaborative Research Centre of Living with Autism Spectrum Disorder and The National Drug Research Institute. Both provide meaningful outcomes for members of the community.

My association with SMA has been consistent with my interest in research and real life and meaningful outcomes. When the opportunity arose to be part of the conference, and specifically the ASMF Fellow Awards, I was keen to be part of the process.

### What is the key to and the process of judging papers for the ASMF Fellows Awards?

The key to an award winning submission is a well written abstract. Over the years many good presentations have not been shortlisted (and therefore not judged) due to poorly written abstracts. The Award process sees the Conference Committee shortlist presentations to enable the judges (the unsung heroes, attending many more sessions than they normally would) to view as many as physically possible. This year though the process will be different. The number of presentations shortlisted will be increased. This will mean shortlisted presenters will present for a judging session prior to the conference. This allows a greater number of people to be judged by one panel. It also allows keen conference attendees the chance to see an eclectic mix of presentations that they may have otherwise missed due to parallel conference sessions. We feel this is an opportunity for a wider range of topics to be seen by conference attendees.

### What are you most looking forward to at this year's be active conference?

I have seen the list of people presenting and it is really impressive. There are invited speakers who are clearly leaders in their areas of research. I have attended conferences where one or two of these people may be the keynote speakers, this conference has 6–8+.

Another factor is the variety the conference offers – sports, medicine, orthopedics, exercise, physiology, biomechanics, physical activity, injury, clinical sciences and public health. This reflects the growing nature of the conference with a greater diversity of participants. This goes hand in hand with it being the combined conference for the Australian Conference of Science and Medicine in Sport (ACSMS), the National Physical Activity Conference (NPAC) and the National Sports Injury Prevention Conference (NSIPC).

I am also looking forward to the many grants and multidisciplinary research projects (and PhD scholarships) that are networked during the coffee breaks and poster sessions.

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

Never wear another man's hat or kick his dog.

### Outside of work, what else are you passionate about?

Over the past few years I have been renovating an 1860's church in the country. It is a grand design – over budget and over time.

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

Lachlan Macquarie, Matthew Flinders, Joseph Banks, Yagan – it would be interesting to hear what they think of Australia now.

### Favourites

**Travel destination:** My wife and I live by the philosophy that one must visit more countries than one's age. I recently went to Panama and Cuba. We are currently at 67 so I am in front of the red line and I can always say I can do 'Fiji with a zimmer frame'.

**Sport to play/watch:** I don't have much time to watch TV.

**Cuisine:** I like cooking and recently did a nice standing beef rack with lemon risotto and key lime pie.

**Movie:** I have watched all the movies on the Qantas list – may have to change airlines.

**Book:** The latest two books ordered. RD Kaplan's *The revenge of geography*, and EO Wilson's *Consilience: the unity of knowledge*.

**Gadget:** Toss-up between my chainsaw and my new research force plate system.



# New Member portal launched!

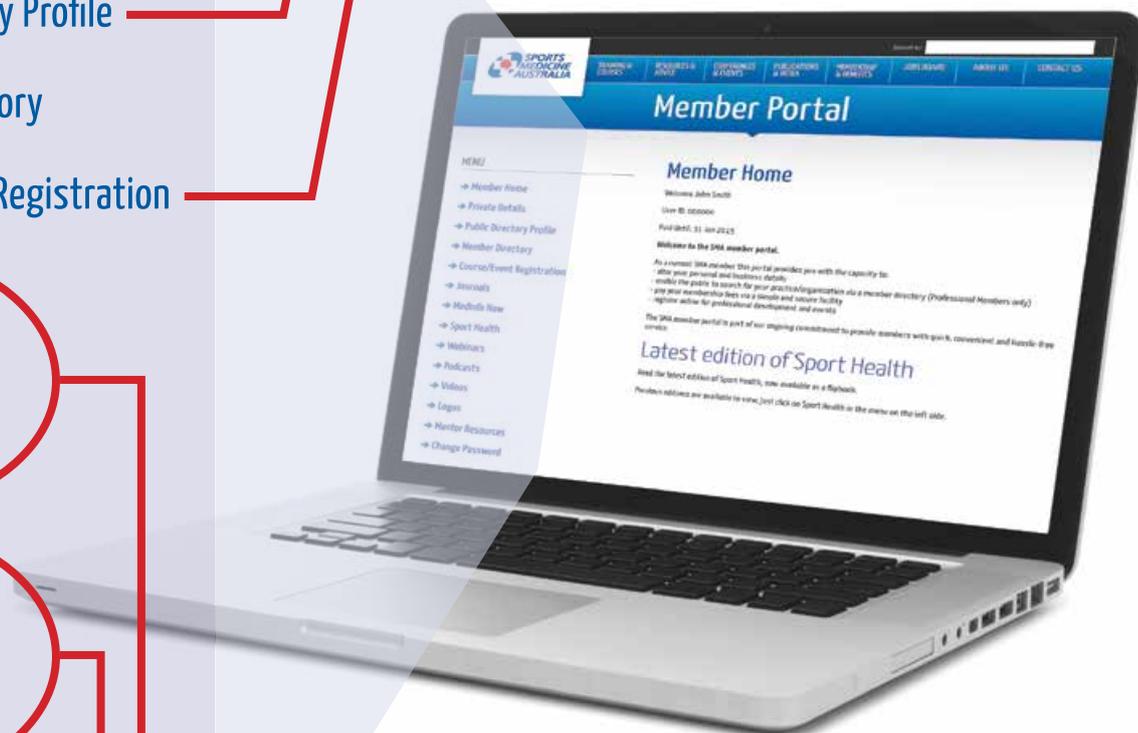
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## When are we going to get an evidence-based medical system in Australia?



### Dr J provides a critical review of the recent Federal Budget.

The Federal Budget of this year was particularly controversial in many facets, and health did not miss out on being part of the controversy. The main sting highlighted (with huge consequences obviously) was the \$7 co-payment for the vast majority of primary care medical visits. The ‘pain’ of this was both limited by a safety net (where it disappeared after 10 visits per year) and the promise that all funds raised would be eventually diverted to a massive medical research fund. The Prime Minister, Treasurer and Health Minister were effusive in their praise of medical research and how important this was to the nation and its future health, which on first glance makes sense. Those with a public health bent have always argued that we should put some more of our treatment funding into the pot of prevention and research.

Let’s start though with a quick review of the positives and negatives of the Australian outpatient medical system. With respect to hospitals, we have a combination of public (free to user) and private (user-pays, backed by insurance)

systems. In Australia, our non-hospital medical system is basically a private one (fee-for-service) backed by a single universal insurer (Medicare). Private systems have the advantage of fostering innovation and catering better to the specific needs and wants of the patient. One of the specific reasons why we have a well-developed sports medicine specialty in Australia is because we have a private nonhospital medical system, whereby a new specialty can emerge much more easily than in a public/salaried doctor system. The negatives of the private system include that there is potential for profit-making to take precedence over patient care and, in relation to this point, different practitioners in the system are actually economic competitors rather than always being collaborators in the interest of the patient.

**“... the vast majority of surgeons... would agree that knee arthroscopy should not be done for osteoarthritis based on the scientific evidence, but somehow tens of thousands annually keep getting done.”**



**“... some practitioners want a better deal for themselves and, if they can’t get that, a worse deal for their perceived competitors.”**

For every medical or paramedical specialty in a private system such as ours, you can highlight opposite examples of terrific innovation that has been encouraged by practitioners striving to help patients but also practitioners engaging in borderline or actual ‘rorting’ of the system based on the profit motive. Novel treatments that have not had complete scientific assessment may ironically turn out to be examples of either. In sports medicine (and also some other specialties), one of the trendiest treatments of recent years has been platelet rich plasma (PRP) injections for tendinopathy and, more recently, arthritis. The scientific jury is still out on the value of PRP injections. With respect to tendinopathy, they appear to be more effective (less harmful) than cortisone injections but probably no more (or less) effective than placebo or prolotherapy injections. With respect to osteoarthritis, the early studies (randomised controlled trials [RCTs]) are more promising and suggest there may even be a benefit over placebo injection for osteoarthritis (OA), although I would be the first to admit that the science has not fully evaluated the technique to the point where we can be definitive.

PRP injections have actually had a legacy Medicare item number (13703 – administration of autologous blood products) which has enabled patients to claim a rebate for having a PRP injection. There is no doubt that the existence of this rebate has encouraged more PRP injections than would have otherwise been the case if there was no rebate. From what you hear second and third hand, there are some practitioners around (including in the sports medicine field) who have been doing a very high number of PRP injections for almost any sports medicine diagnosis. Therefore, based on what I have read in the science and having heard of large growth in the 13703 item number, I would not have been upset to hear that the 13703 item number had had restrictions placed on it to be used only for certain indications (where evidence existed for efficacy), or that the rebate had been reduced. Even if 13703 had been eliminated as an item number as part of a scientific review of evidence, with the conclusion that there wasn’t yet enough evidence to support it, I would have accepted this outcome.

The outrageous fine print of 13703 is that apparently the item number will not only be withdrawn for the purposes of PRP and other autologous injections but also that no Medicare rebate for any consultation or imaging service associated with autologous

injections will be permitted. This decision has apparently been ‘endorsed’ by ‘a number of medical professional groups’ (ref: letter to specialist colleges, with the Australasian College of Sports Physicians [ACSP] named specifically as a group which has been claiming under 13703). The professional groups who ‘endorsed’ this decision are not listed in the letter and the scientific or policy rationale for an exclusion of Medicare rebates has not been published. This is eminence-based medicine, rather than evidence-based medicine, at best. At worst, it may be a case of certain groups of medical practitioners trying to encourage government bureaucrats to aim their cuts ‘elsewhere’ to escape the razor themselves.

**“If you are going to make decisions on what gets funded under Medicare using a ‘phone-a-friend’ method and your friend advises you that your decisions need to specifically ignore all of the published research and turn it on its head, then what is the point of doing any more research?”**

It is less well-known that the exclusion of Medicare consultation rebates is not without precedent. There is a section in the Medicare Benefits Schedule (MBS) called ‘G.13.1. SERVICES WHICH DO NOT ATTRACT MEDICARE BENEFITS’ which includes: “An item in the range 1 to 10943 (i.e. consultations) does not apply to the service described in that item if the service is provided at the same time as, or in connection with, any of the services specified below: ... (f) intro-articular [sic] viscosupplementation, for the treatment of osteoarthritis of the knee;”, although one could argue that a spelling mistake which has not been corrected in every edition of the last decade of the MBS might mean the exclusion does not apply! With respect to this exclusion, perhaps it has been formed on the basis of level VI evidence. If level V is consensus expert opinion, level VI might be a personal opinion of a practitioner who is purported to be an expert in knee osteoarthritis management, but who does not even know how to properly spell the item in question (let alone review the medical literature)! The trashing of hyaluronan viscosupplementation products by our Medicare system has meant we only have two products in this helpful genre currently on the market (when there are over a dozen in other countries) probably because its main indication has been shut out of Medicare. Hyaluronan sadly isn’t listed on the PBS (it is considered a device rather than a drug by the Therapeutic Goods Administration [TGA]) and because of this, can’t get an objective evidence-based review of its cost-benefit.



The Pharmaceutical Benefits Scheme (PBS), by contrast to the MBS, is subject to regular review by the Pharmaceutical Benefits Advisory Committee (PBAC) of not only new but existing drugs to determine which drugs should be funded and approved and which ones should not be funded (and perhaps even withdrawn from the market) based on the latest evidence. The MBS has a Medical Services Advisory Committee (MSAC) which sounds like a robust process, except that the MSAC has not recommended that PRP or hyaluronan rebates be removed. Whoever has made the decision to exclude hyaluronan and PRP users from Medicare, when treating knee osteoarthritis, has not had the courage to put their identity to the decision. We don't know what correspondence occurred between 'medical professional groups' and health bureaucrats, but it could not, even theoretically, be something which was done in a scientific fashion as the results are the opposite of what you would have achieved if an evidence-based review was done.

**“... the only two 'medical' treatments which will disqualify a doctor from getting a Medicare rebate are the only two that have been shown by RCTs to actually be helpful.”**

What would a scientific review of the medical management of knee osteoarthritis conclude if MSAC actually undertook it? Funny you should ask, as I wrote an editorial about this very topic in the *Journal of Science and Medicine in Sport* in 2003, “Health insurance rebates in sports medicine should consider scientific evidence”. The first of what is now a series of RCTs<sup>1</sup> had just been published showing that knee arthroscopy for osteoarthritis of the knee not only failed to beat placebo surgery but in fact gave worse results on raw scores. The RCTs on knee arthroscopy for knee OA since then<sup>2</sup> have all confirmed poor results even when meniscal tears are present. Reviews from groups such as Cochrane collaboration (2009), UK National Institute for Clinical Evidence (2007) and many top tier journals have advised that knee arthroscopy simply should not be performed in knee osteoarthritis. The 2013 studies were so damning that it would be almost impossible to do a review that was supportive of knee arthroscopy in an arthritic knee.

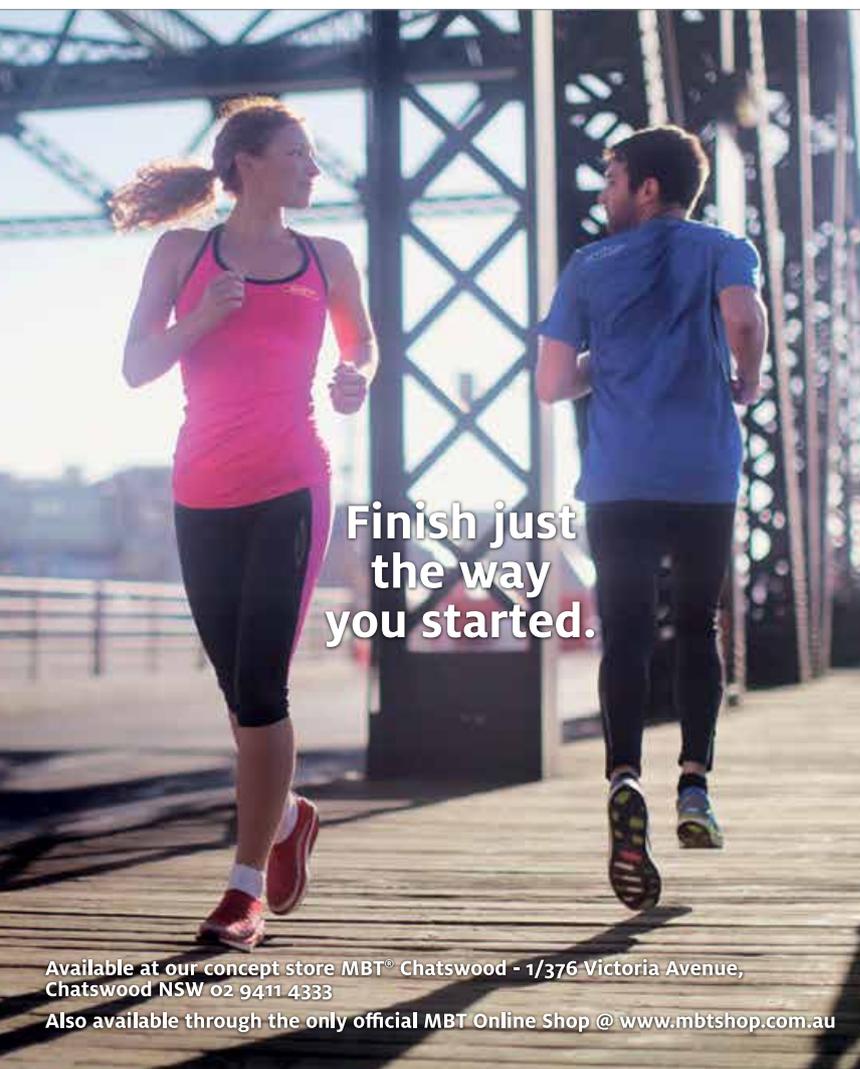
However in Australia from 2002 (the time of the Moseley study) to 2013, the annual rate of knee arthroscopy in the private system *increased* by approximately 30 per cent on a per capita basis (although the rate slightly dropped in the public system). Knee arthroscopies cost Medicare over \$20 million dollars per year, and the vast majority of arthroscopies in Australia

are done on people over 45 years of age (and hence a large proportion would be in arthritis sufferers). It is noteworthy that the rate of knee arthroscopy in Australia (with a mix public/private system) is much higher than the UK and Canada (predominantly public systems) but lower than the USA (predominantly private system). An interesting point is that the vast majority of surgeons – when asked directly – would agree that knee arthroscopy should not be done for osteoarthritis based on the scientific evidence, but somehow tens of thousands annually keep getting done. It seems an academic understanding that the procedure doesn't help is not enough to stop unnecessary arthroscopies for patients with osteoarthritis.

**“At worst, it may be a case of certain groups of medical practitioners trying to encourage government bureaucrats to aim their cuts ‘elsewhere’ to escape the razor themselves.”**

By contrast to the recommendations on arthroscopy for knee osteoarthritis, a 2006 Cochrane review (CD005321) based on 76 trials concluded that “viscosupplementation is an effective treatment for OA of the knee with beneficial effects: on pain, function and patient global assessment; and at different post injection periods but especially at the 5 to 13 week post injection period.” Subsequent studies have debated cost-effectiveness and how ‘clinically relevant’ the effect size is, but the evidence is that viscosupplementation is effective when compared against placebo injection although an argument remains about how valuable the improvements are in real life.

PRP for knee osteoarthritis has not reached Cochrane review stage, but a recent systemic review of PRP for knee osteoarthritis<sup>3</sup> concludes “Studies to date, including four randomised controlled trials<sup>4</sup>, have shown that PRP is a safe and effective treatment option for knee osteoarthritis. Intraarticular PRP is similar in efficacy to hyaluronic acid...”



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MBT Sensor generates activation.



Pivot Axis requires active rolling movement with every step.





**“There is no doubt that the existence of this rebate has encouraged more PRP injections than would have otherwise been the case if there was no rebate.”**

Obviously I haven't discussed knee replacement, which is a revolutionary surgical treatment for end-stage knee OA, or non-medical treatments, which may be helpful at the more benign end of the treatment spectrum. And what of other 'medical' treatments you could use, such as the cartilage-destroying cortisone injection, heavy dose Endone and Oxycontin, anabolic steroids, human growth hormone (HGH) and peptides, all of which either regularly or occasionally get prescribed by medics in Australia for patients with knee osteoarthritis. Cortisone has evidence that it is helpful in the short-term and harmful in the longer-term. All of these other treatments listed have no evidence and are probably so likely to be harmful in the longer term that it wouldn't even be ethical to study them. However from January 1 next year, a consultation with a doctor will still qualify for a Medicare rebate if he/she is prescribing one of these harmful treatments

for knee osteoarthritis. Paradoxically, the only two 'medical' treatments which will disqualify a doctor from getting a Medicare rebate are the only two that have been shown by RCTs to actually be helpful.

**“The 2013 studies were so damning that it would be almost impossible to do a review that was supportive of knee arthroscopy in an arthritic knee.”**

To put the PRP decision in its proper context, segments of the medical profession in Australia have a consistent recent history of squealing about possible funding cuts to their own rebates, but 'endorsing' funding cuts to the rebates of perceived competitors within the medical profession. When sports medicine was finally awarded specialty status, some sections of the medical profession were consulted on whether they thought specialist sports physicians should have parity rebate status with their own physicians, or whether the sports physicians (about to become their competitors in the specialist medical marketplace) should get a rebate cut?

Would you believe it was those sections of the medical profession, referred to in the previous sentence, that recommended sports physicians get a rebate cut? This example is typical of a number of other similar examples which support the point that in a private medical system, some practitioners want a better deal for themselves and, if they can't get that, a worse deal for their perceived competitors. We would not be so surprised if a pharmaceutical company supported a competing pharmaceutical company getting a lower subsidy from the government, or if car company 'A' supported car company 'B' getting a lower subsidy from the government. Yet a government struggling to contain a rampant health budget could be excused for looking for a rare cost saving, and it seems that more than one specialist medical group is willing to back up the government on these decisions. However the decision to throw out PRP and Synvisc injections from Medicare (whilst quarantining knee arthroscopy) is in a special category. It is a medical equivalent of awarding a soccer world cup to a country at a time when the thermometer will be reading 50 degrees, and I say this because it is impossible to have reached this decision by looking at the facts. The medical research is crystal clear. There are over 50 RCTs (net) in favour of viscosupplementation for knee osteoarthritis and 4 in favour (none against) PRP, and there are 7 on knee arthroscopy but they all show that the surgery is useless and/or harmful. Knee arthroscopy is the most expensive of these three procedures and is the one which is most harmful (according to medical research), but knee arthroscopy has been preserved on Medicare and the two competitor procedures that actually work (according to the medical research) have been thrown off.

**“Whoever has made the decision to exclude hyaluronan and PRP users from Medicare, when treating knee osteoarthritis, has not had the courage to put their identity to the decision.”**

So, finally back to the announcement of a \$20 billion medical research fund. If you are going to make decisions on what gets funded under Medicare using a 'phone-a-friend' method and your friend advises you that your decisions need to specifically ignore all of the published research and turn it on its head, then what is the point of doing any more research?

#### Dr J

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

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





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1. McGuire T.A., Brooks A. AM J Sports Med.2011 "The Effect of Lace-up Ankle Braces on Injury Rates in High School Football Players"



Stabilizing Speed Pro





# be active 2014: research sneak peek

be active 2014 will incorporate the Australian Conference of Science and Medicine in Sport (ACSMS), the National Physical Activity Conference (NPAC), and the National Sports Injury Prevention Conference (NSIPC). Together the three conferences will focus on current research and practice in areas relating to the promotion of, and safe participation in, all kinds of sport, exercise and physical activity. be active 2014 will provide an interactive educational forum of the highest standard, promoting the latest physical activity and health developments amongst key and influential industry professionals. To be held at the National Convention Centre, Canberra from October 15–18, 2014 over 350 papers will be presented on cutting edge research within the sports medicine, physical activity and injury fields. To whet your appetite of what's to come, *Sport Health* presents a series of articles on the research to be presented at the be active 2014 conference. Hopefully this inspires you to take in the full presentations at Canberra along with all the others on offer. We look forward to seeing you there.

## Running retraining in the management of lower limb injury



**Dr Christian Barton, Physiotherapist and upcoming be active 2014 conference presenter, looks at running retraining in the management of lower limb injury: combining current evidence with international expert opinion.**

Incorporating running retraining in the management of running related injuries is slowly gaining popularity in both research and clinical practice. Although not always the case, I am amazed at the number of runners I see for second, third, fourth, etc. opinions who tell me that no previous clinician has actually watched them run. Others tell me their podiatrist has videoed them running, but this was to determine the potential need for foot orthoses or footwear prescription. The most alarming to me are the patients who tell me that the ‘guy in the shoe store’ videoed their running and diagnosed them as an over-pronator – I will leave discussing this one any further for now. The point is, that rarely is running assessed adequately or running retraining (altering technique through cues) employed as part of the patient’s management plan.

There is growing evidence linking biomechanical factors such as excessive hip adduction and internal rotation and altered foot and ankle mechanics to various running related injuries. This biomechanical evidence is often used to rationalise the implementation of foot orthoses prescription, taping, footwear modification and exercise. In these instances, clinicians are hoping their implementation will change biomechanical factors for the better, but do running mechanics actually change with these interventions? The answer lies somewhere between

‘no’ and ‘maybe’. Current evidence indicates that foot orthoses can reduce motion at the foot and more proximally, but changes are small and variable; taping may provide bigger changes but these are transient; the influence of footwear, like orthoses, can be highly variable; and strength exercise may have minimal impact on running related mechanics. This is a very brief synopsis of a lot of research, but the point is, is there a better way to change running biomechanics? In my opinion, yes.

**“... rarely is running assessed adequately or running retraining (altering technique through cues) employed as part of the patient’s management plan.”**

So back to running retraining. I have been implementing running retraining in my clinical practice for a number of years now, with ever improving patient outcomes. However, being a clinical academic, I am strongly aware of the limited evidence base for this intervention in the various running related injuries that I manage. A lack of evidence combined with my continued frustration at the lack of actual running assessment and implementation of running retraining in many injured runners has inspired the undertaking of a mixed-methods study, involving both quantitative and qualitative methods. The primary aim of the study is to create some clinically applicable guidance for the implementation of running retraining through the combination of current evidence with international expert opinion and clinical reasoning.

**“I am amazed at the number of runners I see for second, third, fourth, etc. opinions who tell me that no previous clinician has actually watched them run.”**

The first part of this mixed-methods study involves a systematic review of current evidence evaluating the effects of running retraining interventions on pain and biomechanics. To date there are just three case series studies including injured runners. Participant numbers fail to exceed 10 in any of these studies. Nonetheless, results indicate that excessive hip adduction can be effectively reduced in individuals with patellofemoral pain (PFP) through two weeks of verbal and visual biofeedback, and this corresponds with significant reductions in pain over a three month period. Importantly, the magnitude of hip motion changes is far greater than with other interventions such as orthoses and exercise. Additionally, a retraining program to transition from rearfoot to forefoot strike and increase step rate in individuals with chronic exertional compartment syndrome (CECS) may effectively reduce compartmental pressures, improve running times, and reduce pain.

The remaining literature identified in the systematic review is focused on the biomechanical effects of various retraining interventions in asymptomatic populations. Findings include reduced power absorption and joint moments at the ankle, knee and hip with increased step rate; reduced vertical ground reaction forces (GRFs) with cues to reduce impact; and reductions in power absorption and joint moments at the knee and hip, reduced tibialis anterior muscle activity and vertical GRFs, increased power absorption and joint moments at the ankle, increased gastrocnemius muscle activity, and greater over-stride with transition from rearfoot to forefoot strike. Put together, these findings provide sound biomechanical rationale for the implementation of running retraining in many running related injuries.

The second part of this mixed-methods study involves semi-structured interviews with international experts to explore their clinical reasoning related to the implementation of running retraining. Increasing step rate, reducing over-stride and impact is recommended for most running-related injuries, and reducing hip adduction and knee valgus is recommended for many knee and hip injuries. Transitioning from rearfoot to forefoot strike may be effective for CECS, knee and hip injuries, although caution is recommended due to increased load at the foot and ankle. Importantly, there seems to be consensus that running retraining is likely to be effective in most running-related injuries, including the following example of a runner with proximal hamstring tendinopathy (see Figure).



Figure: Clinical example of a female runner who has successfully increased step rate, reduced over-stride, and reduced anterior pelvic tilt. Each of these changes will reduce loading on the hip, and importantly the hamstring at heel strike. On the left is her baseline running action (presenting with proximal hamstring tendinopathy); and on the right is five month follow up (pain free, just recently completed ironman, and her now natural running action).

**“A lack of evidence combined with my continued frustration at the lack of actual running assessment and implementation of running retraining in many injured runners has inspired the undertaking of a mixed-methods study, involving both quantitative and qualitative methods.”**

Running retraining clearly shows promising potential in the management of various running related injuries. I certainly strongly encourage its implementation in clinical practice and love teaching both the theoretical and practical aspects of it to clinicians. Obviously, it should not replace other evidence based interventions, but importantly may be the missing link in addressing many chronic running injuries. Further guidance highlighted by international experts, and the preliminary guidelines for the implementation of running retraining in clinical practice developed from this study will be the primary focus of the upcoming conference presentation in Canberra. I hope to see you there!

#### About the author

##### Dr Christian Barton

Consultant Physiotherapist and Research Fellow  
PhD, BPhysio(HONS), MAPA, MCSP

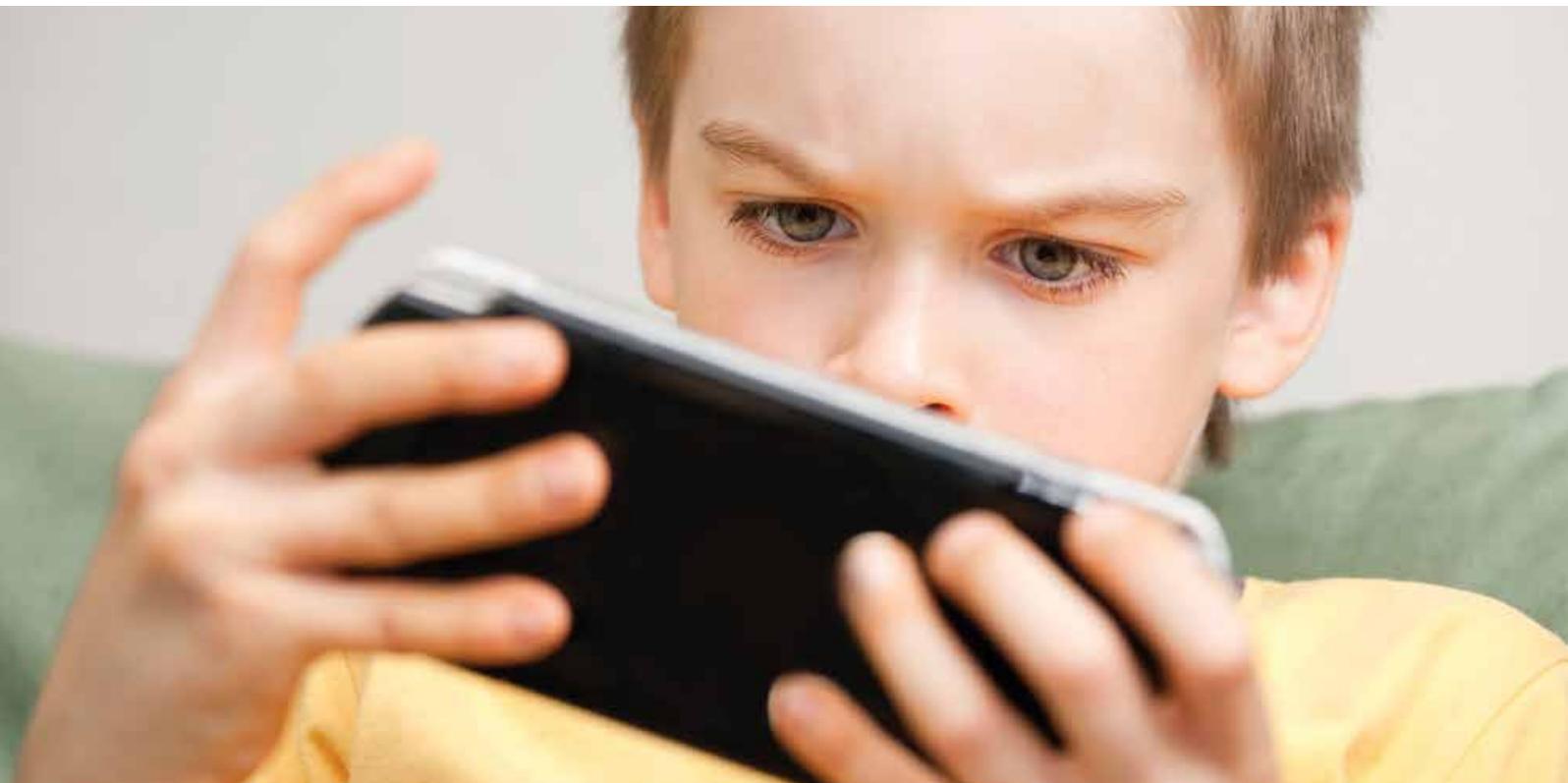
#### Further information

Blog: [www.biomechanics.completesportscare.com.au](http://www.biomechanics.completesportscare.com.au)

Courses: [www.completesportscare.com.au/courses/biomechanics-courses/](http://www.completesportscare.com.au/courses/biomechanics-courses/)

be active 2014 conference: Foot session, Friday October 17, 3.30pm to 5pm

## Wii can't fix it



**Professor Leon Straker, Senior Research Fellow and upcoming be active 2014 conference presenter, looks at active video games and asks if they are an effective approach to reducing sedentary time and increasing physical activity in children.**

Sports professionals and others in the general community are concerned that children are spending too much of their leisure time hunched over a computer or electronic game – and not enough time running around outside.

Looking at the electronic leisure options available to children, it is easy to see why parents and others are worried. Most Australian children still have access to 'old fashioned' television screens, but now they also have access to a variety of new screen options – desktop computers, laptop computers, touch screen tablets and smart phones, console electronic games and hand held electronic games. Global game industry data shows Sony has sold over 250 million PlayStation consoles and Nintendo has sold over 250 million GameBoy/DS handheld devices. Top selling individual game software labels such as Super Mario and Grand Theft Auto regularly sell over 30 million copies. There are electronic games about nearly any topic of potential interest to children therefore most children will likely be attracted to playing them.

**“Encouraging children to be active means more than just signing them up to the local netball or football club.”**

With this veritable tsunami of attractive sedentary leisure activities now available to most children, parents and others have several options to reduce the time children spend on electronic games and thus their potential negative health impacts.

One choice is to try to 'swim against the technology tide' and ban children from sedentary electronic leisure activities. However, implementing this choice as a parent can be quite challenging, and may socially isolate the child.

Another choice is to try to develop attractive electronic games which are not sedentary, but instead require substantial body movement to play the game. These 'active video games' use a range of technologies including handheld 'wand' motion sensing and camera based body motion sensors to capture player movement and reproduce this movement in the virtual game environment. Common console based active video games include Sony PlayStation Move, Microsoft Xbox Kinect and Nintendo Wii, with Dance Dance Revolution perhaps the most widely sold active game label.

**“... whilst active video games have demonstrated potential in the laboratory, they have not yet been successful in helping children to be more physically active in the real world.”**

Laboratory research has shown the obvious – that children playing the active video games do move more than when watching television or playing press-button electronic games. The greater movement is a result of more muscle activity and this consumes more energy and increases heart rate and breathing rate. So in the laboratory, at least, active video games can be a way for children to enjoy playing an electronic game whilst gaining at least some of the benefits of being physically active.

Laboratory research has also shown that although there are differences in the movement patterns of children playing virtual games to the real world analogue, the movements can be reasonably similar and may thus provide useful skill training. This provides a second pathway for active video games to increase physical activity, helping children gain confidence in being active. For children with poor motor skills who tend to withdraw from social sports, this offers a new way to gain much needed confidence to re-engage with physical activity.

However, whilst active video games have demonstrated potential in the laboratory, they have not yet been successful in helping children to be more physically active in the real world. There are now several high quality trials of home-based active video game use, in Australia, New Zealand and the USA, and all have sadly shown little to no effect on children’s overall physical activity levels.

**“Sony has sold over 250 million PlayStation consoles and Nintendo has sold over 250 million GameBoy/DS handheld devices.”**

So although it’s a great idea to use technology to help solve a problem created by technology, at the moment this isn’t working. There are several potential reasons for this lack of success, which could be solved.

One reason is that the motion sensing in some platforms can be tricked, and children quickly learn to ‘cheat’ and wiggle their wrist rather than moving their whole arm. The newer platforms have largely solved this problem with better fidelity of movement sensing.

Perhaps the most difficult problem is that children seem to lose interest in the games quite quickly and therefore don’t keep up with reasonable amounts of active video game play time. Some of the research trials have tried to counter this



by giving children multiple game titles and allowing them to change to fresh new titles regularly, but even this doesn’t seem to have engaged children enough.

So, what is the ‘bottom line’? What can sports professionals say to parents when asked what to do about a child spending too much time sitting in front of a screen?

**“So in the laboratory, at least, active video games can be a way for children to enjoy playing an electronic game whilst gaining at least some of the benefits of being physically active.”**

Encouraging children to be active means more than just signing them up to the local netball or football club. As the recent inaugural Australian Report Card on Physical Activity for Children showed, Australia is doing pretty well with many children participating in sport. But children need to be more active in other ways and need to be spending less time sitting in front of screens. Active video games could be useful in helping some children replace sedentary leisure with active leisure and may be particularly useful for children very focused on technology and children who have low confidence in their motor skills. However, current active video games are probably not an effective solution for most children.

#### **About the author**

##### **Professor Leon Straker**

National Health and Medical Research Council  
Senior Research Fellow  
School of Physiotherapy and Exercise Science  
Associate Scientific Director, The Raine Study  
Curtin University

#### **Further information**

be active 2014 conference: New Technology and Children session, Thursday October 16, 3.30pm to 5pm

## Can mobile technology and new classroom environments help students to sit less, move more, and behave better?



**Erin Howie, upcoming be active 2014 conference presenter, discusses how mobile learning technology is changing the physical environment of the primary school classroom.**

In their free time, research shows that today's children are playing outside less and spending more time sitting in front of screens including televisions, computers, tablet computers and smartphones. The technology revolution is contributing to more sedentary and less active children. But that's at home, where kids are supposed to be moving and playing. What about in the classroom, where kids are supposed to be sitting?

**“In the new learning environment children sat less, moved more and behaved better.”**

When you think of students in a classroom, you imagine children sitting at desks writing with pencils on paper. That traditional classroom is changing.

Many classrooms in Australia and throughout the world are implementing 1:1 laptop or tablet computer programs where each child has a personal mobile learning technology device. The Australian Government has spent \$2.4 billion dollars on the Digital Education Revolution through which one million laptop and tablet computers were purchased for students. It's clear that technology use is here to stay but how is it affecting our children; for better or worse?

Mobile technology in the classroom may provide a novel opportunity to move. Instead of being confined to desks, students can take their 'desks' with them throughout the classroom, whether it's standing at a table, sitting cross-legged on the floor, or lying on the carpet. Additionally, some schools are getting rid of desks all together and changing to 'contemporary learning spaces' where traditional desks are replaced with varied learning spaces including moveable tables, dynamic stools that wobble and rock, couches, and beanbags. Both 1:1 programs and contemporary learning spaces are changing

the way students learn by encouraging collaborative and student-centered learning. All this opportunity to move and vary their posture during the school day may have important effects on health and learning.

Imagine this: a classroom without rows of desks where each student has an iPad and can stand, sit, lie in a variety of spaces. Instead of the entire class listening to the teacher lecture on the 50 states in the United States, each small group of students uses their iPads to research a state of their choosing and then present back to the class in a creative video presentation. Imagine students practising self-regulation by choosing where they sit and making good decisions to move when a partner is distracting them. Imagine students choosing e-books based on their unique reading level that's monitored by the teacher and then answering tailored comprehension questions on what they read. Sound too good to be true? Well this isn't only imaginary anymore. Classrooms in Western Australia are looking just like this. And parents, teachers, and school administrators want to know how these new classrooms are affecting students.

**“... some schools are getting rid of desks all together and changing to ‘contemporary learning spaces’ ...”**

A novel study has examined how these changes are affecting a Year 2 primary school class before and after implementing a 1:1 iPad program and contemporary learning space. Children wore accelerometers to monitor their physical activity throughout the school day and an observer recorded postures and student behavior throughout the school day. In the new learning environment children sat less, moved more and behaved better.

In the traditional classroom, students were sedentary for 80 per cent of the school day. After the classroom changes, the students spent significantly less time being sedentary than in the traditional classroom, by 10 minutes per day. It may seem like a small change, but over a week, that's just short of one hour less of harmful sedentary time. Plus, they spent fewer minutes in long bouts of uninterrupted sedentary activity which may have especially harmful consequences.

In the new classroom children moved more – they spent about three and half minutes of more time, per day, in vigorous activity. Even when they were sitting, there were sitting on dynamic stools which meant they spent more time wobbling and wiggling, little movements that accumulate over the day. They also varied their postures more.

Concerned parents may worry that all these changes may make the classroom more chaotic and lead to less learning and more stress for teachers. However, giving seven year-olds the freedom to move around actually resulted in fewer student disruptions; students were better behaved in the new classroom. Teachers also loved the new environment and what it could do for their students.

**“When you think of students in a classroom, you imagine children sitting at desks writing with pencils on paper. That traditional classroom is changing.”**

Critics may worry about children spending all day with a computer. However, on average children spent only 29 minutes per day in ‘virtual’ learning, a small fraction of the day that still left the majority of the school day for ‘real’ learning.

Whilst this first experience in the new learning environment helped children sit less, move more and behave better, this is only the beginning. Researchers will continue to work with the school to harness the potential that new technology and classroom design have to make classrooms that enable children to learn well and move more.



Figure 1: A classroom before and after.

#### About the author

##### Erin Howie

Postdoctoral Research Fellow, School of Physiotherapy and Exercise Science, Curtin University Perth, Western Australia  
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BS in Kinesiology from University of Maryland

#### Further information

be active 2014 conference: New Technology and Children session, Thursday October 16, 3.30pm to 5pm

## The Healthy Active by Design Project



**Trevor Shilton, Jo Appleby, Paula Hooper, Fiona Bull, and Robina Crook, upcoming be active 2014 conference presenters, look at how to enable active lifestyles through healthy urban design.**

Chronic disease prevention, including prevention of heart disease, cancers and diabetes is now the most important public health issue facing Australia.

**“Children who live within 800m of parks and sports centres are more likely to use the facilities and walk and cycle to them.”**

There has never been a time where a focus on health is so important. Cardiovascular disease (CVD) is the leading cause of death in Australia. In 2012 there were 43,946 deaths attributed to CVD – more deaths than any other disease group. On average, one Australian dies of CVD every twelve minutes. The risk factors for CVD are also highly prevalent. Seventy per cent of men and fifty six per cent of women are overweight or obese and more than a third (36 per cent) of Australians aged 15 and over do very little or no exercise at all.

So what does this have to do with the built environment? There is mounting evidence that the way we design and build our communities can have a positive or negative impact on our health. Healthy and active lifestyles can be encouraged by the way we design our streets, parks, recreational facilities and where we locate our homes, schools and retail areas. Effective design can make a difference to how people use buildings, open spaces and move around communities. It can have important impacts on getting more people more active. For all these reasons build environment strategies have an important role in chronic disease prevention.

The Healthy Active by Design project (HABD) aims to put public health at the heart of planning. It is a tool to assist urban planners to better make allowance for health factors in their design decision making. HABD was developed by the Heart Foundation in Western Australia in partnership with the Western Australian Government Departments of Planning, Transport, Health, Sport and Recreation, the Planning Institute of Australia, Metropolitan Redevelopment Authority, Landcorp and other industry stakeholders. The project also engaged expert consultants HASSEL and the University of Western Australia's Centre for Built Environment and Health

in the development of its resources. Healthy Active by Design is an excellent example of a research translation initiative – bringing together researchers, practitioners and policy makers to design web-based guidance to meet the needs of end users.

The project provides practical tools to assist planners, urban designers and related professionals to design a built environment that enables people to be healthy and active in their community. Other potential users of the resource include professionals from health, community development and sport and recreation who wish to advocate for and promote health and wellbeing across a range of projects.

**“... the way we design and build our communities can have a positive or negative impact on our health.”**

Healthy Active by Design (HABD) is a web-based urban planning tool providing end users with access to the latest scientific evidence on the health impact of the built environment. It includes design specifications, case studies, examples, policy links, tools and checklists for planners.

The final HABD tool covers nine design features which were selected based on available evidence and considering their alignment with planning policies:

- Public open space
- Shared facilities
- Town centre/main street
- Buildings
- Schools
- Movement network
- Mixed use
- Housing diversity
- Sense of place

**“In 2012 there were 43,946 deaths attributed to CVD – more deaths than any other disease group.”**

Each design feature is expanded on the HABD website to include information and links relating to evidence, policy connects, case studies, examples and tools/checklists as well as comprehensive references.

By way of example, and of relevance to those in the sport sector, there is strong evidence of the links between public open space and physical activity participation and health.

The HABD resources summarises that:

- Park users are more likely to achieve physical activity guidelines than non-users.
- Children who live within 800m of parks and sports centres are more likely to use the facilities and walk and cycle to them.
- The presence of attractive public open space is associated with enhanced mental health in adults.
- Provision of playgrounds in parks promotes active play and skill learning.
- Natural playgrounds improve emotional wellbeing.
- Supportive infrastructure in parks enhances use.
- Aesthetic features such as trees and bushes, natural settings and water features enhances park use.
- The inclusion of community gardens in public open spaces can positively influence diet, providing greater access to fresh fruits and vegetables.

HABD was launched in March 2014 and the implementation plan across 2014–2015 includes plans to enhance the website, build in advocacy and professional development and training. Evaluation of the diffusion of HABD within the planning sector will be assessed as part of the work plan.

#### Further information

Healthy Active by Design resource,  
[www.healthyactivebydesign.com.au](http://www.healthyactivebydesign.com.au)

be active 2014 conference: Environment and PA session,  
Saturday October 18, 11am to 12.30pm



## Time to reward the ride



**Rohan Greenland of the Heart Foundation of Australia and Stephen Hodge of the Cycling Promotion Fund, both upcoming be active 2014 conference presenters, outline the case for tax incentives to boost active travel.**

As the Australian Institute of Health and Welfare has robustly stated, chronic disease is 'Australia's biggest health challenge'.

It's easy to see why. Chronic diseases account for 90 per cent of all deaths.

Cardiovascular disease alone accounts for 30 per cent of all deaths. It also takes the biggest chunk of the health dollar, consuming \$7.7 billion a year in direct health care costs.

Importantly, the chronic disease groups share many common risk factors.

**"... would a UK-style cycle-to-work scheme have the most appeal? Or would the ability to claim cycle mileage as a tax deduction do the trick?"**

If we are to successfully counter the impact of chronic disease, we need to comprehensively address the big, modifiable risk factors. Australia has done well when it comes to tobacco control. But less well with other risk factors – poor nutrition, excessive alcohol consumption, overweight/obesity and – perhaps the most neglected risk factor of all – physical inactivity.

Physical activity is, in many ways, powerful medicine.

It improves the chances of living longer, provides a healthier life, and helps prevent heart disease and stroke, high blood pressure and high blood cholesterol. It also helps protect against certain cancers, including colon and breast cancer as well as type 2 diabetes.

It helps prevent osteoporosis, reduces the risk of falls and improves cognitive function. It helps prevent weight gain and promotes weight loss.

And yet 56 per cent of adults are not sufficiently active to meet the recommended minimum level of activity. It's a problem that costs the community an estimated \$13.8bn a year.

It is, therefore, almost inexplicable that more isn't done to encourage more people to be more active.

One simple way of encouraging physical activity is to incorporate it into everyday lives. And the best way to do this is to encourage people to make short trips by walking or cycling, rather than taking the car.

To achieve this, a comprehensive approach is needed, one that makes active travel easy, safe and accessible.

One approach championed overseas – but not yet embraced in Australia – is the provision of incentives to encourage people to cycle to work.

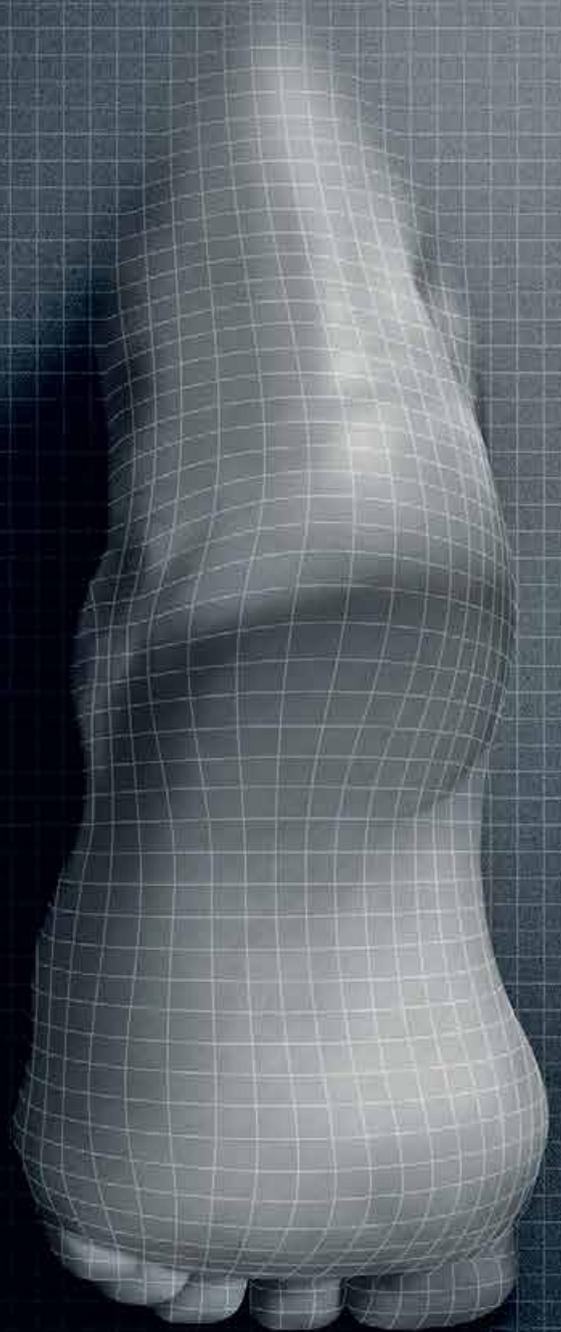
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The Heart Foundation and the Cycling Promotion Fund commission annual cycling surveys, with a 2011 survey of 1,000 adults indicating that almost 70 per cent agree that the federal government should be offering incentives to encourage people to use bicycles for transport.

This year, we will be looking in more detail at what kinds of incentives could motivate more people to cycle to work. We will model the results, to see what impact different incentives might have on travel behaviour.

For example, would a UK-style cycle-to-work scheme have the most appeal? Or would the ability to claim cycle mileage as a tax deduction do the trick?

The results of the survey and modelling will be presented at the upcoming National Physical Activity Conference in Canberra in October.

What can we expect?

The UK and Ireland have a cycle to work scheme, offering tax breaks on the purchase of commuter bikes and safety gear. This effectively means employees can save as much as 50 per cent off the cost of a commuter bike.

British employers can also pay up to 20 pence per mile (tax free) to employees who use their own bicycles for business travel.

**“... 56 per cent of adults are not sufficiently active to meet the recommended minimum level of activity. It’s a problem that costs the community an estimated \$13.8bn a year.”**

The Dutch government allows employers to make company bikes, cycle clothing and equipment available to employees without tax liability. An annual tax credit is also available for workers who use their own bike to cycle to work.

In 2008, the US Government passed the Bicycle Commuter Tax Act, allowing commuters a modest but significant tax credit of up to \$20 a month for cycling to work.

And the French government has this year announced a trial involving 20 employers and 10,000 employees who will be eligible for a payment of 25 Euro cents a kilometre when commuting to work by bike.

Evaluations of incentives have been encouraging.

In the UK, a 2011 evaluation of the cycle to work scheme found that some 400,000 people have taken advantage of the scheme. Some 61 per cent did not cycle to work before they signed up to the scheme and 70 per cent classed themselves as either novice or occasional cyclists. And 73 per cent of respondents declared that the savings they were offered through the scheme were the most important factor in their decision to take part.

In addition, some 133,442 tonnes of CO<sub>2</sub> are saved a year, pointing to the significant co-benefits of active travel. Other co-benefits include reduced congestion (we already know small changes in travel mode can have significant impacts on congestion) as well as reductions in pollution and increases in urban amenity.

Fiscal incentives for active travel won't be the sole solution to our sedentary behaviour, but they could and should be included in the robust suite of policies needed to get us more active more often.

#### **About the authors**

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#### **Further information**

be active 2014 conference: Policy session, Wednesday October 15, 3.30pm to 5pm

## The Physical Education Deprivation syndrome



**Dick Telford AM PhD, Professorial Fellow and upcoming be active 2014 conference presenter, looks at the relationship between physical activity, physical education and academic performance and highlights the consequences of children not having access to specialist physical education during primary school.**

In between my typical Melbourne weekends of football and cricket in the 60's, I taught physical education and mathematics in the north western suburbs. In those days the school gymnasium was a shelter shed, and with 40 youngsters in my class, and 35 classes a week, teaching was a bit of a challenge. Nevertheless they were enjoyable days, and even back then I had the feeling that learning in these two vitally important areas were in many ways complementary.

Unfortunately, evidence of the importance of physical education was not sufficiently convincing for school principals, especially in public primary schools. During the late 60's and on, choices had to be made between employing specialist physical educators and having smaller class sizes. The latter choice prevailed, and physical education teachers in primary schools became a threatened, almost extinct species in Victoria and indeed, in most other states.

**“... physical activity facilitates better control of appetite and energy balance, and... should be at the epicentre of community strategies to reduce childhood obesity.”**

Then, in the new millennium, following a career at the high performance end of sports science and coaching at the Australian Institute of Sport (AIS), I returned to my physical education roots. This time it was as a researcher in a position to test the premise that the loss of specialist primary school physical education was detrimental to the physical and psychological development of 21st century children. With plenty of agitation from high profile physical educators falling on deaf ears over the last couple of decades, it was clear that the highest level of evidence was required, the kind that comes from a long term randomised controlled trial.

So with assistance from the Commonwealth Education Trust in London, I invited a group of mutually motivated researchers at the Canberra Hospital, University of Canberra, ANU and Deakin University to team up in primary school phase of the Lifestyle of our Kids (LOOK) project. We were indeed fortunate to gain the services of three excellent physical educators from the progressive Blueearth Foundation in Melbourne, who conducted two 45 minute classes every week over four years in 13 primary schools to about 400 children as they progressed from grade 2 to grade 6. Our control group consisted of a similar number of children in 16 schools of similar socioeconomic status where physical education was conducted in their usual manner, by generalist classroom teachers with little physical education training and clear pressures to improve NAPLAN numeracy and literacy scores rather than physical literacy.



**“It’s time for our governments and public schools to provide our children with a better start to their education. Many private schools already do.”**

Our primary question ‘Does physical education taught by specialist teachers contribute to the physical and psychological development of children during the primary school years?’ could also have been framed as ‘What are the consequences of not having access to specialist physical education during primary school?’

Coupled with an appropriate research design, we also needed robust and objective measures if our results were to be taken seriously. With childhood obesity of widespread interest, one common mistake we were careful to avoid was to estimate changes in fatness by BMI (body mass index), especially when growing children of this age can increase BMI without increasing percent body fat<sup>1</sup>! As our cohort moved from grades 2 to 4 to 6 we measured physical activity (pedometers, accelerometers and questionnaires), nutritional intake (one day and two day surveys) and body composition (DEXA scans) together with a wide variety of characteristics indicative of physical and psychological development such as growth and function of the heart, endothelial function, blood borne risk factors for cardiovascular disease and Type 2 diabetes, bone density and geometry, eye-hand coordination, postural control, self-image of body appearance and function, psychological stress, cardiovascular fitness, and academic performance.

Now with more than 30 peer-reviewed LOOK publications behind us, we can specify some of the consequences of depriving primary school children of regular quality physical education. Those missing out entered secondary school with higher blood cholesterol<sup>2</sup> and higher insulin resistance<sup>3</sup>, risk factors for cardiovascular disease and Type 2 diabetes respectively. This is a particularly concerning finding given that chronic diseases associated with metabolic dysfunction in adults are likely to have their roots in childhood<sup>4</sup>.

**“In my experience of visiting 30 schools over the four years of the study, it became apparent that the school principal was a key figure in driving... ‘school culture’ linking physical and academic activity.”**

These risk factors are also associated with obesity and with childhood obesity a big concern both here in Australia and around the world; we were keen to find out why. The public finger points at over-consumption of kilojoules, and this is obviously the case in some children, but in our typical cohort

of young Australians the overweight and obese boys and girls consumed no more sugar, fat or kilojoules than the leaner children<sup>5</sup>! The clear difference was that the fatter children were less physically active; the fatter the child the lower their daily physical activity. These data suggest that physical activity is the major driver of body composition control, that physical activity facilitates better control of appetite and energy balance, and that increasing physical activity should be at the epicentre of community strategies to reduce childhood obesity.

In a series of meetings with leaders of the Victorian Education Department over the past year, one additional finding of the LOOK study captured their attention. Between grades 3 and 5, children who received the specialist physical education intervention improved their NAPLAN numeracy and literacy scores about 10 points more than control group, with reading improving about 6 points more<sup>5</sup>. Interestingly, boys responded a little more than girls, but this was typical of many LOOK findings.

Furthermore, in a separate analysis, we found that schools with higher cardiovascular fitness achieved higher average NAPLAN scores in a remarkably proportional manner, with our usual adjustment for school socioeconomic status<sup>6</sup>. This led us to speculate on underlying causes of those NAPLAN improvements.

**“Now with more than 30 peer-reviewed LOOK publications behind us, we can specify some of the consequences of depriving primary school children of regular quality physical education.”**

Firstly, it was apparent that the physical activity of well taught physical education exerted its own special effect as our intervention did not include any nutrition education. Our finding points to the mutually beneficial development of a young mind and body and it was interesting that some teachers commented that children in the intervention seemed to be showing improvements in the way they concentrated in class. On the other hand, the strong school fitness-NAPLAN relationship might suggest another reason for the improved academic achievements. Those teachers most effective in the classroom are likely to be the very same teachers who do most to encourage their students to be physically fit and active. In my experience of visiting 30 schools over the four years of the study, it became apparent that the school principal was a key figure in driving this kind of ‘school culture’ linking physical and academic activity.

**“Between grades 3 and 5, children who received specialist physical education intervention improved their NAPLAN numeracy and literacy scores... with reading improving...”**



The LOOK project can be viewed alongside the ever expanding literature describing the links between physical and mental function. As summed up in a recent review, fitter children and children with better motor skills have superior inhibitory control associated attentiveness, emotions and memory more conducive to learning<sup>7</sup>. The term ‘physical literacy’ has been coined in recent years to describe ‘the motivation, confidence, physical competence, understanding and knowledge to maintain physical activity at an individually appropriate level, throughout life’<sup>8</sup>, and is a current focus of attention at the University of Canberra<sup>9</sup>.

Physical education and sport are two important contributors to physical literacy and now we also know that depriving children of quality physical education in primary school not only compromises their academic achievement, but also their future health. It’s time for our governments and public schools to provide our children with a better start to their education. Many private schools already do.

#### **About the author**

##### **Dick Telford AM PhD**

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#### **Further information**

be active 2014 conference: New Technology and Children session, Thursday October 16, 3.30pm to 5pm

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## What to do with your time in Canberra

Recently, Emma Pearse wrote an article titled '36 hours in Canberra, Australia' which featured in *The New York Times* suggesting what one can do in our nation's capital. Here's our suggestions of what can keep you amused during your time at this year's be active 2014 conference.

### Top 10 Canberra restaurants\*

1. **Aubergine** (Modern European) 18 Barker Street, Griffith
2. **EightySix** (Modern Australian) 22 Lonsdale Street (entry via Elouera Street), Braddon
3. **Italian & Sons** (Italian) 7 Lonsdale Street, Braddon
4. **Pulp Kitchen** (Modern European) Shop 1, Wakefield Gardens, Ainslie
5. **Water's Edge** (Modern European) 40 Queen Elizabeth Terrace, Parkes
6. **Sage** (Modern European) Gorman House, Batman Street, Braddon
7. **Courgette** (Modern European) 54 Marcus Clarke Street, Acton
8. **The Boat House by the Lake** (Modern Australian) Grevillea Park, Menindee Drive, Barton
9. **Mocan & Green Grout** (Modern Australian) 19 Marcus Clarke Street, Acton
10. **Malamay** (Chinese) 1 Burbury Close, Barton

\*2014 Gourmet Traveller Australian Restaurant guide

### Top 10 outdoor activities in Canberra\*

1. **Bushwalking** at Namadji National Park
2. **Birdwatching/walking** at Jerrabomberra Wetlands
3. **Snow play** at Mt Selwyn
4. **Caving** at Wee Jasper Caves
5. **Kayaking** on Lake Burley Griffin
6. **Abseiling** on Namadji National Park
7. **Hot air ballooning**
8. **Mountain biking** at Mt Stromlo
9. **Fishing** at Googong Dam
10. **Segway tour** around Lake Burley Griffin

\*Australian Geographic, [www.australiangeographic.com.au/travel/destinations/2011/08/10-outdoor-activities-around-canberra/](http://www.australiangeographic.com.au/travel/destinations/2011/08/10-outdoor-activities-around-canberra/)



### Top Canberra attractions

- National Gallery of Australia
- Australian War Memorial
- National Zoo & Aquarium
- National Botanic Gardens
- Australian Reptile Centre
- National Film & Sound Archive
- Parliament House
- National Library of Australia
- Canberra Railway Museum
- National Museum of Australia
- National Portrait Gallery

## CORE Sports Performance & Myofascial Therapy with George Kousaleos



### CORE Myofascial Therapy Certification, Sydney

CORE Myo 1: 26,27,28 Sept 2014    CORE Myo 2: 29,30 Sept, 1 Oct 2014  
An advanced, six-day workshop designed to give practicing therapists in-depth knowledge and hands-on experience in full-body myofascial treatment protocols and structural integration.

### CORE Sports and Performance Bodywork, Sydney

3,4,5 October 2014  
Utilizing structural integration and myofascial therapy theories and techniques, this workshop will focus on developing training and event protocols for endurance, sprint, power, and multi-skilled athletes.



George Kousaleos, LMT is the founder and director of the Core Institute in Tallahassee, FL. He is a graduate of Harvard University, and has been a leader in the massage therapy field over his 30-year career. He helped bring sports massage to the 2000 and 2004 Olympic Games.

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## ACL reconstruction: return to sport

**Stephanie Filbay, upcoming be active 2014 conference presenter, discusses return to sport and quality of life in people with knee symptoms five to twenty years following anterior cruciate ligament reconstruction.**

Take a moment to think about how you would rate your quality of life. It's not an easy question, but it's essential to consider when treating individuals with musculoskeletal conditions. We live in a technological era, where imaging techniques are being upgraded as fast as the iPhone, each upgrade more effective than its predecessor at identifying small and early stage musculoskeletal 'pathologies'. Accompanying these new technologies are multiple studies finding discordance between imaging findings and physical symptoms. In such evolving times, evaluating the impact of an injury or a structural 'pathology' on an individual's life quality is of great importance.

**“Those individuals who did not return to the same or higher level of sport after ACL injury were more likely to have a poor quality of life 5 to 20 years later than those who did return to their pre-injury level of sport.”**

Anterior cruciate ligament (ACL) ruptures commonly occur in young individuals participating in competitive sports. Australia is on par with America, performing the highest rate of ACL reconstructions in the world. Return-to-sport after ACL rupture is a current hot topic in sports medicine journals. This elevated interest may be partly explained by the poor return-to-sport rates following ACL reconstruction (ACLR). A recent systematic review by Czuppon et al, found that on average, only 51 per cent of people return to their pre-injury level of sport after ACLR. In spite of the evidence, a desire to return to competitive sport continues to be a common indication for ACLR.

The reason for this reduction in sports participation and its subsequent impact on quality of life is not well understood. One proposed explanation is that a proportion of patients not returning to sport may be doing so for reasons unrelated to their knee, such as substituting sports priorities for work or family commitments. However, our research suggests this is rarely the case.

**“... only 51 per cent of people return to their pre-injury level of sport after ACLR.”**

We investigated sport-related factors and quality of life 5 to 20 years after ACLR in 139 people with ongoing knee symptoms. We found that only 39 per cent had returned to their pre-injury level of sport, 27 per cent returned to a lower level and 34 per cent did not return to sport at all.

Of those who did not return to pre-injury level of sport, 77 per cent reported that this was due to their knee. A majority of participants preferred to participate pain-free in sport (48 per cent) or exercise (30 per cent), compared with work (2 per cent), family (15 per cent) or social activities (5 per cent). These results highlight that sports participation continues to be of high importance to people with persistent knee symptoms 5 to 20 years after ACLR. Unfortunately, there is a mismatch between desiring to return to sport and actual return-to-sport rates.

The negative impacts of ACL injury and subsequent surgery are still evident at 5 to 20 years following ACLR, and are associated with reduced quality of life and poor return-to-sport rates. People with the poorest quality of life were more likely to report frustration with their knee in regards to sport and having to play sport under caution. A poorer quality of life was also associated with reduced knee confidence, fear of re-injury and fear of contact sports. These psychological factors may explain the mismatch between sporting desires and return to sport outcomes. Those individuals who did not return to the same or higher level of sport after ACL injury were more likely to have a poor quality of life 5 to 20 years later than those who did return to their pre-injury level of sport.

**“Australia is on par with America, performing the highest rate of ACL reconstructions in the world.”**

Our recent systematic review in the *American Journal of Sports Medicine* showed that people with persisting knee symptoms after ACLR reported impaired quality of life, compared to population norms and other ACLR populations. Data from our prospective research has shown that sport-related factors are closely associated with quality of life in this patient group. This information could be used to develop interventions that optimise quality of life and improve return-to-sport rates through addressing reduced knee confidence, sport-related concerns and fears that persist after ACLR.

### About the author

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be active 2014 conference: Knee (ACL) session,  
Thursday October 16, 1.30pm to 3pm

## ACL reconstruction: return to sport after revision

Associate Professor Kate Webster, upcoming be active 2014 conference presenter, provides Australian data on what patients might expect when returning to sport after revision anterior cruciate ligament reconstruction.

In comparison to the number of studies evaluating primary anterior cruciate ligament reconstruction (ACLR), there is a paucity of information about returning to sport after revision ACLR. A review showed a 54 per cent rate of returning to pre-injury or unrestricted activity following revision ACLR<sup>1</sup>. However, most of the studies in the review were focused on technical aspects of the surgery and had small patient numbers. Very different return rates of 36 per cent<sup>2</sup> and 74 per cent<sup>3</sup> were reported by two studies with larger patient numbers (>100). It is therefore difficult to get a clear picture of return to sport rates after revision ACLR from the current literature. Recent data also shows that large differences exist between patient populations followed in revision ACLR databases or registries throughout the world<sup>4</sup>. This highlights the need for Australian data. Therefore in this study our aim was to determine return to sport outcomes for revision ACLR in an Australian cohort.

We identified 136 patients who satisfied our study eligibility criteria. Of these 109 (80 per cent) completed a sport activity survey to determine the specific sport and sport level in which patients participated both before and after surgery.

**“Recent data shows that large differences exist between patient populations followed in revision ACLR databases or registries throughout the world<sup>4</sup>. This highlights the need for Australian data.”**

The cohort consisted of 81 males and 28 females with a mean age of 28 years at revision surgery. The majority of patients (85 per cent) participated in high impact sports involving jumping, hard pivoting and cutting prior to their original reconstruction. An average time of 4.9 years (range 3–7) had elapsed since the revision ACLR and participation in our study.

Results showed that the percentage of patients who returned to their pre-injury sport at the same level after revision ACLR was 46 per cent compared with 50 per cent after their primary reconstruction. These return rates are summarised in Table 1.

**Table 1. Comparison of sport level after primary ACL reconstruction and revision ACL reconstruction.**

Sport	After primary reconstruction, % (n)	After revision, % (n)
Same level	50 (55)	46 (50)
Lesser level	28 (30)	26 (28)
None	22 (24)	28 (31)

Of the 55 patients who were able to return to their pre-injury level of sport after primary reconstruction, 32 (58 per cent) were still able to participate at the same level after revision. Of the 54 patients who were not able to return to their pre-injury level of sport after primary reconstruction, 18 (33 per cent) improved to the point that they were able to do so after revision.

Younger patients (<25 years) were more likely to have returned to their same level of sport (58 per cent versus 38 per cent,  $p < 0.05$ ), whilst the rate of return was the same in males and females. Patients with less than 50 per cent thickness articular cartilage lesions were also more likely to have returned to the same level of sport after revision surgery (52 per cent versus 32 per cent,  $p < 0.05$ ).

Further analysis of the primary surgery suggested that 23 patients had less than ideal graft alignment, which may have affected their ability to return to sport following the initial reconstruction (48 per cent return rate after primary ACLR in this group). Following revision surgery with an improved graft alignment, 74 per cent were able to return to their pre-injury level of sport.

Overall our data shows that the return to sport rates after revision ACLR are similar to those following the primary surgery. Whilst this seems encouraging, the return rates after primary reconstruction in this group were lower than the reported rates of those who have not come to revision, where an estimated 63 per cent return to pre-injury level.<sup>5</sup> The group that showed the greatest increase in return rate, were those patients who had a less than ideal graft alignment at primary reconstruction which was corrected by the revision surgery. Our current study is an initial attempt to provide data from an Australian cohort and the return rates may be used as a guide to inform patients as to what might be expected in terms of returning to sport after revision ACLR.

### About the author

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Further authors include Julian Feller, Bobby Anand, Timothy Whitehead and Cameron Norsworthy.

### Further information

be active 2014 conference: Knee (ACL) session,  
Thursday October 16, 1.30pm to 3pm

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

## Unhealthy product sponsorship of Australian national and state sports organisations



**Rona Macniven, upcoming be active 2014 conference presenter, looks at how the health benefits of sport are undermined through linking unhealthy brands with the positive aspects of sport.**

Participation in sport confers many health and social benefits for both adults and children, including the prevention of chronic diseases such as diabetes and the value of group interactions through team sports. Sport continues to be a popular leisure activity in Australia with 63 per cent of children and 65 per cent of adults taking part in sport and recreation, thereby offering an ideal setting to promote healthy behaviours, such as good nutrition and regular physical activity.

**“Greater consistency in aligning sport with health is required.”**

While tobacco sponsorship has been banned in sport since the 1980s, the promotion of other products known to be addictive or harmful to health and society are still commonplace, specifically unhealthy food and beverages (or ‘junk’ food), alcohol, and gambling. A healthy diet is essential for optimal sports performance as well as the general health of adults and children (and their normal development). Gambling addiction has also become a prominent public health and community issue in recent years. Unhealthy sponsorship ostensibly

provides an endorsement of sponsoring brands and products to a large number of community members, sport participants and spectators. Sponsorship leads to prominent promotional opportunities for brands such as on pitch signage and subsequent media exposure and an obvious presence on the uniforms of players and officials. This type of publicity is highly effective; there is a clear association between marketing and consequent product consumption.

Children notice their environment and are aware of brands and products that are highly advertised. Research shows they have high recall of both alcohol and junk food promotions in sport. These promotions heighten children's impressions of these companies and increase the likelihood that they will consider purchasing such products. Evidence also indicates that these sponsors may actually provide only low amounts of financial resourcing to community-level clubs, which is at odds with the promotional opportunities that these sponsors receive.

A new study by researchers at the University of Sydney and the University of Wollongong, to be presented for the first time at the be active 2014 conference, establishes the current extent of unhealthy sport sponsorship in Australia. The study involved a comprehensive audit of unhealthy food and beverage, alcohol and gambling product sponsorship across the websites of all national and state/territory level governing bodies of the 53 sports that receive Government funding, including athletics, swimming, cricket and all four football codes. The findings give a representation of the nature and extent of sport sponsorship and identify the prevalence of these forms of harmful sponsorships. For example, six sports had sponsorship arrangements across all three unhealthy categories: cricket; both rugby codes; Australian football, basketball; and Surf Life Saving.

**“Children notice their environment and are aware of brands and products that are highly advertised.”**

Sport is an attractive avenue for reaching large numbers of people and promoting products and brands. However, linking unhealthy brands with the positive aspects of sport undermines the health benefits of sport. Greater consistency in aligning sport with health is required. There is already support from parents and junior sports officials for policies to reduce unhealthy product sponsorship in the sport setting. Future actions are needed to raise awareness among athletes and support personnel about the potential impacts of unhealthy sponsorship and encourage them to take a strong stand against unhealthy sponsorship practice. Supporting the promotion of healthy



behaviours is an additional specific recommendation for the sport sector. National and state/territory government legislative actions to limit or remove this type of sponsorship would support the creation of healthier environments at all levels of sport from the elite to grassroots participation.

**About the author**

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**Further information**

be active 2014 conference: Policy session,  
Wednesday October 15, 3.30pm to 5pm

## Total versus reverse total shoulder replacement



**Elie Haddad, upcoming be active 2014 conference presenter, directly compares reverse and total shoulder arthroplasty looking at post-operative range of motion and strength both clinically and using x-ray.**

Shoulder pain and subsequent loss of function are among the most common of musculoskeletal problems, accounting for substantial burden within the general population. Since its origins in the late 19th century, shoulder replacement surgery has become commonplace in patients with shoulder arthritis, following severe trauma and in revision surgery where previous implants have failed, the specifics of which guide surgical repair. Shoulder replacement is considered in situations of severe pain that interferes with everyday activities, pain which prevents sleep during the night, loss of shoulder range of motion, weakness and a failure to improve using other treatment modalities such as medications, steroid (cortisone) injections and physical therapy.

**“... by using x-ray to visualise movement of the implants, the study has yielded interesting results on the changes to shoulder biomechanics which to the best of our knowledge has not been objectively assessed in reverse total shoulder arthroplasty.”**

The shoulder is often described as a ‘ball and socket’ joint, with the ball shaped head of the humerus (upper arm bone) fitting into the socket of the shoulder blade (scapula). Shoulder replacement surgery has traditionally aimed to replicate and restore the joint’s natural anatomy; indeed the total shoulder replacement has been quite successful in achieving this.

In standard total shoulder replacements, the ball-shaped, top end of the damaged humerus and socket of the shoulder blade are removed and replaced, often by a metal ball and plastic socket. However, this relies on functioning rotator cuff muscles which surround the joint. In situations of rotator cuff deficiency results of the total shoulder replacement were unpromising. This spurred the need for new designs, leading to the evolution of the reverse total shoulder replacement.

In a reverse total shoulder replacement, the natural ‘ball and socket’ anatomy of the shoulder is inverted, meaning the

socket of the shoulder blade is replaced by a prosthetic ball, while a socket replaces the ball shape of the humerus.

Despite the traditional indication of rotator cuff muscle deficiency for a reverse total shoulder replacement, as the procedure has increased in popularity, some surgeons have begun to use reverse replacements in patients with intact rotator cuffs where standard total shoulder replacements have failed and revision surgery is needed. Initial results seem favourable, however many questions remain unanswered. How do reverse replacements compare with standard total shoulder replacements? Are functional and pain outcomes better? Do they achieve a better range of motion? How do recovery periods compare and does one catch-up with the other? Is the prosthesis maintained? Such questions demand studies which directly compare the two procedures. The clinical significance of this is great as it may provide rationale for expanding the indications of the reverse total shoulder replacement to include arthritic shoulders with intact rotator cuff muscles. This has formed the basis of our research.

Our work has aimed to compare the outcomes for range of motion and strength in patients with total and reverse total shoulder replacements. This was done both clinically and using x-ray to objectively isolate movement of the replacements. Furthermore, by using x-ray to visualise movement of the implants, the study has yielded interesting results on the changes to shoulder biomechanics which to the best of our knowledge has not been objectively assessed in reverse total shoulder arthroplasty. This may have major implications on post-surgical rehabilitation protocols.

### About the author

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### Further information

be active 2014 conference: Shoulder 2 session,  
Thursday October 16, 1.30pm to 3pm

## Neuromodulation: frontiers in treating hard to reach pain areas



**Dr Bruce Mitchell, Sports and Interventional Pain Physician and upcoming be active 2014 conference presenter, looks at new developments in the field of neuromodulation which is creating a promising treatment alternative for chronic pain conditions.**

A staggering one in five Australian adults will suffer from chronic pain. Aside from posing large costs for the healthcare system, the human cost on individuals and families can be debilitating. However, advances in the field of pain management are now helping more patients manage their pain and take back control of their lives. At the upcoming be active 2014 conference, the emerging field of neuromodulation for the treatment of various pain conditions, focusing on pain traditionally difficult to treat with conventional neuromodulation technologies will be discussed.

**“In the upcoming conference presentation, outcomes of the first commercial patients implanted in Australia will be reported on.”**

Neuromodulation, a minimally invasive technique, involves applying an electrical current through a series of implanted electrodes in order to stimulate selected nerve fibres and subsequently reducing the perception of pain. The placement of the leads and the programming of the current ultimately determines the area of therapy. Electrodes have been traditionally placed within the epidural space of the

spinal cord; a treatment termed Spinal Cord Stimulation (SCS). Historically, SCS has been primarily used for widespread leg, buttock, and to some extent back pain, in particularly following failed back surgery. However, SCS has failed to address pain in key regions such as the face, trunk, lumbar, sacral, abdominal, coccyx and inguinal regions, hence the evolution of Peripheral Nerve Field Stimulation (PNFS).

PNFS involves implanting the electrodes just under the skin within the area of pain in order to stimulate certain nerve fibres known to produce a tingling like sensation referred to as paraesthesia. The be active 2014 presentation will discuss a four year study assessing 18 patients treated with PNFS for thoracic pain and thoracic referred pain to the chest and upper abdomen. It is demonstrated that PNFS can be an effective treatment option with patients reporting over 75 per cent pain relief, reducing their pain medication intake and with no long-term complications recorded.

Other historically hard to treat areas are now seeming possible, with the latest development targeting the Dorsal Root Ganglion (DRG), a branch of the spinal cord. Nerves pass to the body from branching points on the spinal cord. At its branching point, each of these nerves contain roots that send the signals for involuntary and voluntary muscle control, referred to as motor nerve roots, or relay sensation information from the body to the brain, aptly known as sensory nerve roots. When they emerge from the spinal cord, the motor nerve roots are separate from the sensory nerve roots.



The Dorsal Root Ganglion is a collection point that bundles the sensory nerve roots together before they join the motor nerve roots and form the trunk of the nerve. During a painful episode, the DRG becomes hypersensitive and the chemicals that transmit signals from one neuron to another alter, making the DRG a prime target for therapy. Stimulating the DRG is thought to regulate and prevent pain signals before they enter the spinal cord and travel to the brain. Applying currents at such close range to the nerve roots requires significantly less power than with conventional SCS or PNFS.

Following the first human trials in 2008, a subsequent multicenter efficacy study that my clinic (Metro Spinal Clinic) actively participated in, it led to approval for the device in Australia and the European Union. Since then, data from multiple prospective studies and retrospective reviews from Europe have indicated long-term stability of pain relief and quality of life improvements. In the upcoming conference presentation, outcomes of the first commercial patients implanted in Australia will be reported on. The Australian cases include indications such as chronic neuropathic pain, post-surgical pain, failed back surgery syndrome, peripheral nerve injury post trauma and complex regional pain syndrome (CRPS). Preliminary results from the Australian cohort look promising with patients reporting an average pain reduction of 3.9 points on the 11-point numerical rating scale (NRS) and an overall 60 per cent improvement in pain relief. Half of the patients treated with DRG stimulation that had previously failed conventional modalities of neuromodulation are responding well to this new approach.

**“Other historically hard to treat areas are now seeming possible...”**

One particular patient, a 39 year old female presented with a two year history of chronic pain in the mid abdomen region following a gastric sleeve. Any weight bearing activity and certain postural positions made the pain worse. Whilst nerve root injections provided short term pain relief, she was unresponsive to radiofrequency neurotomy, and instead was prescribed opioid medication to manage her pain. Following unilateral SCS of the DRG at T8 and T10 (see Figure 1) 80–90 per cent coverage of her pain area was achieved. At three months following DRG stimulation, pain scores have reduced from 8.0 to 3.0 NRS with increases in functional ability and duration. Early results in this challenging patient population indicate that SCS of the DRG may be a promising neuromodulation technique to treat multiple neuropathic pain conditions.

These new developments in the field of neuromodulation are creating a promising treatment alternative for chronic intractable foot, ankle, knee and groin pain along with treating CRPS throughout the body, including the hand and shoulder.

Neuromodulation's strengths include its reversibility, programmability and specificity, with multiple prospective studies and retrospective reviews demonstrating benefits such as improved pain relief, functional state and quality of life. With the increasing developments within the field of neuromodulation, the patient population that may benefit from this therapy is widening, in the ultimate hope of reducing opioid medications and repeat surgeries.

**About the author**

**Dr Bruce Mitchell**

MBBS FACSM FACSP FASMF MPainMed FIPP  
Sports and Interventional Pain Physician  
Metro Pain Clinic Melbourne

**Further information**

be active 2014 conference: Back/pain session,  
Wednesday October 15, 3.30pm to 5pm



Figure 1: Dorsal Root Ganglion Stimulation. A) Posterior Anterior and B) Lateral view of leads placed unilaterally at T9 and T11 for mid abdominal region coverage.

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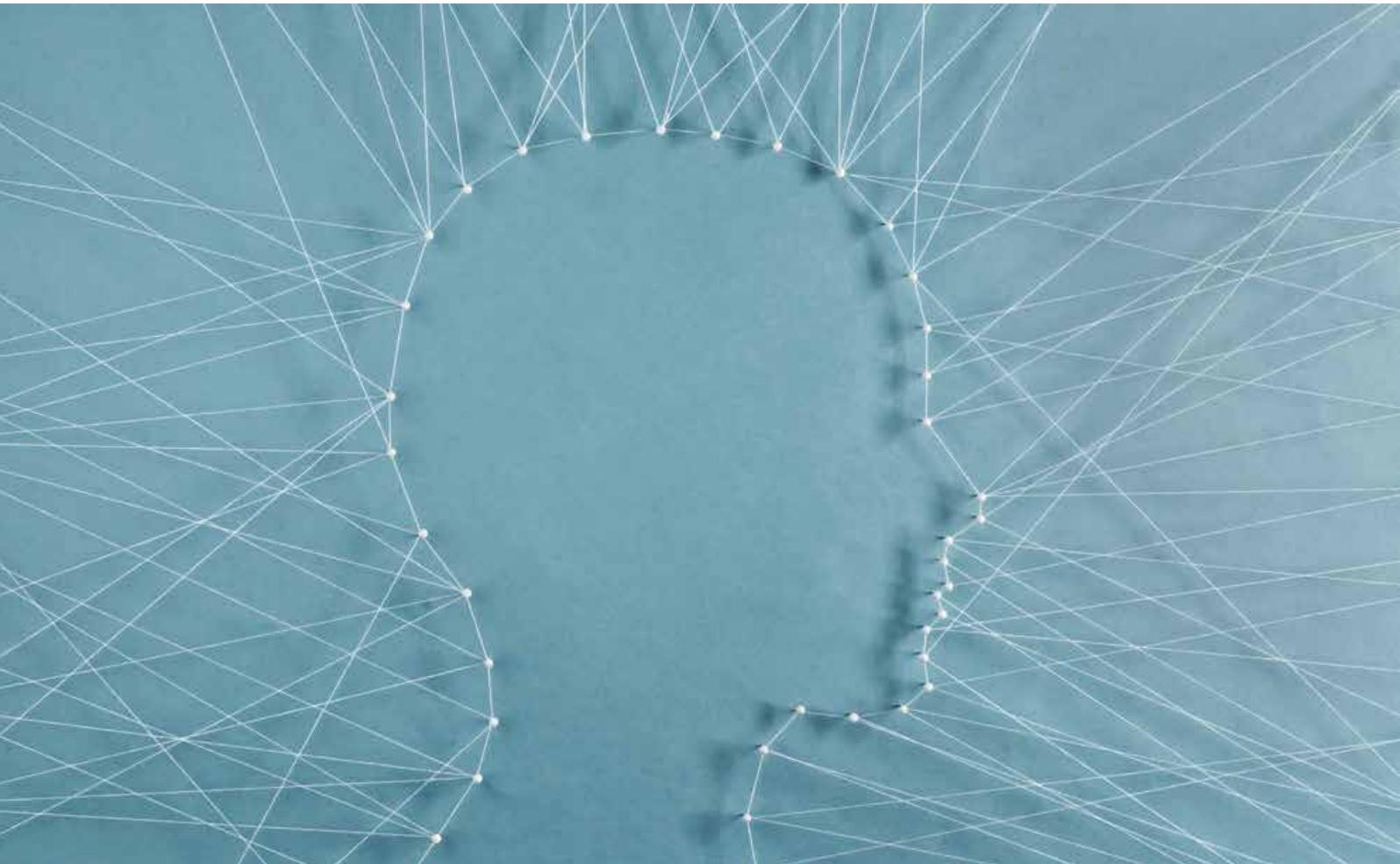
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## Another gap to close: using physical activity to reduce premature mortality for people living with serious mental illness



**Simon Rosenbaum, upcoming be active 2014 conference presenter, presents his work on physical activity interventions for people with mental illness.**

Australians with serious mental illness currently experience a reduced life expectancy of up to 25 years. Whilst suicide rates contribute to this inequality, preventable cardiovascular and metabolic diseases account for a major proportion of premature death. This '*scandal of premature mortality*' is both a public health priority and a social justice issue requiring an urgent and targeted multidisciplinary approach by all health professionals. Psychiatrists and psychologists may not typically refer their patients to sports clinicians, physiotherapists or exercise physiologists, yet based on emerging evidence and an overwhelming need, a change is occurring in the traditional mental health team.

The various physical and mental health benefits attributable to physical activity make its inclusion in the routine treatment for people with mental illness a powerful intervention strategy. Interest in exercise as a treatment strategy for depression can be traced back to the 1960s, with the creation of dedicated physiotherapy training programs in the field of mental health across Belgium and Scandinavia. Whilst there are established barriers to exercise programs for people with mental illness including motivational factors, there is a growing consensus amongst clinicians, patients and researchers that indeed exercise is medicine for those experiencing both clinical and sub-clinical depressive symptoms, with limited or no side effects. Furthermore emerging literature is demonstrating both a protective and preventative effect of physical activity interventions in relation to the risk of future depressive episodes, providing yet another reason to hit the gym, park or pavement.

**“Psychiatrists and psychologists may not typically refer their patients to sports clinicians, physiotherapists or exercise physiologists, yet based on emerging evidence and an overwhelming need, a change is occurring in the traditional mental health team.”**

The effect that physical activity interventions may have on mental illnesses other than depression, such as bipolar affective disorder, schizophrenia or post-traumatic stress disorder, is less clear. Given that patients with a range of other mental health conditions frequently experience depression as well, investigating the impact of physical activity interventions on symptoms of depression across all psychiatric diagnoses is a logical extension of existing research. The effect of such interventions on other important clinical outcomes among people living with mental illness, such as anthropometry, exercise capacity ( $VO_2$ ), and quality of life (QOL) has been relatively unexplored until recently. Our systematic review and meta-analysis aimed to address these questions, whilst simultaneously alerting mental health clinicians to the fundamentals of exercise programming taken for granted by sports and rehabilitation clinicians. This entailed debunking the myth that ‘exercise is exercise’, and highlighting the need for clinician delivered, supervised and individualised interventions. We reviewed nearly 40 studies, and found a clinically significant effect of physical activity interventions on mental health outcomes across participants with a wide range of diagnoses, including major depression, psychotic disorders such as schizophrenia and bipolar disorder, and anxiety disorders. In addition, meta-analysis revealed the substantial impact of physical activity interventions on symptoms of schizophrenia, moderate impacts on exercise capacity and quality of life, and a relatively small effect of physical activity interventions on anthropometric outcomes of people living with mental illness. The review highlighted some of the limitations of the existing literature, such as the poorly described intervention protocols (e.g. not specifying intensity or modality). Such limitations make it difficult for practitioners to utilise research findings to inform their everyday practice. This highlights the need for sport and exercise clinicians to be more involved in research study design, and to play a more prominent role in the implementation of physical activity interventions in both research and clinical settings.



**“The various physical and mental health benefits attributable to physical activity make its inclusion in the routine treatment for people with mental illness a powerful intervention strategy.”**

Given the effect that physical activity has on both mental health symptoms, and the physical health problems frequently accompanying mental illness, the importance of sport and exercise clinicians becoming a routine part of the mental health treatment team is clear. We need to reconceptualise the role of physical activity interventions so that they are not seen as diversion-based programs, but instead recognised as a clinically meaningful, evidence-based therapy.

#### **About the author**

##### **Simon Rosenbaum PhD**

Musculoskeletal Division, The George Institute for Global Health & Sydney University School of Public Health & School of Psychiatry  
University of New South Wales

#### **Further information**

be active 2014 conference: Mental Health session,  
Saturday October 18, 1.30pm to 3pm

## Legal risk management and the prevention of injury in the fitness industry



**Professor Patrick Keyzer, upcoming be active 2014 conference presenter, explores the risks in the Australian fitness industry for safe and injury free physical exercise.**

Over two million Australians use fitness services<sup>1</sup> with aerobics/fitness activities ranked as the second most common sport and physical recreation undertaken, exceeded only by walking<sup>2</sup>. The fitness industry plays a vital role in encouraging Australians to maintain healthy lifestyles through regular physical activity, which in turn can prevent obesity and reduce the risk of inactivity-related diseases<sup>3</sup>. To support active lifestyles, the Australian fitness industry must not only provide environments that are safe to engage in physical activities but also ensure that instructors are properly educated in their role in order to minimise the risk of injury<sup>4</sup>.

**“What could more centrally call into question the adequacy of risk management practices in the fitness industry than the concern of its practitioners that training is presently inadequate?”**

The Australian Fitness Industry Risk Management (AFIRM) Project, jointly funded by Sports Medicine Australia, Fitness Australia and the Australian Research Council, was set up to explore the operation of rules and regulations for the delivery of safe fitness services, and to conduct research to work out what safety management practices are taking place in the fitness industry, and what the industry can do to improve its safety practices. Researchers from La Trobe University, Bond University, Federation University, UniSA and CQUniversity have been working together across the disciplines of law, exercise science and injury prevention to produce data that will guide the development of safe industry practices.

The first part of the project, which was undertaken in 2012 and 2013, involved the production of a series of legal reports analysing the regulatory underpinning and legal risk issues in the fitness industry. These reports are available at the website of the Bond University Centre for Law, Governance and Public Policy, one of the five host institutions for the Project.

**“The education that fitness instructors receive is beyond the scope of individual managers of fitness facilities to influence. This requires an industry-wide reappraisal of courses and training...”**

The second part of the project involved focus group research and a national survey. This research took place in 2013 and 2014, and was recently published in the *Journal of Law and Medicine*<sup>4</sup>. The focus group research identified six risk management concerns in the fitness industry:

1. The education and competency of fitness professionals.
2. The effectiveness of pre-exercise screening and the management of de-conditioned clients.
3. Poor supervision of fitness service uses and incorrect use of equipment.
4. Fitness trainers failing to remain within their scope of practice.
5. Equipment misuse including equipment hygiene and faulty or poor quality equipment.
6. Poor fitness training environments including layout and use of indoor and outdoor spaces.

These six issues provided the foundation for the development of a 45 item questionnaire that was completed by 1,178 fitness professionals across Australia, the largest ever national survey of the industry. All survey data was factor analysed. Acknowledging the difficulty in describing mathematical constructs verbally, the factors identified can be fairly described as follows:

- Factor 1: Management/monitoring of safety policy, education and training.
- Factor 2: Implementation of client training/education in exercise programs.
- Factor 3: Maintenance, design and operation of facility/equipment.

The identification in the focus group research of *education, knowledge, competency* and *courses* as the most important concern to the fitness industry representatives by far, vis-à-vis accident risks, is worthy of note. What could more centrally call into question the adequacy of risk management practices in the fitness industry than the concern of its practitioners that training is presently inadequate? It is obvious that efforts to resolve the problems identified by this survey should focus on management, monitoring of safety policy and training/education of fitness instructors. The best safety policy is useless unless it is properly implemented and this requires

management involvement<sup>5,6</sup>. By way of amplification, free weights and treadmills are virtually identical between fitness facilities, albeit that the correct use of them is another matter. The education that fitness instructors receive is beyond the scope of individual managers of fitness facilities to influence. This requires an industry-wide reappraisal of courses and training, which has commenced.

**“To support active lifestyles, the Australian fitness industry must not only provide environments that are safe to engage in physical activities but also ensure that instructors are properly educated in their role in order to minimise the risk of injury.”**

To advance this effort, the AFIRM Project has produced a monograph or ‘Manual’ setting out information that will be useful to industry professionals devising risk management policies and protocols. The resource was launched on August 1 and will be made available on the Sports Medicine Australia website.

Further AFIRM Project deliverables, results of observational audits and in-depth interviews, along with a website resource for the data and material produced, will be published later in 2014.

#### About the author/s

Professor Patrick Keyzer, La Trobe University, on behalf of Professor Ian Coyle, Professor Joachim Dietrich, Professor Caroline Finch, Veronica Jones, Professor Kevin Norton and Dr Betul Sekendiz.

#### Further information

be active 2014 conference: AFIRM Symposium, Wednesday October 15, 3.30pm to 5pm

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



## Understanding athlete wellbeing



**Dr Matthew Dunn, Senior Lecturer and upcoming be active 2014 conference presenter, provides an overview of his research into the all-important issue of athlete wellbeing.**

People who play sport will, at some time, need to make decisions about their future. This can be as simple as a young person deciding what sport to play, whether they're good enough to try out for more competitive teams in their sport, or whether they want to keep playing sport at all. For older people, it might be facing the reality that they're no longer able to devote time to their sport due to work or family commitments. Elite athletes face all of these pressures at multiple points in their career, and in recent times we have been witness to these decisions and their effects. We have started to recognise that on-field performance can be greatly affected by off-field events, and sporting organisations are moving to address this. In a broad sense, I started calling this 'athlete wellbeing'.

**“Sporting organisations and player associations are increasingly recognising the importance of athlete wellbeing.”**

My interest in this topic comes from two sources. The first being that my father represented Australia in swimming when he was younger, until he had to make the choice of whether to have a family or be a competitive athlete. Thankfully, he chose the

former – I wouldn't be here otherwise. The second being that before I was born, an older cousin had represented Canada at the Montreal Olympics in swimming (when I was younger my bathing suit was the pair he wore at those Games. I still have the two towels he used, although they're quite threadbare now). My family was also heavily involved in softball, and some of my sister's friends that I grew up around now have a few Olympic medals, having devoted so much time to moving up from local competition to represent their state and then their country. And this got me wondering – what happens to the athletes who aren't making the big dollars when they leave sport? What happens to the athletes who don't make the national team?

I started to ask this question more when I completed a research project looking at substance use issues among elite athletes. An issue that is seen as so black and white wasn't. One athlete made a very important point when discussing illicit drugs: “... athletes use illicit drugs for an emotional release. Athletes put all of their eggs in one basket. The issue is addressing athletes' ability to deal with disappointment, like not making it to the Olympic Games... that's extremely hard to deal with.” Obviously, the issue of substance use is connected to a range of other issues that are happening in the athlete's life, and I wondered how sporting organisations were starting to deal with these 'off-field' issues.

**“People who play sport will, at some time, need to make decisions about their future.”**

I commenced this study, entitled 'Understanding athlete wellbeing: the views of national sporting and player associations', in December 2013 using a multiple case study design. I invited organisations from a range of sports to participate in an interview about this issue; these sports were chosen in part based on their size, whether they were team or individual sports, and whether they had a player's association. I conducted seven interviews with people whose job fell into this area.

Athlete 'wellbeing' was seen as all the aspects of a player's life outside of the sport, and all the participants acknowledged that off-field life impacts in-competition performance. As such, these participants in their wellbeing role did engage with the sports science side of the sport. In many instances this was initiated by the participant in their role, but increasingly coaches were recognising the importance of the role. As one participant stated, *"I've had many examples where people tell you that we know that that athlete can perform but they're not able to perform at the moment because they're completely overawed and have succumbed to something that they can't deal with and therefore can't perform... coaches are starting to see 'I need my athlete back...'"*

**"... what happens to the athletes who aren't making the big dollars when they leave sport? What happens to the athletes who don't make the national team?"**

While there was recognition that athletes face multiple challenges at multiple times in their career, such as entering sport, being in their most competitive years, and then when they exit sport, ultimately, all the wellbeing initiatives were

seen to get the athlete back to peak performance. Even the Government's program focused upon 'personal excellence.' Participants noted that, ultimately, elite sport is a business, and this drives the programs and initiatives put in place by organisations. How deeply an organisation could work within the wellbeing space seemed dependent on their size, which was itself influenced by the amount of money available in that sport. Sports which were well established with sound financial backing could engage in more activities at different time points in an athlete's career, while smaller sports or those with less financial backing were limited in what they could do. As one interviewee noted, *"... if I had more money I'd do things bigger and better and it would be easier."*

Sporting organisations and player associations are increasingly recognising the importance of athlete wellbeing. For some sports, wellbeing programs are entrenched, while for others this is an emerging space. Future research should investigate wellbeing from other perspectives in sport, including that of athletes at different stages of their careers, as well as others within the sportsnet, such as coaches and family members.

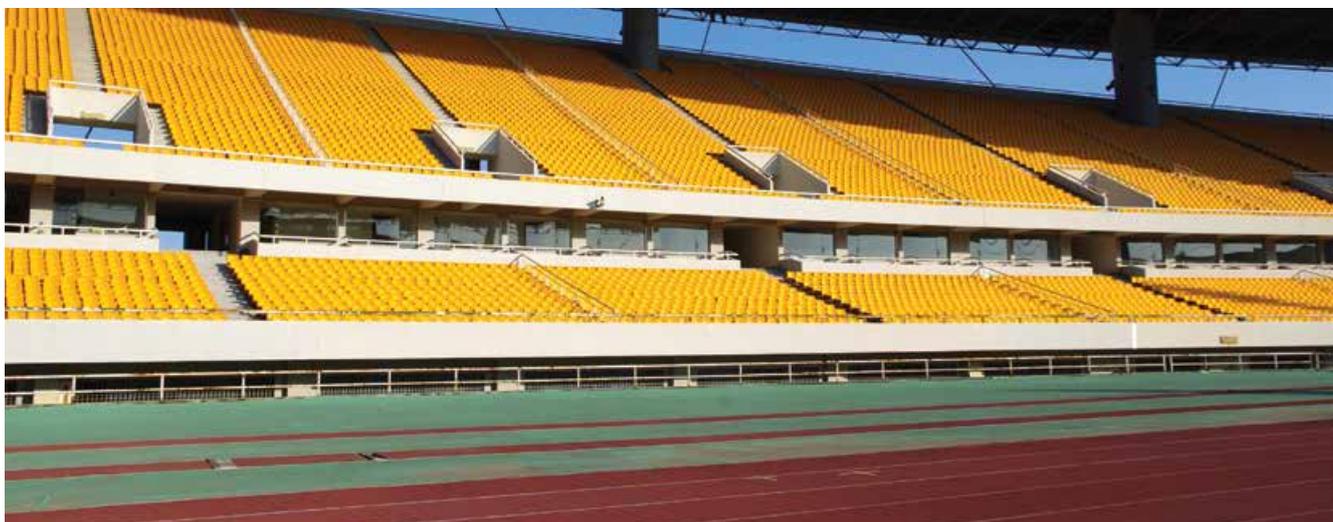
#### About the author

##### Dr Matthew Dunn

Senior Lecturer, School of Health & Social Development  
Course Director, Bachelor of Public Health and Health Promotion  
Deakin University

#### Further information

be active 2014 conference: Injury session, Friday October 17, 3:30pm to 5pm



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## REGISTRATION FEES

### "be active 2014" includes:

- Australian Conference of Science and Medicine in Sport "Reach New Heights" (15-18 Oct)
- National Physical Activity Conference "Managing Load, Managing Risk" (15-18 Oct)
- National Sports Injury Prevention Conference "Active Across the Life Course" (15-18 Oct)

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Non Member Registration - Full	\$1050	\$1150	-----
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^ Student Registration Student delegates must be full time and must supply a letter from their Head of School verifying full time status.

\* One day registration includes entrance to the social program for the day that you are registered only.

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## The keys to business success

To help make the most of your business, *Sport Health* brings you the following business insights.

### What is Web accessibility?

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**The latest buzz word is web ‘accessibility’ meaning that people with disabilities can use the Web.**

More specifically, Web accessibility means that people with disabilities can contribute, perceive, understand, navigate, and interact easily with the Web. This also benefits others, including older people with changing abilities due to ageing.

**Web accessibility** refers to the inclusive practice of removing barriers that prevent access to websites by people with disabilities. When sites are correctly designed, developed and edited, all users have equal access to information and functionality.

For example, when a site is coded with semantically correct HTML, with textual equivalents provided for images and with links named meaningfully, this helps blind users using text-to-speech software, and/or text-to-Braille hardware. When text and images are large and/or enlargeable, it is easier for users with poor sight to read and understand the content. When links are underlined (or otherwise differentiated) as well as coloured, this ensures that colour blind users will be able to notice them. When clickable links and areas are large, this helps users who cannot control a mouse with precision. When pages are coded so that users can navigate by means of the keyboard alone, or a single switch access device alone, this helps users who cannot use a mouse or even a standard keyboard. When videos are closed captioned or a sign language version is available, deaf and hard-of-hearing users can understand the video. When flashing effects are avoided or made optional, users prone to seizures caused by these effects are not put at risk. And when content is written in plain language and illustrated with instructional diagrams and animations, users with dyslexia and learning difficulties are better able to understand the content.

When sites are correctly built and maintained, all of these users can be accommodated without decreasing the usability of the site for non-disabled users.

The needs that Web accessibility aims to address include:

- **Visual:** visual impairments including blindness, various common types of low vision and poor eyesight, various types of colour blindness.
- **Motor/mobility:** e.g. difficulty or inability to use the hands, including tremors, muscle slowness, loss of fine muscle control, etc., due to conditions such as Parkinson’s Disease, muscular dystrophy, cerebral palsy, stroke.
- **Auditory:** deafness or hearing impairments, including individuals who are hard of hearing.
- **Seizures:** photo epileptic seizures caused by visual strobe or flashing effects.
- **Cognitive/intellectual:** Developmental disabilities, learning disabilities (dyslexia, dyscalculia, etc.), and cognitive disabilities of various origins, affecting memory, attention, developmental ‘maturity’, problem-solving and logic skills, etc.

Individuals and organisations providing information and services via the World Wide Web need to think about how they make their websites and other web resources accessible to people with a disability. One in five Australians has a disability, and the proportion is growing. The full and independent participation by people with a disability in web-based communication and online information delivery not only makes good business and marketing sense, but is also consistent with our society’s obligations to remove discrimination and promote human rights.

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References are available at [sma.org.au/sport-health](http://sma.org.au/sport-health)

## Sport sector salaries fall behind national average

Brought to you by Sportspeople Pty Ltd



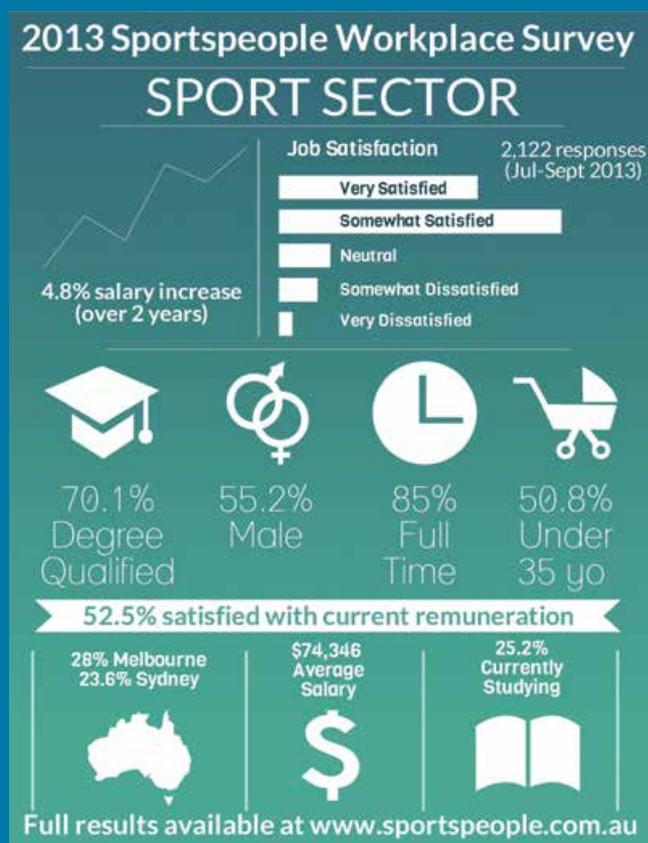
Full time salaries in the sport sector increased 4.8 per cent over the past two years against a 7.9 per cent increase in the ABS national average weekly earnings data for the corresponding period, according to results released from the 2013 Sportspeople Workplace Survey. The leisure sector didn't fare as well, as full time salaries in the fitness sector decreased 6.7 per cent and the aquatics sector fell marginally by 0.1 per cent. Consistent with trending since 2003, more males (31.8 per cent) than females (18.7 per cent) earned salaries in excess of \$80,000 in 2013. However the gap between the number of males and females earning \$80,000 or above has grown 3.7 per cent in favour of men since 2011. 90 per cent of employees in the sport, fitness and aquatic sector intend to stay in the industry long term and 84 per cent of all employees are either satisfied or very satisfied with their current job.

According to Sportspeople's Managing Director, Robert McMurtrie while these results indicate the sport, fitness and aquatic sector continues to lag behind other sectors in regards to wage growth, employees seem to be content in their chosen occupations and the sector in which they work. "What is very obvious again from this data is that significant salary variances exist for roles which have the same position title. For example, an Administration Manager in one organisation can earn \$210,000 a year while in another only \$40,000. This reinforces our long held view that a salary range should be a mandatory inclusion when advertising a position vacancy. Terminology such as Attractive Package or Negotiable can be interpreted in many ways by candidates and may, in fact, be counter-productive to the recruitment effort."

"The 2013 Sportspeople Workplace Survey provides a snapshot of employee trends in hours worked, time taken to get to and from work, lunch breaks, additional remuneration above base salary and employee satisfaction. Overall we'd have to say that people working in the sport, fitness and aquatic sector are a happy bunch attracted to their role not by the remuneration, but the opportunity to work in the sector and the overwhelming majority are either satisfied or very satisfied with their current job."

In total there were 2,122 responses to the survey. The 2013 Sportspeople Workplace Survey is managed by job board operator and recruitment agency Sportspeople and is part of a series of Sportspeople surveys undertaken since 2003. The press release and full report is available at [www.sportspeople.com.au](http://www.sportspeople.com.au)

**Want to get involved?** The **2014 Sportspeople Salary Survey** is now open for participants working in the sport, fitness or aquatic sector. Answer nine quick questions at the Sportspeople website to provide data on what your job is really worth.



Sportspeople is a leading recruitment agency and job board operator in the sport, fitness and aquatic sector. For more information visit [www.sportspeople.com.au](http://www.sportspeople.com.au)

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There are various strategies and options for a SMSF to acquire property directly or indirectly. These options include:

- Acquire directly in the SMSF using available cash.
- Acquire jointly as tenants in common with another party (related or non-related).
- Acquire indirectly through a unit trust structure (related or non-related).
- Acquire directly with borrowings (limited recourse borrowing). Changes to legislation in September 2007 allow SMSFs to borrow to acquire property.

Each of the previous options has their particular strengths and weaknesses however, as a superannuation fund trustee, you must be aware of the rules and restrictions for SMSF investments to ensure your SMSF complies at all times. Prior to acquiring any investment in super (not just property), the following must be considered:

- The SMSF's investment restrictions.
- Investment is within the SMSF's investment strategy.
- The SMSF meets the Sole Purpose Test.
- Acquisition of assets from Related Parties.
- Borrowing rules.
- Arms length rules.

Davidson's Superannuation and Retirement Division can assist with your queries and provide the most appropriate strategy to suit your individual circumstances. We assist in ensuring the strategy meets your retirement goals and dovetails with your estate planning intentions.

If you have been thinking about exploring the investment opportunities available for your SMSF, please call Steven Skoglund or Kylie McClure on 03 5244 6805 and 03 5244 6890 or send an email to [stevens@davidsons.com.au](mailto:stevens@davidsons.com.au) and [kmclure@davidsons.com.au](mailto:kmclure@davidsons.com.au) respectively.

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Disclaimer: The information is of a general nature and should not be viewed as representing financial advice. Users of this information are encouraged to seek further advice if they are unclear as to the meaning of anything contained in this article. Davidsons accepts no responsibility for any loss suffered as a result of any party using or relying on this article.

## Three tips for creating compelling content

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At Klout, we believe that quality content is the key to building an engaged audience on social media. Whether you are building a personal or professional brand, compelling content can help you increase awareness, build credibility, increase site traffic, and even boost search engine optimisation.

We recently hosted a discussion on Twitter (#KloutChat) to dig deeper into the topic of Content Creation. We were able to boil the wisdom of our experienced community down to the three rules that are the most important when it comes to successful content creation.

### Content creation is king, but curation is queen

Although the ideal curate: create mix depends on your audience and your goals, it's a good idea to try to maintain a 1:1 ratio. When it comes to content curation, your value lies in sharing your unique insights or a new angle with each piece of content. Keep in mind that whether created or curated, your content should always be an extension of your brand goals.

### Gain your audience with quality, keep them with consistency

The quantity of shares you are likely to get is directly proportional to the quality of the content. Quality will help you build your audience, and consistency will help you keep them. Social media posts tend to lose their 'freshness' relatively quickly, so it is important to spend time sharing your content at different times. The good news is that focusing on creating high quality posts can also help remedy this. The life of your post is extended when people notice the quality of your post and share it for you.

### Learn from your numbers

Top performing content creators learn from their efforts by measuring the success of their content. They dig deeper and pay close attention to exactly what kind of content is working, what time they post, how often they post, and which channels get more traction.

*Sport Health* would like to thank Klout, klout.com for supplying this editorial.



## Sports nutrition for the adolescent athlete



### **Alison Patterson (Garth), Advanced Sports Dietitian unveils the newly released Sports Dietitians Australia position statement for athletes aged 12–18 years.**

Most parents of teenagers have plenty of lively stories of what happens in the kitchen when their sons and daughters come home from a long day at school. Exclamations of ‘I’m still hungry’ (even after a hearty dinner has been devoured) or ‘I’d finished everything in my lunchbox by recess’ are not uncommon. Add to that the considerable training volume that many adolescents undertake as part of organised sport, including multiple sports and/or multiple teams across school, club and state rep squads, and you can see that it can be quite a job to fuel a teenager, let alone a teenage athlete.

While the Australian Dietary Guidelines provide suitable advice for adolescents who participate in general physical activity, adolescents who have a high-level of participation in sport have a unique set of nutrition requirements that require special attention. Not only do adolescent athletes need to meet the nutrition demands of their growth and development, they also have to meet the extra nutrition requirements associated with undertaking daily training and competition.

Although nutrition should be considered a key determinant of an athlete’s potential sporting success, it is often overlooked.

To address this, Sports Dietitians Australia (SDA), in conjunction with Griffith University and expert input from members of Sports Medicine Australia, has created a world-first position statement containing guidelines on sports nutrition for athletes aged 12–18 years who have involvement with organised training and competition (active adolescents) and those with higher training volumes (competitive adolescents). Adolescent athletes who are training and/or competing at an elite level are advised to seek individualised support from an Accredited Sports Dietitian.

Following is an executive summary of the information contained in the position statement, which was officially launched at a media event on July 14 and will be published in the *International Journal for Sports Nutrition and Exercise Metabolism* later this year. For further details please refer to the full article: *Desbrow B, McCormack J, Burke LM, Cox GR, Fallon K, Hislop M, Logan R, Marino N, Sawyer SM, Shaw G, Star A, Vidgen H and Leveritt M. Sports Dietitians Australia Position Statement: Sports Nutrition for the Adolescent Athlete. International Journal of Sports Nutrition and Exercise Metabolism. 2014 (in press). DOI:10.1123/ijsem.2014-0031*

**“Athletes should be encouraged to adjust eating patterns to reflect daily exercise demands.”**

## Energy for adolescents

The energy intake of adolescents should be adequate for growth and development needs, while supporting the energy expenditure required for exercise and performance goals. Although no simple method exists to accurately determine the exact energy needs of adolescent athletes, markers of growth and health can help to determine if total energy intake is appropriate. Athletes should be encouraged to adjust eating patterns to reflect daily exercise demands. This typically means that larger meals and regular snacks are required to meet the increased energy demands on training days (although this can be a challenge with busy schedules).

Adolescents require the knowledge and support to develop a healthy lifelong relationship with food. Parents, guardians and coaches play a key role in this. Those responsible for adolescent athletes should be aware that body composition is only one contributor to athlete performance, and that dietary and training strategies exclusively designed to manipulate an adolescent's physique independent of performance should be avoided. It is important that eating patterns and food selection during adolescence reinforce long-term health, as well as developing a positive body image.

## The Macronutrients: carbohydrate, protein and fat

Recommendations for carbohydrate, protein and fat intake for adolescent athletes are very similar to those set for athletic adult populations:

- Adolescents should be encouraged to adjust carbohydrate intakes to match daily energy demands. Considering the duration and intensity of the exercise sessions can help to guide intake.
- Protein requirements are likely between 1.3–1.8g per kg body mass per day. Athletes should adopt eating patterns that provide a regular spread of high quality protein sources over the day.
- Both protein and carbohydrate are important for recovery after training and competition. Nutritious food choices that provide both carbohydrates and protein to meet recovery goals include milk-based drinks, yoghurt with fruit, or a meat and salad roll. In some cases, sports foods such as Sustagen Sport may help to meet the high energy needs of the athlete in a convenient form.

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- Fat intake, in accordance with public health guidelines, should contribute 20–35 per cent of total energy intake, with no more than 10 per cent of total energy coming from saturated and trans fats (e.g. fat in meats, dairy, fried foods and processed products such as biscuits). If an athlete is finding it difficult to meet their energy needs, increasing the unsaturated fat content of the diet can help address this issue due to its energy density (e.g. olive oil, nuts, avocado, and salmon).



**“Adolescents require the knowledge and support to develop a healthy lifelong relationship with food. Parents, guardians and coaches play a key role in this.”**

## Specific nutrients of importance

### Iron

Depleted iron stores without clinical symptoms occur more frequently in female athletes. Despite the potential for increased iron turnover in adolescent athletes, there is little evidence that adolescent athletes have requirements beyond the recommended dietary intake (RDI) values. Adolescent athletes (particularly females) should ensure dietary iron intake is consistent with the RDI and iron supplementation should be considered only if medically warranted. Nutritious food sources of iron include lean red meat, chicken, pork, eggs, fish, Milo and baked beans.

Adolescent athletes should ensure dietary iron intake is consistent with the RDI:

- Boys: 8mg/d (9–13 years), and 11mg/d (14–18 years).
- Girls: 8mg/d (9–13 years), and 15mg/d (14–18 years) – higher increase due to menstrual losses.

### Calcium and Vitamin D

Calcium and Vitamin D are important nutrients for good bone health. Calcium requirements for adolescent athletes are no different from that of non-active adolescents; however, requirements are greater than that of adults due to growth. Many adolescents fail to meet these recommendations, so it is important to try to include calcium-rich foods regularly into the diet (e.g. milk, cheese, yoghurt, and calcium-fortified soy products and breakfast cereals).

- RDI (adolescents) = 1300mg per day (boys and girls).

**“Calcium requirements for adolescent athletes are no different from that of non-active adolescents; however, requirements are greater than that of adults due to growth.”**

Most vitamin D is obtained through exposure to sunlight rather than through dietary sources. Athletes should monitor vitamin D status, and correction through supplementation may be necessary to ensure optimal performance and the maintenance of bone health.

## Fluids for adolescents

Adolescent athletes should be encouraged to be well-hydrated prior to commencing exercise, particularly in hot environments, and to adopt drinking practices that limit fluid deficits.

Fluids should be supplied in sufficient quantities to adolescent athletes before, during and after physical activity. Due to the large variability in sweat rates amongst adolescents, it is important that athletes monitor changes in body mass over a session to provide a guide to the net fluid deficit incurred during exercise. If losses seem excessive (>2 per cent of body weight) or if fluids are over-consumed (i.e. weight-gain), the athlete should be guided to adjust drinking rates.

**“... sports drinks are NOT the same as caffeinated energy drinks, and adolescent athletes should NOT be encouraged to consume energy drinks around sporting activities.”**

### What to drink?

For the active adolescent, the use of sports drinks in place of water on the sports field or as a general beverage is not necessary and may lead to excessive energy/caloric consumption. For competitive adolescent athletes, consuming sports drinks during prolonged vigorous exercise, or milk during recovery or between events, can be beneficial by providing carbohydrate, fluid, electrolytes and protein (in the case of milk). It is important to note that sports drinks are NOT the same as caffeinated energy drinks, and adolescent athletes should NOT be encouraged to consume energy drinks around sporting activities.

**“The use of dietary supplements\* with the exclusive intention to enhance exercise performance in active and competitive adolescent athletes is unwarranted and hazardous.”**

### Do adolescents need to consume supplements?

To put this simply – the answer is no! The use of dietary supplements\* with the exclusive intention to enhance exercise performance in active and competitive adolescent athletes is unwarranted and hazardous. This recommendation excludes the clinical use of dietary supplements (e.g. calcium or iron) when taken under appropriate guidance from a suitably qualified health professional such as a medical practitioner or an accredited sports dietitian.

The use of supplements in developing athletes over-emphasises their ability to manipulate performance. Younger athletes have the potential for greater performance enhancement through maturation and experience in their sport, along with adherence to proper training, recovery and nutrition regimes.

Adolescent athletes and their support personnel should be aware of the risks associated with taking supplements, and organisations should develop guidelines to regulate supplement use.

\* Note: the definition of dietary supplements *excludes* sports foods and drinks such as Sustagen Sport or sports drinks.

As with all athletes, teaming up with an Accredited Sports Dietitian can help your adolescent athlete fulfil their sporting, growth and developmental potential. To find an Accredited Sports Dietitian near you go to [www.sportsdietitians.com.au/findasportsdietitian](http://www.sportsdietitians.com.au/findasportsdietitian).

SDA would like to express its sincere thanks to the expert panel members and the broader SDA membership for their insights, expertise and input into developing this position statement.

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## Hip arthroscopy for intra-articular pathology



### **Joanne Kemp, APA Sports Physiotherapist, conducts a systematic review of outcomes with and without femoral osteoplasty.**

Intra-articular hip pathology is a common cause of hip and/or groin pain<sup>1-2</sup> and may be associated with considerable morbidity in young active populations<sup>3-4</sup>. In recent years, arthroscopic surgery has contributed to advancements in assessment and management of hip pathology, however, the complex anatomical nature and multifactorial sources of pain within the hip and groin region continue to make diagnosis and management of such injuries a challenge to clinicians<sup>5</sup>. Previous systematic reviews have noted generally good outcomes, with significant reduction in pain and improved function demonstrated for up to 40 months post hip arthroscopy. Whilst short-term outcomes of hip arthroscopic surgery involving osteoplasty appear to be good, medium to long-term results remain unclear.

The total number of hip arthroscopies performed internationally is growing rapidly, with more than 30,000 procedures

performed around the world in 2008, and an expected annual increase of 15 per cent<sup>6</sup>. Current techniques have expanded to include osteoplasty of the femoral neck and/or acetabulum as well as debridement/repair of the acetabular labrum in an effort to address both intra-articular hip pathology and the long-term implications of abnormal bony morphology (e.g. cam- or pincer-type femoroacetabular impingement [FAI]). Previously published systematic reviews consider pathologies such as labral tears and FAI to be separate entities<sup>7-10</sup>. Since contemporary practice indicates that hip pathologies often co-exist, it is inappropriate to restrict eligibility criteria according to individual hip pathologies. Appraisal of studies on the basis of surgery (i.e. arthroscopy alone, or combined with osteoplasty) may be a more appropriate and clinically meaningful approach.

The objective of this study was to conduct a systematic review examining outcomes of pain and physical function following hip arthroscopy with and without femoral osteoplasty for intra-articular hip joint pathologies.

**“... patients with intra-articular hip pathology experience short- and long-term improvements in pain and physical function following hip arthroscopy, with or without femoral osteoplasty, that appear to be maintained over time.”**

## Materials and methods

The systematic review protocol was developed according to guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement<sup>11</sup>. Literature search criteria and methods were proposed and agreed upon by three authors (Joanne Kemp, Natalie Collins, and Kay Crossley), and were established a priori to minimise selection bias.

## Eligibility criteria

Quantitative studies were included that utilised participants aged 17 years or over who were scheduled for or had undergone hip arthroscopy surgery as a primary intervention for intraarticular hip pathology. Studies that followed participants over at least three months, and utilised a patient-reported measure of pain and/or function, were included. This systematic review included all non-osteoarthritic pathologies.

## Search strategy

A comprehensive, reproducible search strategy was performed on the following databases between January 1990 and May 2010: Scopus, Medline, CINAHL, Pubmed, Ausport, SPORTDiscus, PEDro, The Cochrane Library, PsychINFO, and Google Scholar.

## Quality evaluation

The Downs and Black checklist<sup>12</sup> was used to appraise the methodological quality of included studies since it has adequate reliability and validity for assessing randomised controlled trials (RCTs) and non-randomised studies<sup>12-14</sup>. To maintain a benchmark of moderate-to-high study quality, it was agreed a priori that studies that scored a total score of greater than 13 points (positive rating of at least half of methodological criteria) were included in the final evaluation.

## Data management and statistical analysis

Means and standard deviations (SD) for each outcome measure were extracted for calculation of effect sizes. Effect size magnitude was interpreted as:  $\geq 0.8$  large effect; 0.5–0.8 moderate effect; and 0.2–0.5 weak effect<sup>15-17</sup>.

## Results

### Search strategy

The comprehensive search strategy identified 473 papers for evaluation beyond title level, and 53 papers for full-text evaluation. Forty studies fulfilled all inclusion criteria and underwent critical appraisal.

### Methodological quality

Methodological quality scores of the 40 included studies varied widely, from 9 to 21 out of 31 points (mean 15 [SD 3]). Eleven papers received a quality score of less than or equal to 13 and were subsequently excluded from further analysis, leaving 29 papers for final inclusion.

### Findings

The 29 included studies were grouped based on the primary surgical procedure: hip arthroscopy without femoral osteoplasty, and hip arthroscopy with femoral osteoplasty. No studies used a RCT design. Most studies reported treating several pathologies concurrently at the time of arthroscopy. Follow-up times ranged from four months to 10 years. Adverse events were reported by 12 of the 29 studies. Adverse events were reported in 52 of 700 participants (7 per cent) across the 12 studies and were mostly transient neuropraxias.

**“The total number of hip arthroscopies performed internationally is growing rapidly, with more than 30,000 procedures performed around the world in 2008, and an expected annual increase of 15 per cent.”**

### Hip arthroscopy without femoral osteoplasty

Sixteen papers investigated outcomes of hip arthroscopy without femoral osteoplasty<sup>18-33</sup>. Only three papers utilised a prospective design<sup>18, 29, 31</sup> and the remaining papers retrospective. The majority of studies were case series, with only two comparative studies<sup>18, 28</sup>. The mean quality score for the 16 studies was 16, with the highest score of 20 only obtained by one study<sup>29</sup>.

A range of intra-articular hip pathologies were investigated, including labral pathology<sup>18, 19, 29, 31</sup>, isolated ligamentum teres pathology<sup>22</sup>, and labral pathology co-existing with other pathology. Despite the variation in pathologies recorded, postoperative improvements in pain and function were consistently reported. Furthermore, improvements were maintained over longer follow-up periods, with improvements seen up to 10 years.



Of the 16 studies, effect sizes could only be calculated for two<sup>27,30</sup>. Significant large effects on the Modified Harris Hip Score (MHHS) were found for both studies one to two years after surgery. All but one study reported a statistically significant improvement of greater than 20 points (representing a percentage improvement of 34 to 88 per cent)<sup>19,23</sup> following surgery. All studies that reported outcome separately for different hip pathologies found worse outcomes to be associated with co-existing chondropathy at arthroscopy<sup>20,24,25</sup>.

### Hip arthroscopy with femoral osteoplasty

Of 15 studies that examined outcomes of hip arthroscopy with femoral osteoplasty, nine were prospective in design<sup>18,34-41</sup> and six were retrospective<sup>28,42-46</sup>. Only three studies utilised comparative designs<sup>18,28,35</sup>, with the majority being case series. The methodological quality was similar to those that investigated arthroscopy only, with scores ranging from 16 to 21 (mean score 17). Importantly, the comparative studies did not adequately randomise individuals to either group, blind subjects or observers, and thus were susceptible to bias.

Nine papers presented sufficient data for effect size calculation across six outcome measures<sup>34,35,37,39,40,42,43,45,46</sup>. Significant large effects were mostly seen on all patient-reported outcomes for pain and function (primarily the MHHS and non-arthritic hip score [NAHS]) up to 28 months following osteoplasty for both cam-type and combined FAI, with additional labral and chondral debridement as appropriate. Six studies demonstrated positive postoperative outcomes, with five reporting an improvement of greater than 20 points on at least one measure<sup>18,28,36,38,41</sup>. The three comparative studies<sup>18,28,34</sup> examined outcomes of two arthroscopic techniques for isolated cam-type impingement. While large effect sizes were found (NAHS and pain visual analogue scale [VAS]) in both groups, there were no between-group differences. The presence of osteoarthritis (OA) at the time of surgery was associated with poorer outcome in two studies<sup>41,43</sup>.

## Discussion

Findings of this systematic review indicate that patients with intra-articular hip pathology experience short- and long-term improvements in pain and physical function following hip arthroscopy, with or without femoral osteoplasty, that appear to be maintained over time. This is despite the heterogeneity seen in study quality, populations and methodologies. Based on findings of 16 studies, current evidence suggests that patients with intra-articular hip pathology will have less pain and increased function for up to 10 years after arthroscopy without femoral osteoplasty. Similarly, evidence from 15 studies demonstrates that patients will also report improvements in pain and function following arthroscopy with femoral osteoplasty. As osteoplasty for FAI is a relatively new procedure, as evidenced by the publication of all included studies in the past three years (2008–2010), current follow-up periods only extend to two and a half years, leaving uncertainty regarding longer term outcomes of this intervention. Furthermore, the impact of FAI surgery on the development of osteoarthritis of the hip remains unknown.

The radiological feature of cam- or pincer-type FAI may result in damage to other hip structures, ultimately resulting in pain perception and hip-related symptoms. Hence, hip osteoplasty is increasingly performed to enable greater range of hip joint motion, with the aim of preventing further impingement episodes. Furthermore, since FAI or acetabular dysplasia may lead to early hip osteoarthritis<sup>47,48</sup>, hip osteoplasty may play a role in prevention of structural disease progression. However, until the long term benefits of osteoplasty are demonstrated with respect to changing the natural course of OA, or rigorous head to head comparisons are made with hip arthroscopy alone, any potential additional benefits are theoretical.

**“... current evidence suggests that patients with intra-articular hip pathology will have less pain and increased function for up to 10 years after arthroscopy without femoral osteoplasty. Similarly, evidence from 15 studies demonstrates that patients will also report improvements in pain and function following arthroscopy with femoral osteoplasty.”**

This is the first systematic review of hip arthroscopy outcomes to appraise the methodological quality of included studies. Interestingly, the exclusion of studies of poorer quality did not influence the conclusions, when compared with previous systematic reviews<sup>10,49</sup>. This enhances confidence in previous and current findings. Quality appraisal revealed

several methodological issues associated with the current hip arthroscopy literature. Unlike RCTs, case series do not allow for improvements due to placebo or natural recovery to be documented, as noted in a RCT for arthroscopic knee surgery<sup>50</sup>. To date there are no RCTs examining outcomes following hip arthroscopy. Another major methodological flaw in the included papers was the lack of known psychometric properties of the outcome measures used. It is recognised that patient-reported outcomes used to measure a change in pain and function following an intervention should demonstrate adequate reliability, validity and responsiveness for that population<sup>51</sup>. However, most of the measures used had not been tested for reliability, validity or responsiveness in hip arthroscopy populations. This greatly impairs the readers' confidence in the accuracy of results reported in the included papers, and in effect sizes calculated<sup>18</sup>.

While the current review examined surgical outcomes, it is plausible that non-surgical approaches also play an integral role in the management of intra-articular hip pathologies. At the knee, a number of RCTs have directly compared the efficacy of surgery to physical therapy or rehabilitation<sup>52, 53</sup>, with all studies noting no superiority of surgery. In comparison, the clinical commentaries describing rehabilitation of the hip<sup>54-57</sup> have not examined the outcomes of conservative approaches, in isolation or combined with surgical interventions.

In summary, current evidence indicates that hip arthroscopy surgery can reduce pain and improve function in patients with intra-articular hip pathology, including FAI, but excluding osteoarthritis as primary pathology. However, these results must be interpreted with caution given the methodological flaws in the included studies. While it has been demonstrated that this improvement can be obtained up to 10 years post-surgery if osteoplasty is not performed, the effects of osteoplasty beyond three years has not yet been established. Further high quality comparative studies are required, particularly investigating longer-term effects of osteoplasty and the role of rehabilitation in this patient population, and outcomes for patients with osteoarthritis.

**About the author**

**Joanne Kemp**

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This article was derived from the systematic review published in the *British Journal of Sports Medicine*. The paper was co-authored by Natalie Collins, Anthony Schache, Dr Michael Makdissi, Zuzana Machotka and Kay Crossley.

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



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## JSAMS in the media

**Dancing with danger...  
En pointe: Ballet one of  
the most risky activities**

Bundaberg News Mail, June 11

**Ballet or ball-sports?  
Guess which one's a  
world of pain**

Courier Mail, June 21

**Copping a battering at ballet**

Daily Telegraph, June 21

**Tutu packs  
more risk  
than footy**

Northern Territory News, June 21

*Sport Health* takes a look at which *Journal of Science and Medicine in Sport* studies have been making the news lately.

### Young dancers at a higher risk of injury

Appearing in *The Journal of Science and Medicine in Sport* (Volume 17, Issue 3) this study led by Christina Ekegren of the Department of Epidemiology and Preventative Medicine, Monash University, monitored the occurrence of injuries in

young, pre-professional ballet dancers over the period of one school year.

The findings revealed young dancers are at a higher risk of injury relative to other adolescent athletic populations, with gruelling training loads placing many young dancers at a risk of serious and in some cases, career ending injuries.



The study found more than three-quarters of the dancers monitored sustained an injury over the period of the one year study. Of the injuries sustained, a number were quite severe, with 23 of the 378 injuries requiring surgery, and as many as 60 per cent requiring investigation through medical imaging. Five of the dancers were forced to drop out of elite ballet school as a result of their injuries, while on average the time lost from dance through injury was about a month.

Ms Ekegren said overuse was the most common cause of injury, with 72 per cent of injuries occurring as a result of overuse and likely exacerbated by high training loads without adequate recovery time.

The study, 'Injuries in pre-professional ballet dancers: Incidence, characteristics and consequences', received widespread coverage in print media, while Ms Ekegren also participated in a live interview with ABC Melbourne Breakfast radio host Red Symons.

To read the full study visit:

[http://www.jsams.org/article/S1440-2440\(13\)00178-3/](http://www.jsams.org/article/S1440-2440(13)00178-3/)

## Children bombarded with ads

Sydney Morning Herald, June 9

## Fed up with junk ad diet

Newcastle Herald, June 16

## Junk in the trunk of sports

Adelaide Advertiser, June 11

## Junk food advertising rife in children's sport

The Age, June 9

## Can junk food ads, clubs told

Sunday Examiner, June 15

### Fast food sponsorship rife among kids sport

Published in *The Journal of Science and Medicine in Sport* (Volume 17, Issue 4), this study combined information about children's participation in community sport with data on known patterns of food and drink sponsorship of NSW sports clubs, to estimate population rates of children's exposure to sponsorship messages during sporting activities.

It found Australian children are being bombarded with unprecedented levels of fast food and sugary drink advertising via companies sponsoring community sports clubs, with kids being exposed to unhealthy messages for up to four hours per week during community sport.

Lead author Dr Bridget Kelly, School of Health and Society, University of Wollongong, described this level of exposure as 'exceedingly large', with her research team staggered by the sheer magnitude of children's cumulative exposure to these unhealthy messages.

The study was released to the media following an international report that revealed Australia's adult obesity level is growing at one of the fastest rates in the world, while about one in four children are either overweight or obese.

The study, 'Population estimates of Australian children's exposure to food and beverage sponsorship of sports clubs' received widespread print and radio coverage, as well as appearing in a WIN TV news item.

To read the full study visit:

[http://www.jsams.org/article/S1440-2440\(13\)00151-5/](http://www.jsams.org/article/S1440-2440(13)00151-5/)

For more on the *Journal of Science and Medicine in Sport* visit [jsams.org](http://jsams.org)

## Discipline group news and events

### Exercise & Sports Science Australia (ESSA)

#### News:

Following on from the Sports Science Round Table that ESSA hosted in April 2014, a working group has been developed to revise the current sports science accreditation process. It is anticipated that this will ensure the sports science profession is regulated and practitioners are bound by national standards, akin to other health professions (i.e. AHPRA regulated profession and self-regulated professions such as accredited exercise physiologist). Attendees at the round-table supported ESSA taking a leading role in accrediting the sports science profession and with industry lobbying government to formally recognise the accredited sports scientist profession. The working group will commence by presenting their recommendations to the AFL and encourage AFL clubs to only employ accredited sports scientists for the 2015 season.

#### Upcoming events:

Professional development opportunity: Cardiovascular Clinical Exercise for Accredited Exercise Physiologists, presented by Professor Steve Selig. Visit [www.essa.org.au](http://www.essa.org.au) for locations and dates around Australia.

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

### Sports Dietitians Australia (SDA)

#### News:

SDA is delighted to have 'officially' launched our *Position Statement – Sports Nutrition for Adolescent Athletes* (read more on pages 54–57).

Accredited Sports Dietitians can support you and your athletes with meal planning, anthropometry and hydration testing, supplement recommendation, injury prevention and rehab nutrition, and food suggestions for intolerance and allergies to name just a few clever skills they have.

If you'd like to connect with an Accredited Sports Dietitian, learn more about what they do and the work we're doing to support committed athletes to perform at their best, visit stand #24 at the be active 2014 conference.

#### Upcoming events:

##### Nutrition for Exercise & Sport Course (1 day)

September 6, Perth

November 1, Sydney

##### be active 2014

October 15–18, Canberra. Visit us at Stand #24

For more information visit [sportsdietitians.com.au](http://sportsdietitians.com.au) or follow SDA on Twitter @sportsdietaust



## Be active



**Hamish Ashton, President of Sports Physiotherapy New Zealand (SPNZ) wants us to start thinking of exercise as a drug to be prescribed.**

Health has been described as not just the absence of disease, but the presence of physical and mental wellbeing<sup>1</sup>. Others may also add spiritual wellbeing to this definition. As far back as 2,500 years both the Chinese and Greeks believed in and practised exercises as a part of maintaining health. However, recent figures show that only 20 per cent of Norwegians, 8.2 per cent of the US, and 5 per cent of the UK

get the recommended daily dose of exercise<sup>2</sup>, and I am sure Australia and New Zealand are not much better. It is therefore not surprising that at the same time as our populations are failing to exercise, that deaths from noncommunicable chronic diseases, including cardiovascular disease, diabetes, cancer, chronic respiratory disease, hypertension, obesity, and depression, now make up as much as 60 per cent of deaths and 44 per cent of preventable deaths<sup>2</sup>. What's more, we have strong evidence that many of these chronic diseases are preventable or to a large extent are able to be well managed with exercise<sup>3</sup>.

**“We therefore need to start thinking of exercise as the drug to prescribe, and as with any drug the dosage is important.”**

Why is it then, that with this knowledge and awareness of the problem, and a readily available low cost solution at hand, as well as health policies recommending exercise (amongst other measures) as an answer, are we not showing any improvement in the situation? Some would even say the problem is getting worse. Is it a problem of policies not being implemented or the implementation not leading to change, or perhaps both?

**“... the benefit of exercising now to prevent cardiovascular disease in 20 to 30 years time is harder to visualise.”**

Matheson (2013) states that the concept of preventative medicine is hard to rationalise by the public as they have to imagine the consequence or outcome of change. An effective program must also be desirable (have an obvious positive outcome), viable (cost effective) and feasible (have the technology/knowledge to implement it). When you are sick, the outcome is clear – you will get better, whereas the benefit of exercising now to prevent cardiovascular disease in 20 to 30 years time is harder to visualise. Despite this there are good examples of preventative programs which are working e.g. screening for cervical cancer.

Those in a sports medicine team already understand the concept of prevention with athletes. They work together with the physicians, physiotherapists, conditioners and others in the team, doing their bit to improve the wellness and performance of the athlete in their care. By the time an athlete starts to compete at any level they probably have this team around them. For the general public finding a team like this is likely to be much harder. There are not many centres for wellness and health prevention programs, and those out there trying to do this tend to be weight loss or ‘alternative’ therapy centres which are not seen as credible by the medical profession<sup>2</sup>.

**“... recent figures show that only 20 per cent of Norwegians, 8.2 per cent of the US, and 5 per cent of the UK get the recommended daily dose of exercise, and I am sure Australia and New Zealand are not much better.”**

Many studies show the positive benefits of exercise on multiple health issues<sup>3</sup>. It also has minimal side effects. We therefore need to start thinking of exercise as the drug to prescribe, and as with any drug the dosage is important. There is a minimum dosage to gain an effect and this will be different depending on the age, size and health of a person. At the other end of the spectrum there is a dosage, which if passed, will do harm rather than good<sup>1</sup>. We know this with our athletes – not enough and they won’t improve their performance, whereas too much will result in overtraining, injuries or burnout. By thinking about it this way and working in an already established sports medicine team, we as a group, are in a good position to make positive health changes in the general population.

Looking back at the requirements for a successful program, we have a cost effective solution – exercise. We have the technology/expertise to implement it – sports physicians that understand exercise to assess health, conditioners to work with healthy individuals, physiotherapists to supervise adapted programs for those less healthy, and ‘Fitbits’, smart phone apps etc. to monitor activity levels and compliance. What is left is for us to create the desirability of the goal of ‘health’ as the ideal outcome to the public. If we can deliver this, we, as a sports medicine team, are in an ideal position to make positive health changes to the wider population.

#### **About the author**

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



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