Drugs in sport
Has Australian sport lost its innocence?

Going close to the line in the drug war
Dr J delves into the current performance-enhancing drug culture within Australian sport

The goalposts keep shifting—ASADA, doping and the health of athletes
An examination of the fall-out from the Australian Crime Commission report

- ASADA’s role in policing sport
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- The first Australian sports medicine centre accredited by FIFA
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OneSMA takes a major step forward

Almost three years ago I alerted SMA members through this “From the CEO” article that the SMA National Board had embarked upon a journey to change the long standing federated structure of Sports Medicine Australia to a more modern and efficient structure.

The journey has been a long and often challenging one. The Board has consulted with each and every State Board and held several member forums within most states. Since the first draft of the proposed constitution, developed almost two years ago, numerous changes have been incorporated to address the many concerns expressed by representatives of the membership.

However, the toil of trying to make change for the better, has all been worthwhile. Almost 600 members exercised their right to vote to adopt a new national constitution and the appetite for change was clearly a resounding one. Over 95 per cent of voters have indicated their desire to see change to a new and improved structure which will deliver greater efficiencies and a more consistent level of service to SMA members and the broader community across the country.

SMA President, Michael Kenihan and I have been humbled by the many emails of support and congratulations that have been received following the announcement of the ballot result. Clearly there is a large body of members who see SMA as a truly national organisation and recognise the opportunities that accompany a progressive change in structure. We thank you for your faith and look forward to communicating the next steps of this exciting phase in SMA history over the coming months.

“Over 95 per cent of voters have indicated their desire to see change to a new and improved structure which will deliver greater efficiencies and a more consistent level of service to SMA members and the broader community across the country.”

OneSMA

SMA is delighted to announce its partnership with Kinetic Orthotics, one of Australia’s leading orthotic manufacturers. Kinetic Orthotics has been manufacturing orthotics for over 17 years and has demonstrated itself to be an innovative player in the orthotic industry. Kinetic Orthotics Director and founder, Dan Everson said that the partnership reinforced the evidence based approach that Kinetic Orthotics had taken to the manufacture of orthotics and was an extension of the industry support that Kinetic Orthotics had committed to university research. SMA members can look forward to a number of exciting partnership initiatives planned with Kinetic Orthotics over the coming years to support the continued education and training of sports medicine professionals.

SMA CEO, Nello Marino announces the long awaited OneSMA ballot result and highlights SMA’s involvement in the recent senate inquiry into sport science in Australia.
Senate inquiry into sport science in Australia

Many throughout the industry would be aware of the recent senate inquiry into the practice of sport science in Australia. The inquiry follows several months of revelations relating to the administration of supplements at a number of elite sporting clubs across professional sporting codes, originally exposed through an Australian Crime Commission report.

Part of the inquiry’s focus was on the current scope of practice, accreditation and regulation arrangements for the profession, and the duty of care of sports scientists to athletes, and the ethical obligations of sports scientists in relation to protecting and promoting the spirit of sport.

Many would be aware that a number of individuals at the centre of the controversy have purported themselves to be sport scientists, however none remarkably have been members or have any affiliation with Exercise & Sports Science Australia (ESSA), Australia’s peak industry body for sports and exercise science and one of SMA’s key discipline groups.

“At the time of writing this article no recommendations had been handed down by the senate committee, however there is some confidence that a rigorous accreditation system will be established.”

SMA, along with ESSA and a number of other sports industry leaders provided evidence to the inquiry. Many of the witness presentations emphasised support for revised industry accreditation standards for sport scientists in an endeavour to provide a greater accountability to sport scientists and a clearer understanding to the community on the role of sport scientists. Critical to this is the uptake of such a system by the industry and its positioning as a minimum standard for employment as a sport scientist, particularly in elite competition codes.

SMA is strongly behind ESSA as the likely body to manage such a system and presented accordingly at the senate inquiry. At the time of writing this article no recommendations had been handed down by the senate committee, however there is some confidence that a rigorous accreditation system will be established.

In the meantime SMA continues to work closely with ESSA and Sports Dietitians Australia (SDA) on the development of protocols for the administration of supplements at the club level.

Nello Marino
Chief Executive Officer
Sports Medicine Australia
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Follow SMA CEO Nello Marino on Twitter @SMACEO

Very topical article by Dr David Hughes CMO AIS on drugs in sport, organised crime in @BJSM_BMJ http://m.bjsm.bmj.com/content/47/11/661.full – June 30, 2013

Tonight the SMA membership unequivocally voted (95% in favour) to adopt a new constitution and an even brighter future for SMA #OneSMA – June 26, 2013


Which kills more people, low fitness, smoking, diabetes or obesity? @BJSM_BMJ says low fitness beats others combined. Get active now #SMA – June 11, 2013


Great to welcome Hon Steve Dickson, Qld sports minister at 42nd SMAQLD conference. Great program, great day ahead #sportsmedicine – May 10, 2013

The Senate inquiry into the Practice of Sports Science in Australia was released today. Here is SMA’s response bit.ly/1408lJx – July 25, 2013
At The Athlete’s Foot we see all types of feet and conditions, which is why it is so important for our staff to have the best training. Our on-going training program keeps our staff up to date with the latest shoe technologies, fitting techniques and recognising when a customer needs to see a qualified Health Professional.

To support you in the care of your patients, The Athlete’s Foot have a strong referral program in place. We recognise when a customer needs to be referred to a Health Professional and when you refer patients to us, you can be confident they will get the best footwear and shoe advice for their foot type and condition.

For more information on how you can become part of our referral program, contact your local The Athlete’s Foot store.

The Athlete’s Foot is the exclusive Sports Footwear Retailer of Sports Medicine Australia.
MEMBER NEWS

SMA member news

ACSMS 2013
People love a conference in a sunny location, and they love a bargain! The close of early bird registrations for the ACSMS 2013 conference in Phuket lead to a rush of people signing up.

Conference attendance has already exceeded expectations, and with late registrations still open there’s plenty of time to book your place at what’s shaping up to be a great event.

Be sure to read through the speaker profile’s in this issue of Sport Health.

New sponsorships
Sports Medicine Australia has recently announced a new partnership with Kinetic Orthotics, who specialise in custom made foot orthotics. For more information on Kinetic Orthotics visit www.orthotics.com.au

Professor Karim Khan roadshow
The Karim Khan roadshow, which travelled to Ballarat, Hobart, Townsville, Newcastle, Adelaide, Darwin and Perth was a great success, with members enjoying Khan’s unique presentation style and the content on offer. Karim proved why he is one of the world’s most entertaining and sought after sport and exercise medicine speakers. One of the most controversial aspects of his presentation looked at eating for weight loss. Rather than a low fat high carbohydrate diet, Khan preached the benefits of a high fat low carbohydrate eating plan.

Harvi Hart awarded the Brian Sando Award.
The Sports Medicine Australia Research Foundation has recently recognised Harvi Harts research submission ‘The effects of targeted brace in people with post-traumatic knee osteoarthritis after anterior cruciate ligament reconstruction’ as the winner of the inaugural Brian Sando Award for Clinical Sports Medicine Research.

Dr Brian Sando was considered by many as the grandfather of sports medicine and recognised by his colleagues as one of the most experienced and decorated sports doctors within Australia. The SMA Research Foundation has named this award in his honour to recognise and encourage upcoming clinicians in sports medicine, something that Dr Sando was very committed to.

Congratulations Harvi. SMA and the SMA Research Foundation is committed to enhancing the health of all Australians through facilitating their safe participation in sport and physical activity, and your research is well-aligned to this vision.

British Journal of Sports Medicine
Highlights from the July 2013, Volume 47, Issue 11 of BJSM include:
- Organised crime and drugs in sport: did they teach us about that in medical school?
- Challenging beliefs in sports nutrition: are two ‘core principles’ proving to be myths ripe for busting?
- Gene doping: an overview and current implications for athletes
- Would they dope? Revisiting the Goldman dilemma
- Sports and exercise physicians as medical assessors

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Sport Health is now available to read on your iphone, ipad or android device through the SMA Member Portal, making reading a lot more convenient for those on the go. Visit sma.org.au and click through the SMA Member Portal to start reading.
Have you joined SMA’s LinkedIn group

Become connected with other SMA members via our LinkedIn page. Join in discussions, ask questions, gain advice or simply chat with likeminded individuals. Check it out at http://www.linkedin.com/groups/Sports-Medicine-Australia-4439609/about

Also stay engaged with the latest happenings at Sports Medicine Australia via the following social media channels:

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be active 2014 – save the date

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In 2014 Sports Medicine Australia will be hosting the paramount sports medicine, sports science, sports injury prevention and physical activity promotion conference event in Australia. Incorporating the Australian Conference of Science and Medicine in Sport, the National Physical Activity Conference, and the National Injury Prevention Conference be active 2014 will provide the ultimate scientific forum for professionals from many fields and disciplines to share in the latest research, practice and policies relating to safe participation in physical activity. Watch this space for more information.

Injury Prevention Initiative

Sports Medicine Australia was a pivotal member of a multi-disciplinary panel that delivered a Victorian government report into sports injury prevention.

The report, which was aimed at reducing the incidence of sports injuries among Victorians, was released by the Minister for Sport and Recreation Hugh Delahunty. The report found that each year an estimated 4500 people stop participating in five of the top team based sports due to injury, by 2020 that figure is expected to be 20,000.

“It’s important for us to take away all the barriers we can when it comes to exercise. With the current obesity crisis, more people need to be participating in sport, and they need to be able to continue playing for life,” SMA Victoria Executive Officer Lynne Sheehan said.

The report uncovered some very troubling statistics:

- FOR children under the age of 15 sports related injuries now represent four times the public health burden when compared to road trauma related costs.
- IN 2009 over 30,000 Victorians sought hospital treatment for sports related injury, 10,000 of which required hospitalisation. The direct total hospital cost was $51.8 million.
- UP to $2 billion is the estimated total burden each year of sports injuries in Australia.

The task force created a number or recommendations for improving injury prevention, which SMA will be part of implementing into the future.

More at www.sma.org.au

SMA Research Grants

The SMA Research Foundation has been established to provide support to young postgraduate researchers engaged in sports medicine and disease prevention research. Applications for the grants are now open.

SMA Research Grants which are to the value of up to $2000, are designed to support research conducted by postgraduate students and postgraduate practitioners for the purpose of advancing research in sports medicine and its relationship with disease prevention. The grant is administered by the Sports Medicine Australia Research Foundation. A finite number of grants will be issued in a regular allocation period.

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

For more information visit www.sma.org.au

* new and emerging researchers have no more than 3 years post-doctoral experience at the time of submitting their application
5 mins with… Mark Doherty
General Manager of Product, ASICS Oceania Pty Ltd

How many years have you been in this profession?
I have been doing the job I am currently in for 18 years now but have been with the ASICS brand for 33 years in total. Prior to product management, I was involved in sales and distribution of product with an ASICS distributor in South Australia.

What does your job consist of?
Mainly working with international colleagues on joint ventures. A lot of our running shoes are developed through collaboration between Europe, America and Australia. Therefore, we engage in a lot of emails, video conferences and trips back and forth throughout the year. We also have the luxury in that ASICS is quite different in this country; therefore the parent company in Japan allows ASICS Oceania Pty Ltd to do a lot of stand-alone projects for the Australian market, namely the cricket shoes, netball shoes, football boots and cross trainers.

What is your favourite aspect of your job?
It has to be seeing a brand new shoe sample come through the warehouse; the excitement is comparable to opening a present at Christmas. At the moment we are working on World Cup models for cricket, rugby and soccer so that is also very exciting.

What is the highlight of your career?
Having the first shoe I ever wanted to create be developed (the Lethal football boot) and the development of the first netball shoe. Every year there seems to be a ‘new baby’ that comes along which gets me very excited about things.

Another highlight is the Gel Noosa Tri, which was developed about 10 years ago and has since become quite an iconic shoe. It is likely that 800,000 pairs will be sold in America next year. This is pretty good for a trend (and not a performance) shoe.

It is also exciting when you see sportspeople wearing the shoes that you have worked on. You know you must have done something right.

When, why and how did you become involved with Sports Medicine Australia?
Many, many moons ago, back before electricity was invented…

Prior to moving to Sydney 18 years ago, I was working in Adelaide showing shoes to podiatrists. I became involved with Steve Saunders (physiotherapist) who was recommending ASICS shoes. Adelaide was doing very good business from medical professionals’ referrals and upon moving to Sydney I wanted to take this referral model and turn it into a national concept. At the time, a trusted colleague was on the Board at SMA and said to me that there was no better organisation to get involved with. I didn’t just want to buy a logo (like many other brands do). I wanted a working relationship which offered member feedback so we could build better shoes. I view the relationship ASICS has with SMA as not just a sponsorship; but a working relationship that ensures we gain feedback from SMA members so we are in a position to produce the best shoes for the market.

Can you give us an insight into the research that goes into ASICS footwear?
We have a Senior Coordinator of our technical/medical side of things within Australia. It is their job to oversee the work we do with universities: Melbourne University, Wollongong University, Sydney University, Gold Coast University, and the University of South Australia, where we have been involved in current and finished research grants.

Another aspect of our research is that we are quite open to SMA member feedback, meaning members can speak directly with me about an idea and you never know – it might just come out in a shoe development!
“I didn’t just want to buy a logo. I wanted a working relationship which offered member feedback so we could build better shoes. I view the relationship ASICS has with SMA as not just a sponsorship; but a working relationship that ensures we gain feedback from SMA members so we are in a position to produce the best shoes for the market.”

When, why and how did you become involved with the ASICS Conference of Science and Medicine in Sport?

ASICS was looking to hold a small boutique conference every second year that provided more visible acknowledgement of the brand and what we do for SMA members and health professionals. We wanted an event that was a lot of fun whilst also showing the type of SMA partner we were.

What are you most looking forward to at this year’s conference in Phuket?

Sun and surf.

As usual, I’m looking forward to chatting with those I’ve known for a long time and meeting new people. It’s a great chance to talk about the shoes, and receive feedback on how health professionals think our knowledge can be improved. I always value consumer feedback but even more so, health professional’s feedback. I believe we build pretty good shoes, but nothing’s perfect. We can always look at ways to make our shoes better and SMA members are an important part to facilitate this. The conference offers a great opportunity to keep the ASICS/SMA member relationship going: some of the SMA members I’ve met along the way have come to be pretty good friends.

What are you passionate about?

My shoes. I live and breathe ASICS. I am also a passionate AFL and cricket man. I love anything sport. Sport is my life. I am working in my dream job.

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

Be honest and be yourself. I don’t like the corporate way of doing business. I believe in the Australian way of openness and mateship. Someone taught me very early on that being down to earth and honest will get you across the line most of the time.

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

Jennifer Hawkins (I am absolutely besotted with her), Kate Beckinsale (I am also besotted with her), Don Bradman (I would have loved to spend some time with him) and anyone else who wants to hang out with me.

Favourites

Travel destination: London, as it reminds me of the Monopoly board. And yes, I am always the shoe when I play.

Sport to play/watch: AFL and cricket.

Cuisine: Lamb roast on the Weber.

Movie: Major League.

Song: Livin’ Thing by Electric Light Orchestra (ELO).

Book: I haven’t got time for books…

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Drugs in sport
Has Australian sport lost its innocence?

Managing Editor Daniel Hoy introduces this special drugs in sport themed issue of Sport Health.

For as long as man has tested his strength, speed and endurance in competition we’ve had athletes who have looked for anything that would give them an edge.

For some that has been different training methodologies, for others it has been performance enhancing substances.

The Ancient Greeks used plant seed extracts and mushrooms, some of today’s athletes have turned to EPO, anabolic steroids, HGH, and peptides.

Throughout history drug scandals have gripped professional sports leagues and entire countries. But in the most part it appeared that Australian sport had remained relatively clean.

That’s not to say there has never been a failed drug test in Australian sport, but we haven’t suffered from wide ranging scandals like the systematic doping of East German athletes in the 1970s or the BALCO scandal in the US in the early 2000’s.

That was until February this year when the Australian Crime Commission dropped a bombshell and released a report titled, ‘Organised Crime and Drugs in Sport.’

The ACC report described the use of peptides, hormones and drugs not yet approved for humans, by professional athletes.

The report also painted a picture of Australian sport that included widespread drug use involving scientists, coaches and players and that the practice may have led to match-fixing and manipulation of betting markets.

Former head of ASADA, Richard Ings, described the findings as “not a black day in Australian sport, this is the blackest day.”

A week before the ACC press conference the Essendon Football club invited the AFL and ASADA to investigate its 2012 supplement program.

In February Sports Medicine Australia issued the following response:

Sports Medicine Australia Chief Executive Officer, Mr Nello Marino said:

WHILST the report is focused on the football codes, it indicates a serious threat to the integrity of all Australian sports through the use of Performance and Image Enhancing Drugs (PIEDs) and the influence of unethical individuals and organised crime.

THE stakes in sport are driving some athletes and clubs at both the elite and sub-elite levels to take short cuts to peak performance and in the meantime place the athlete, club and sport under clear and present dangers.

WHILST the negative effects of many PIEDs is well known, there is limited information about the long term effects of many of the substances cited in the report and clearly in use. This is a very serious risk to the health and wellbeing of athletes.

THE report identifies that some professionals are prepared to submit to unethical behaviours by administering banned and illegal substances. These individuals should face the strongest penalties available as a means of deterring their presence in sport now and in the future.

“That was until February this year when the Australian Crime Commission dropped a bombshell and released a report titled, ‘Organised Crime and Drugs in Sport.’”

SMA provides its full support to all sporting codes in the fight against the use of banned and illegal substances in sport, and encourages all sports medicine professionals to be vigilant in their observation and reporting of suspect behaviour and practices by players, officials, other personnel associated, including sport science and medical personnel. We need to weed out this sinister element from all sport. 

THIS is a very timely wake up call for everyone involved in Australian sport not to assume that we are all prepared to follow the rules and uphold the integrity of sport in order to achieve success, and that many are prepared to put personal gain ahead of all else without understanding, or being prepared to run the gauntlet of, the consequences.

With our innocence seemingly lost, where does Australian sport go from here? In this special issue of Sport Health we’ve asked a number of experts in the field to give us their take on the scourge that is drugs in sport.
Dr J delves into the current performance-enhancing drug culture within Australian sport.

If 2013 hasn’t been the “blackest year in Australian sport” then it certainly should be seen as the year that we lost our innocence with respect to performance-enhancing drugs (PED). Prior to this year our sporting public had a general misapprehension that PEDs were taken only by athletes from “other countries”. Somehow Australia had managed to consistently produce world-class athletes who were all clean as a whistle and wouldn’t have ever thought twice about using PEDs. The fact that so many high-level Australian cyclists have eventually rolled over (years down the track) and that so many of our footballers have been prepared to admit trying to “go as close to the line as possible” with respect to PEDs has fully revealed that we as a sporting nation are not immune.

“Treating all performance-enhancing drugs as if they are the same is what is not working.”

“… if an individual athlete goes and sources peptides discretely, what hope is there of catching him or her?”

The circumstances of most sports encourage players to go “as close to the line as possible” with respect to their regular rules of competition. In the case of long jumpers, javelin and discus throwers, shot putters and cricket fast bowlers this (“as close to the line as possible”) is literally the case. In other sports it is as close to the starting gun as possible. This analogy can keep being extended. In rugby league, it is advantageous for defenders to hold and wrestle attacking players for as long as possible, just until the microsecond before the referee decides to blow a penalty for excessive holding down. Any competitor who doesn’t want to push these lines in sport is at a massive disadvantage. We also have regular debates in contact sports about how much you can accentuate illegal contact from an opponent before it becomes “diving” (e.g. cheating) and how thick an edge has to be before a batsman becomes a cheat by not “walking” if the umpire missed it.
“There are classes of drugs where WADA has had huge successes and other classes of drugs where the dopers are winning and WADA appears to have failed.”

In many of the Australian team sports we have salary caps, which assist enormously in creating even competitions where as many teams as possible can win each year. Yet the temptation to push the salary cap rules to their limits will always be there for the team administrations. For most of the years that the NRL has been in existence, a significant number of teams have copped minor fines for being “slightly” over the cap at the end of the year. There is no doubt that this gives a “slight” advantage. It is only on occasions where teams have been massively over that big sanctions have been applied. Even then, supposedly heavy sanctions have not seemed to outweigh the long-run benefit that teams have gained by creating a “winning culture” at the clubs (otherwise known as stockpiling very good players). It is well-documented that the two biggest NRL salary-cap cheating teams (2002 Bulldogs and 2010 Storm) both won legal Premierships exactly two years after their disqualifications. The shame brought to the administrators at these clubs was enough to make future administrators very wary about salary cap cheating, but the ultimate payback means that it might be seen in a similar fashion to “tax dodging”, i.e. what you get caught for is unforgivable but what you get away with is “good management”.

Sadly we have also learnt that in Australia (like most countries) the only truly unforgivable sin in sport seems to be poor performance. When Australian cricketers were getting in trouble in nightclubs with alcohol at the height of our greatness, it was passed off as larrikinism and bonding, but it is seen as a mortal sin in times when the team is not doing well (when in fact the mortal sin is losing). In all team sports the most talented players are given the most “get out of jail free” cards for off-field indiscretions. Whatever the fates of James Hird and Shane Flanagan in the ASADA investigations (which are still in limbo) when it seemed that the majority of the team was participating independently) to one who has done so out of peer-pressure (as opposed to isolated individual drug charges which suggest a system “in balance”). The worst recent exposure of mass cheating has clearly been in cycling although history

There are classes of drugs where WADA has had huge successes and other classes of drugs where the dopers are winning and WADA appears to have failed.”

Hopefuly the ASADA/AFL/NRL investigations will be resolved prior to this edition appearing in print (and by implication removing any cloud over the respective finals series), although it is quite foreseeable that this summer will be filled with various legal challenges. I don’t want to pre-empt any charges or decisions in this saga, but I can write about the various anomalies that have been brought to our collective attention. One of the first of these is the now obvious anomaly that the WADA code is primarily written for Olympic events which are mainly individual sports. If a track and field athlete decides to use PEDs it is for his or her potential benefit and at his or her own risk. The individual athlete has the option to choose his or her doctors and sports scientists (compared to team athletes where these staff are generally chosen by team administration, a third party). Cycling is only slightly different in that it is a semi-team sport. In Tyler Hamilton’s The Secret Race he details the pressure that teams put on their cyclists to use PEDs, but ultimately they still left the decision in the hands of each individual. It was very obvious though that you would end up in a non-competitive team if you didn’t choose to use, say, EPO, but no one forced you to do it. To an extent, there is some individual autonomy in a football team and for this reason no player found guilty of using PEDs in a football team can be fully absolved from blame. Everyone though can appreciate the difference in relative guilt between a football player who has individually sourced PEDs outside the club (e.g. acting fully independently) to one who has done so out of peer-pressure when it seemed that the majority of the team was participating and trusted figures had assured that the drugs involved were “not banned”. Counterbalancing this, it makes sense that use of PEDs is a ‘strict liability’ infringement, meaning, amongst other things, that ASADA does not have to prove intent to cheat. We can’t raise the bar so that intent to cheat is also required to be proven, because so few PED cheats are currently caught with the current standard. If we did, we would be offering a massive extra escape clause which itself would make cheating more attractive.

“The idea that every drug needs to be worthy of a two year ban or otherwise completely legal doesn’t make sense for drugs that are banned in some years and legal in others.”

Where we need a rethink on PEDs is that exposure of cheating en masse is a strong indicator that the system isn’t working (as opposed to isolated individual drug charges which suggest a system “in balance”). The worst recent exposure of mass cheating has clearly been in cycling although history
shows that the 100m sprint also does a good impression of being a race between dopers rather than clean athletes. What has received less attention (in Australia) has been that the Spanish legal system appears to have deliberately covered up possible widespread doping in other sports (soccer and tennis in particular) in their investigation into cycling. Another saga with many parallels to the ASADA one involves Major League Baseball and an anti-ageing clinic in Florida called Biogenesis, which allegedly supplied multiple players with HGH and peptides amongst other things. This saga is worth reading about on the internet, as it shows a slightly different system also struggling to pin charges without positive drug tests (and perhaps demonstrates that the ‘win at all costs’ sporting culture around the world encourages the use of PEDs more than we think). Whatever you think about the various cases, it is obvious that doping on masse in a sport is not a rare phenomenon and urine and blood tests aren’t guaranteed to expose doping as much as authorities would have hoped.

“Whatever the fates of James Hird and Shane Flanagan in the ASADA investigations it is blindingly clear that the Essendon and Cronulla fans will continue to hold them respectively in far greater esteem than, say, Mark Neeld and Stephen Kearney.”

Just as anti-vaccination protesters need to be reminded (and walloped over the head) about the days of childhood polio, the same logic applies to advocates of “open slather” and the 1970s women’s Olympic events dominated by systematic anabolic steroid programs administered by East Germany in particular. The recent Tour de France revelations are still not anywhere near as bad as seeing the hideous results of female doping in particular in the 1970s and 1980s. This includes a legacy of premature deaths, infertility, some suicides and loss of ‘normal’ life for many of those surviving athletes post-competition. In fact the ongoing preservation of most of the track sprint female world records from this era suggests that modern drug testing has been highly successful with respect to preventing athletes from taking artificial anabolic steroids. There would be no reason to contemplate rewinding the clock and allowing a repeat of this dark age when the modern testing regime works for this class of drugs. Doping authorities can claim an unequivocal ‘win’ with respect to artificial anabolic steroids and there could be no argument to change the rules with respect to this class of drugs (except perhaps to make bans even longer than two years).

“Sadly we have also learnt that in Australia (like most countries) the only truly unforgivable sin in sport seems to be poor performance.”

Stimulants are another class of drug where the modern testing regimes have appeared to be highly successful. Overdose deaths from stimulants appear to now be rare and there is little evidence that heavy stimulants get abused in competition, because the athletes know they will generally get pinged. The grey area for stimulants (and toughest part of the rulebook to write) are the commonly available weaker stimulants like caffeine, pseudoephedrine and salbutamol. These drugs seem to bounce on-and-off the banned list and there seem to be plenty of cases where inadvertent users (not trying to cheat and gaining minimal advantage from these borderline performance-enhancers) have been rubbed out. Then of course there are the illicit stimulant drugs which are mostly taken for ‘social’ rather than performance reasons. If I was re-writing the WADA code I would split stimulants into two categories, cordon off the heavy ones which should be fully illegal for everyone and which should lead to an automatic two year ban. I would have a different penalty code entirely for the commonly available weaker stimulants (including monitoring, warnings, target testing, bans after multiple episodes of use, medical exemptions etc.). The idea that every drug needs to be worthy of a two year ban or otherwise completely legal doesn’t make sense for drugs that are banned in some years and legal in others.

“I don’t think the future of anti-doping can be a reliance on criminal-like surveillance of athletes to pick up the usage of ‘undetectables’.”

Sadly the success of the WADA code is dismal for some other classes of drugs, particularly those connected with increasing the oxygen-carrying capacity via haemoglobin (blood boosters). Tyler Hamilton’s The Secret Race offers amazing detail about the methods that athletes can use to beat the testing regimes and still pump up their blood oxygen carrying capacity. Despite this era being a dark chapter of professional cycling, it is only so because of the cheating and covering up. The simultaneous cycling rule – which was easily policed – of a haematocrit limit of 50% actually led to a somewhat safe and level playing field. Riders who chose not to cheat in this era were horribly disadvantaged, but those who did cheat were prevented by the 50% rule from engaging in an arms race all the way to their death. The 50% rule may perhaps be a more mature way
of dealing with the phenomenon of blood doping. In other words, open slather is way too dangerous, but there are too many possible avenues to blood boosting that it appears almost impossible to police them all. Is a blanket upper competitive limit to haematocrit (and you can do what you like up to this limit) a more sensible middle ground? It would mean athletes could get their blood levels checked and use artificial means (including EPO) to pump up their red cells if below the limit. It sounds horrific to make this legal, but we are probably only one Tour de France winner post-Armstrong to get retrospectively pinged for blood doping for it to be an option that needs serious debate. There are also multiple papers published in the scientific literature (from Videman, Stray-Gunderson etc) almost proving that blood boosting is highly prevalent in winter Olympic sports, amongst medal winners particularly. It is this class of drugs where the battle seems most lost and hence where compromise rules are best debated.

“There would be no reason to contemplate rewinding the clock and allowing a repeat of this dark age when the modern testing regime works for this class of drugs.”

The other highly problematic area is the genre of growth hormone stimulants, which includes many of the so-called “peptides”. I accept that blood testing for HGH itself is promising and may reduce the abuse of this specific substance. The problem with this category is that there seems to be a limitless number of artificially-manufacturable substances that have potentially the same effect on increasing growth hormone secretion. If you ban one specific substance a pharmacologist can add or subtract a molecule and suddenly it is a different substance. This is why WADA has the “catch-all” S0 category at the end of the banned list. However by the very definition of the fact that a substance is unlisted means that it is untested for in urine and blood tests. Yes, you might (possibly) capture athletes if there is a mass usage program at a specific club and some players are prepared to own up about it, but if an individual athlete goes and sources peptides discreetly, what hope is there of catching him or her? If the answer is phone taps, what if it is done overseas on an end of season trip? Can WADA implement 24 hour surveillance for 365 days a year of all athlete activity (equally policed for all)? This is almost a rhetorical question which of course has to be answered in the negative. I don’t think the future of anti-doping can be a reliance on criminal-like surveillance of athletes to pick up the usage of ‘undetectables’. For a start, it means that in international competition, countries where police and WADA
powers were weaker/softer would have a massive advantage over countries where there was more thorough investigative powers. It would also mean athletes would shift their training bases to countries with the weakest investigative systems.

“If 2013 hasn’t been the ‘blackest year in Australian sport’ then it certainly should be seen as the year that we lost our innocence with respect to performance-enhancing drugs.”

The ‘solution’ for this category seems even harder. WADA again may need to apply some lateral thought (i.e. measuring secondary parameters) for the substances on their banned list which are “undetectable” (including anything in the S0 category). With respect to growth hormone promoters for example, perhaps hand & jaw size could be measured at the end of an athlete’s bony maturation (e.g. age 17–20) and a player disqualified permanently if these bones increase in size substantially during adulthood (indirectly indicating excessive growth hormone action). This would be a blunt instrument but may be better than trying to chase an almost infinite set of molecules that could be used to indirectly promote additional growth hormone. It might mean that someone with acromegaly could be banned from sport for being unfortunate enough to have a pituitary tumour. However, like polycythaemia vera (the naturally occurring disease of increased haemoglobin) someone with genuine acromegaly may be at much higher risk of sudden death if they compete at elite level and could be banned with this aim in mind.

“Can WADA implement 24 hour surveillance for 365 days a year of all athlete activity (equally policed for all)?”

Obviously one Dr. J column is not going to sort out the mess of performance-enhancing drugs, but one principle perhaps could. There are classes of drugs where WADA has had huge successes and other classes of drugs where the dopers are winning and WADA appears to have failed. Lock in the current rules (or even stronger ones) for the drug classes where the cheats have been nailed. But don’t treat every class of drugs as if they are one and the same. For the drug classes where the status quo appears to be widespread but unpunished cheating, lateral solutions and penalties need to be considered. Treating all performance-enhancing drugs as if they are the same is what is not working. A class-by-class strategy to re-write the rulebook has a better chance of cleaning up sport.

Dr J

The opinions expressed in Dr J are the personal opinions of the author.
If we know why athletes dope – why can’t it be stopped?

Dr James Connor from the School of Business, University of New South Wales, Canberra discusses the challenges of defining, controlling and enforcing doping practices and rules, and encourages those in the elite sports field to have their voices heard so doping policies can be influenced.

Essentially we know why and how athletes dope, so the question of why can’t we prevent it is the elephant in the room of anti-doping research, education and ultimately enforcement. Not surprisingly, this question has been a theme in much of the research on doping over the last few years. While this research has grown exponentially, just as our knowledge of how and why athletes dope and what can be done about it has, what we cannot address is the complexity of modern doping and anti-doping strategies.

“Complexity as an idea is rapidly approaching the status of a cliché; however, in the context of doping it does help us understand just why it is so hard to prevent doping. At its simplest, the idea of complexity in social systems acknowledges that increases in technology (and knowledge) make managing our existence more difficult and involved. This is primarily via the exponential increase in technology and the effects our use of it have on how we organise ourselves as a species. Perhaps the most familiar example to the Sport Health readership is the increase in complexity of training regimes and athlete monitoring programs. Previously the post-match hydration was beer in the sheds, now it is Urine Specific Gravity Testing and hydration plans – and these will change again as further study is undertaken. The use of technology and science in sport has dramatically increased the difficulty of managing athletes for peak performance, but conversely, the regimes have also improved the performance and health of the athletes. It is this increase in knowledge and technology that makes it more complex to...
achieve peak performance. Of course the increase itself is not the only part of the complexity puzzle – the rate of knowledge accumulation and technological advancement is also increasing. Essentially, increasing knowledge and technology, growing ever faster.

“At what point does the enforcement process corrupt those involved and defeat its own purpose?”

Doping in sport is illustrative of the problem of complexity. We have moved from a random assortment of substances, tried by athletes with little concern for actual efficacy or health, such as opium and strychnine (ancient Olympics onwards), to anabolic steroids, amphetamines and testosterone (post World War II), to erythropoietin, HGH and designer drugs like ‘the clear’ in the 1990s. Now, if the World Anti-Doping Agency (WADA) prohibited list is to be believed, there are a plethora of substances (and methods) available to enhance performance or that are contrary to the spirit of sport or athlete health. This includes prohibitions on manipulation of blood and blood components and gene doping. With each new drug or method there needs to be another test developed – further complicating the process.

“The power to define, control and enforce doping rules now rests with organisations whose very existence relies on the continuation of an anti-doping fight.”

The processes of detection and enforcement have mirrored the growth and variation in substances. Often, to stay within the ‘war on drugs’ trope, this is framed as an ‘arms race’ between shadowy drug labs and dodgy coaches versus the noble test developers and labs. Blood passports, a multitude of different tests and storing samples for many years all point to the challenge of traditional test based detection. Then we incorporate the latest (and more powerful or nefarious – depending on your view) ‘weapon’ in the anti-doping arsenal – investigative powers. “In an historical irony, anti-doping authorities now use a number of tactics previously employed by the Stasi to ensure the secrecy of its GDR doping programme.” The latest change in the Australian Sports Anti-Doping Authority’s (ASADA) legislative powers with their ability to compel ASP to disclose information and documents makes one question to what lengths WADA, National Anti-Doping Organisations (NADOs) and governments will go to enforce compliance. At what point does the enforcement process corrupt those involved and defeat its own purpose?

The academic research underpinning anti-doping is ever growing with an expanding list of disciplines involved beyond the first to consider the problem; sociology, psychology, sports management, medicine and pharmacology. The move to a legalistic punishment process involved the legal, forensic and criminology scholars, the advent of gene doping has drawn in the geneticists. The financial impact of sport draws in the economists and accountants. The globalised nature of both sport and its regulation necessitates international relations and public policy work. Essentially the work of all these scholars boils down to the questions of why do athletes dope, can they be detected and stopped, and should they be stopped?

“Perhaps the focus on investigative powers, enforcement and punishment – far ‘sexier’ activities detract from the needs of education.”

Intriguingly, no one in any of the fields of study is suggesting doping can be eradicated. All the work in the field is about reducing the incidence of doping. Which leads us again to the most consistent argument in the literature – should we even be trying to address doping in sport? We have arguments for a laissez-faire approach, to doped and ‘clean’ competitions, and even tighter regulation. The only idea connecting these very different threads of argument is the inevitability of doping in sport. Which, let us be frank, the pressure to cheat, push the boundaries and/or engage in ‘shady’ activities will only increase as the rewards for sporting success (money, fame) increase.
**FEATURE: DOPING – CAN IT BE STOPPED?**

“Ultimately athletes and supporters need to believe in the purpose and fairness of anti-doping or they will not be part of the process.”

Perhaps the more fascinating question to mull over is what don’t we know when it comes to doping – and why don’t we know. The key thing we still do not know, but desperately need to have a better idea on, is what is the prevalence of doping in elite sport (we know even less about rates at the sub-elite level)? Estimates of prevalence range from NADO testing results (below 2 per cent) to upwards of 70 per cent using non-testing methods in high-risk sports. Depending on the methodology, we get vastly different estimates. While there has been a range of very clever innovations in how we ask athletes about use, we still do not have any reliable measures. This is a profound problem as the response to doping in sport should be proportional to the likelihood and risk of use. If doping is in actuality a minor issue in sport – why do we suspend individual rights and so aggressively pursue it? Conversely, if it is endemic why don’t we either do more to stop it or change our entire policy response, accept doping and medically manage it? These fundamental questions about the worth of the anti-doping effort rely on the level of risk – which we just don’t know.

“Intriguingly, no one in any of the fields of study is suggesting doping can be eradicated. All the work in the field is about reducing the incidence of doping.”

We also do not know what the unintended consequences of the increasing policing and regulation of sport will be on athletes and support personnel. When you modify a complex system it is almost impossible to predict what the outcomes will be. Of course, this also applies to supplements, training regimes and other interventions designed to push performance – the complexity of the elite performance and human body/mind does not lead to neat, predictable outcomes. This is also the case with the efficacy of most of the substances. To illustrate this problem, the only reason drugs like ‘the clear’ were invented was to get around drug testing – thus the outcome of testing was to create undetectable drugs. Further, what innovation in medical research is being hampered by restrictions on use in sport? If elite athletes are like formula one race cars for innovation, but for people – then what innovation is stifled by doping rules? Are we missing generalisable medical advancements in treatment by hiding high performance research?

Notwithstanding the problems of accuracy in testing and variable enforcement of the rules the key issue that has not been addressed in the doping debate is the legitimacy of the international regulatory framework. Essentially the basis for anti-doping is shaky and poorly articulated. The three pronged justification that WADA relies upon: athlete health, fair play and the ‘spirit of sport’, have been rightly critiqued to the point where we are left with the question – why anti-doping and what is the point of WADA? The lack of belief in the integrity of anti-doping processes is the fundamental problem facing WADA and NADOs. This is not helped via blatantly unfair polices like strict liability, the constantly shifting rules around what substances are on the list, in what concentration and under what conditions, and the confusing rules regarding very similar medications (e.g. bronchodilators). The rules also need to be interpreted and enforced in a consistent and predictable manner. Ultimately athletes and supporters need to believe in the purpose and fairness of anti-doping or they will not be part of the process.
“The key thing we still do not know… is what is the prevalence of doping in elite sport?”

A constant refrain regarding research and its practical application is the gap between knowledge and policy/action. This is the case in doping research where what is generally accepted with the research community has little effect on the regulation and policy behind doping. For example, we have very good evidence that athlete support personnel (including medical practitioners) have limited knowledge of the rules around anti-doping, and in particular their responsibilities under the Code. Given the specific responsibilities Athlete Support Personnel (ASP) have in the Code (to deter and report doping) and the very real threat of sanctioning it is disturbing that so few understand their responsibilities. This yearning gap in knowledge and therefore education should be a key concern of WADA and NADOs, yet it is not. Perhaps the focus on investigative powers, enforcement and punishment – far ‘sexier’ activities detract from the needs of education. Athlete education is also very weak, with evidence that more education reduces the likelihood of doping. While ASADA has made efforts to improve education, there is certainly a lot more that could be done. The ‘chalk and talk’ approach is not how you engage athletes – especially younger ones. National Sporting Organisations (NSOs) also need to do far more education and prevention work, with the entire sportsnet, not just the elite athlete and support personnel.

“One answer to this dilemma of why WADA and NADOs appear to be ignoring the research findings in the field (especially non-testing related research) is that academics (and most other parties) no longer have a seat at the policy table. The discourse surrounding doping has been completely taken over by the anti-doping bureaucracy and related vested interests. The power to define, control and enforce doping rules now rests with organisations whose very existence relies on the continuation of an anti-doping fight. Thus it is not at all a surprise that contrary voices, be it medical practitioners calling for harm reduction approaches or players’ associations calling for athlete rights or research questioning the basis of anti-doping is ignored. The challenge for all of us in the elite sport field, as practitioners and researchers is to ensure our voice is heard and that we can influence policy.”
“Previously the post-match hydration was beer in the sheds, now it is Urine Specific Gravity Testing and hydration plans – and these will change again as further study is undertaken.”

The generation of knowledge in the field is growing rapidly, yet there are no novel insights to be had. Yes, the models of doping are being further refined; yes, we understand athlete and support personnel knowledge, behaviour and attitudes better; yes, we know how the international regulatory framework functions. Then why as a field of research do we seem to be re-treading such well-worn paths and why does this body of knowledge seem to do little? We will undoubtedly further refine the models and research, take into account emerging technologies and circumstances in sport – but ultimately the policy impact needs to be addressed.

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Dr Connor is currently the Chief Investigator on two WADA funded social science research projects

References, as indicated within the article, are available at sma.org.au/publications/sport-health
In the last few months, ‘ASADA’ has become a part of the lexicon of Australian sport. ASADA provides an insight into what their role is within the sporting industry and how they manage the risk of supplements presented to athletes.

There has been an increasing focus on supplements recently; however these products have been an issue for the Australian Sports Anti-Doping Authority (ASADA) and other anti-doping bodies for many years, both here and overseas.

To provide some background to these products in an anti-doping context, ASADA’s role is to implement the World Anti-Doping Code (the Code) administered by the World Anti-Doping Agency (WADA).

“The standard sanction for an anti-doping rule violation is a two-year ban from sport which underlines the risks for athletes.”

The cornerstone of the Code is the Prohibited List (www.wada-ama.org/Documents/World_Anti-Doping_Program/WADP-Prohibited-list/2013/WADA-Prohibited-List-2013-EN.pdf), an international standard which identifies the substances (i.e. something that has a constant chemical composition and characteristic properties) and methods (e.g. some forms of blood manipulation) that are prohibited in sport.

The List is updated annually following an extensive consultation process facilitated by WADA. It does not detail specific supplements or other products, just the substances that could potentially be used directly, or included as ingredients in these products.

A substance must meet two of the following three WADA criteria to be included on the Prohibited List:

- The substance enhances or has the potential to enhance performance.
- The substance represents an actual or potential health risk to the athlete.
- WADA’s determination that use of the substance violates the spirit of sport.

Status of supplements in sport

Whilst there are many legitimate supplements, a significant amount of athletes in Australia and overseas have been banned from sport due to some products that contain a WADA-prohibited substance.

It is estimated that there are 50–60,000 varieties of supplements alone and because they are not comprehensively regulated, including in Australia, their contents can vary from batch to batch and may intentionally or unintentionally contain prohibited substances.

“Whilst ASADA cannot advise on supplements themselves, the message we are constantly conveying to athletes and support personnel is to check with ASADA on the status of the substances they intend to use.”

Additionally, supplements may contain prohibited substances which are not named, or incorrectly named, on a supplement’s list of ingredients. This means that the ingredients on the inside may not match those listed on the outside of the package. In some cases, the undeclared substances found in the supplement can include one that is prohibited in sport.

It is for these reasons that ASADA cannot advise whether, at any particular time, a specific supplement or batch of a supplement, contains prohibited substances. It is also why ASADA, and Australia’s WADA-accredited lab, cannot provide any testing on supplements for prohibited substances, unless directly linked to a doping case. This is consistent for anti-doping organisations and labs worldwide through instructions from WADA (www.wada-ama.org/rtecontent/document/QA_Dietary_Supplements_En.pdf).

Risks to athletes

ASADA has for many years cautioned athletes considering the use of supplements and our warning is very clear—athletes who take supplements are at risk of committing a possible anti-doping rule violation.
Under the World Anti-Doping Code’s principle of strict liability, athletes are responsible for any substance found in their body, regardless of how it got there. The presence of a prohibited substance may result in an anti-doping rule violation, whether its use was intentional or unintentional.

“It is estimated that there are 50–60,000 varieties of supplements alone and because they are not comprehensively regulated, including in Australia, their contents can vary from batch to batch and may intentionally or unintentionally contain prohibited substances.”

The standard sanction for an anti-doping rule violation is a two-year ban from sport which underlines the risks for athletes. Examples of prohibited substances that have been found in supplements include, but are not limited to:

- Dehydroepiandrosterone (DHEA).
- Androstenedione/diol (and variations including ‘19’ and ‘nor’).
- Methylhexaneamine.
- Ephedrine.
- Amphetamine(s) (also contained in ‘street drugs’ such as ecstasy).

The health and welfare of athletes need to be protected at all times and the use of substances, supplements or methods that puts athletes at risk have no place in sport.

If ASADA can’t advise on supplements what can athletes or support personnel do?

Whilst ASADA cannot advise on supplements themselves, the message we are constantly conveying to athletes and support personnel is to check with ASADA on the status of the substances they intend to use. The substances listed on a supplements label can be checked with ASADA, but again ASADA can make no guarantees about a particular supplement product.

“It is for these reasons that ASADA cannot advise whether, at any particular time, a specific supplement or batch of a supplement, contains prohibited substances.”

There are several ways an athlete or support person can obtain information on the status of a substance including:

- Telephone advice service that allows individuals to check the status of substances and methods.
- Check the substances online resource to assist athletes and support personnel check the status of substances and Australian brand medications. This online search tool is not intended to cover every substance, but provides information for the most commonly prescribed, over the counter and complementary medicines in Australia.
- ASADA’s education program aims to reduce the number of athletes contemplating doping, reinforce health messages, reduce the percentage of inadvertent anti-doping rule violations and raise anti-doping awareness throughout the Australian sporting community. Last financial year 11,395 athletes and support personnel participated in online and face-to-face education activities supplied by ASADA.
- In addition to WADA’s global promotion of the List of Prohibited Substances and Methods, ASADA also promotes the List and its main changes to Australian sports and athletes each year.
- General communications to provide information to sports, athletes and support personnel. This information helps ASADA’s stakeholders understand and meet their anti-doping obligations, deter them from doping and minimise risks to their health and wellbeing.

Further information on supplements and anti-doping in general, is available for athletes, support personnel, health professionals and the general public through the ASADA website at www.asada.gov.au or we can be contacted directly on 13 000 ASADA (27232).

Sport Health would like to thank ASADA for this article contribution.
Dr James Connor examines the fall-out from the Australian Crime Commission’s report, and what it means for athlete support personal (ASP) and athletes.

The hyperbole following the release of the Australian Crime Commission (ACC) report, ‘Organised Crime and Drugs in Sport’, was a moral panic of the first order – given the complete paucity of actual evidence and arrests or ADRVs.

“Overall, we must ask if a cry wolf approach to doping investigation is an appropriate way to deal with what is apparently only a minor problem involving a few people in the major sporting leagues. The draconian powers handed to ASADA in the wake of the ‘scandal’ indicate a concerted effort by the enforcers to maintain a pall of guilt over all sportspeople and ASP.”

Claims of the darkest of darkest days in Australian sport need to be dismissed for what they are – incoherent ramblings, media ‘click-bait’ or another excuse for the global media to attack Australia’s obsession with sport. What the report, the subsequent investigations and legislative changes actually mean for ASP and athletes should be the focus; instead the trickle of salacious tid-bits has obscured the real implications for Australian sport and those involved.

The ACC report is a Caesural moment in Australian sport – it has forever changed the investigation and enforcement of anti-doping policies. The involvement of the ACC itself finalises the slow shift we have seen since the inception of ASADA. Australia’s anti-doping agency has morphed from an education, testing and sanctioning agency into one of investigation modelled on law enforcement.
The publicity approach expressly followed by the multi-Minister press conference moves us to a name and shame before charging model of anti-doping – something deeply problematic if we still believe in the presumption of innocence and any semblance of justice. Disturbingly during this period, significant change to ASADA’s powers were passed through Parliament with only limited critique and comment.

“Like all these slow encroachments on individual rights, we are assured that it will not be abused and only used sparingly; sadly the history of such changes speaks otherwise.”

The ACC made a very unusual statement at the beginning of Federal Budget Estimates in May 2013:

“What has often been missed is that the ACC report was never exclusively about criminal arrests, charges and prosecutions… An ACC Special Intelligence Operation is about understanding risk, threat and vulnerability and finding solutions to target harden the environment from serious and organised crime. In this instance, it was about hardening the industry of Australian sport from increased serious and organised criminal penetration.” In short, the expectation of the public and those within sports that such an announcement would be based on hard, actionable evidence was wrong. The ACC report was a ‘wake-up’ call to the potential risk of organised sport being targeted by criminals. Part of the justification from the ACC is that the report was designed to shake up the industry and get a response.

“The increase in ASADA’s powers are a profound and problematic change for all ASP. First, ASADA can now issue a ‘disclosure notice’ to an individual that compels them to assist ASADA with their investigations.”

In an attempt to justify the delays in the investigation, ASADA said “investigations are often a lengthy process and ASADA has a duty of care to be both thorough and accurate at every step.” Why did this not apply to the initial, world media headline grabbing claims then?

We often need a ‘crisis’ of one form or another to compel or justify change. However that same crisis can be used as a battering ram to silence critique and further the powers of vested interests. The increase in ASADA’s powers are a profound and problematic change for all ASP. First, ASADA can now issue a ‘disclosure notice’ to an individual that compels them to assist ASADA with their investigations. This can be to provide documents and/or be interviewed. Failure to comply with this notice means a daily fine of up to $5100.

The ACC made a very unusual statement at the beginning of Federal Budget Estimates in May 2013:

“What has often been missed is that the ACC report was never exclusively about criminal arrests, charges and prosecutions… An ACC Special Intelligence Operation is about understanding risk, threat and vulnerability and finding solutions to target harden the environment from serious and organised crime. In this instance, it was about hardening the industry of Australian sport from increased serious and organised criminal penetration.”

This is not just for athletes or employed support personnel but for anyone that ASADA might think could help them catch a doper – this means family, friends, social acquaintances – anybody that may have information. Fortunately the right to not self-incriminate was added to the Bill at the last moment, otherwise one of the central tenets of our legal system would have been compromised for sport. Like all these slow encroachments on individual rights, we are assured that it will not be abused and only used sparingly; sadly the history of such changes speaks otherwise.
Another change negotiated in the Bill allows medical practitioners to maintain patient-doctor confidentiality. Practitioners are now only compelled to answer questions regarding doping and do not need to disclose more general medical information on an athlete.

Of course, the question of treatment, doping, TUEs and general patient care is not addressed within the change and it will be up to doctors, ASADA and no doubt, lawyers to ascertain what patient information is relevant to doping investigations. The only protection within the Bill is that the information cannot be used against the informant in criminal proceedings (except in a case of mis-leading ASADA).

“As has been discussed before in these pages – what is worrying about the continued increase in law enforcement like powers for agencies like ASADA is how it impacts on patient care and the responsibility of ASP within their own professions.”

As has been discussed before in these pages – what is worrying about the continued increase in law enforcement like powers for agencies like ASADA is how it impacts on patient care and the responsibility of ASP within their own professions. The WADC is already onerous on the responsibilities faced by ASP – now we have further police like powers vested in an agency with little consideration of the effect that this will have on best practice treatment. Never-mind the imposition these rules will impose on all support staff.

Curiously the Senate Committee report into sports science and doping (Practice of sports science in Australia, Senate Standing Committee on Rural and Regional Affairs and Transport, 2013) took a wait and see attitude to the question of regulating the sports science industry more closely. The recommendations are toothless, with vague calls for better ethics education to address issues of cheating (consider how effective the periodic calls for ‘better ethics’ have been in the business world to change behaviour). The key recommendation – to regulate sports science – will be shelved until the ASADA/ACC investigation is complete.

Of course, with no end in sight to that investigation and the disruption of an upcoming election, this report and the recommendations will likely sink without trace – a wasted opportunity for real reform on athlete health and welfare.

“The recommendations are toothless, with vague calls for better ethics education to address issues of cheating (consider how effective the periodic calls for ‘better ethics’ have been in the business world to change behaviour). The key recommendation – to regulate sports science – will be shelved until the ASADA/ACC investigation is complete.”

Despite the ongoing media attention focused on Essendon and Cronulla and other specific individuals, there has never been evidence of widespread doping and crime in Australian sport. ASADA was at pains to assure the NRL that it was not looking at systemic club or League wide activity but “inquiries are focusing more towards a number of individuals who have acted independently”. Overall, we must ask if a cry wolf approach to doping investigation is an appropriate way to deal with what is apparently only a minor problem involving a few people in the major sporting leagues. The draconian powers handed to ASADA in the wake of the ‘scandal’ indicate a concerted effort by the enforcers to maintain a pall of guilt over all sportspeople and ASP.

Dr James Connor
School of Business, UNSW Canberra
Avoiding the supplements confusion – how Accredited Sports Dietitians can promote safe supplement use

Accredited Sports Dietitian, Alison Garth highlights the complications surrounding the underlying mechanisms of action, effective dosing protocols and potential side effects of specific supplements and emphasises the importance of seeking the correct advice.

The current supplement environment in sport is a timely reminder of the importance of engaging with a trusted sports nutrition expert to assist you and your athletes through this complex, and at times, overwhelming topic. It is worthwhile noting that currently there is no clear cut definition of the term ‘supplement’ and depending on the context ‘supplement’ could refer to vitamins and minerals, sports foods and fluids or nutritional ergogenic aids (i.e. caffeine, bicarbonate). For clarity within this article, the term supplement will refer to nutritional ergogenic aids, those products that contain nutrients or components of foods (often in large amounts) that are involved in exercise metabolism or recovery pathways.¹

“In the end, only safe and ethical practices safeguard the wellbeing and performance of any athlete.”

Owing to the lack of consistent definition, the exact prevalence of supplement use in sub-elite and junior athletes is difficult to determine. However, recent research has shown that 88 per cent of surveyed collegiate athletes consumed more than one supplement² and approximately 1.2 million surveyed children and adolescents under 18 years of age were using supplements to enhance sports performance.³ Unfortunately, the drivers and recommendations around use often come from anecdotal reports of performance gains from other athletes or affiliated staff. This, combined with a ‘fear’ of not keeping up with what competitors are using, drives the use of supplements within athletes, rather than sound scientific support.

Interestingly, although supplement use in collegiate athletes has been shown to be high, the perceived efficacy of the use of supplements by these athletes was only moderate.⁴ These key drivers present numerous challenges for professionals working in sport as training and competition requirements, physical attributes, training potential and maturity are just some of the factors which need to be considered before individualised supplementation plans can be developed for athletes.
“Long term performance outcomes are more likely to be achieved through consistent well-planned training and athlete management, rather than widespread and unplanned supplement use.”

It is important to acknowledge that different countries have varied processes regarding the regulation of the supplement industry and increasing access to international supplements through online websites increases the uncertainty of regulatory processes. Of concern, prohibited substances that have not been declared on the product label have been found in some supplements increasing the risk of an inadvertent positive doping result given the World Anti-Doping Agency (WADA) stance on strict liability.5

Similarly, monitoring and enforcement of polices regarding claims made by supplement companies is inconsistent between countries.6 Notably, many supplements do not go through rigorous scientific testing methods prior to sale on the general market and often advertising of supplements is based on anecdotal support rather than gold standard randomised control trials or meta analyses.

“… recent research has shown that 88 per cent of surveyed collegiate athletes consumed more than one supplement and approximately 1.2 million surveyed children and adolescents under 18 years of age were using supplements to enhance sports performance.”

There can also be numerous concerns if correct supplementation protocols are not followed. Creatine, for example, is a naturally occurring compound that has an important function in the production of ATP (adenosine triphosphate), an essential fuel source during short, high intensity exercise. While there is a wealth of scientific literature to suggest that creatine supplementation can improve performance in specific situations7, implementing inappropriate protocols can be counterproductive and possibly harmful. Some athletes who have a ‘more is better’ mentality may consume excessive doses. While in healthy individuals there appears to be few side effects of short term high dose creatine supplementation, the longer term safety of these practices is unclear.8 Furthermore, the potential weight gain that is associated with creatine loading protocols, although small, may be undesirable
for performance in weight dependent sports. Additionally, there are some athletes who despite persisting with supplementation may be classified as ‘non responders’ owing to their pre-existing biological profile. Finally, the source of creatine may be a cause for concern as some forms of creatine may be ineffective.

“… increasing access to international supplements through online websites increases the uncertainty of regulatory processes.”

Poly-supplementation is also an area of interest. With the broad range of products available, it is not uncommon for athletes to be consuming multiple supplements either as several individual supplements or in combination products (‘stacks’). Little is known about the interactions of many ergogenic aids. For example, does one supplement negate the need for another or conversely, in combination, do they produce an additive effect. Additionally, consumption of supplements in ‘stacks’ may result in the ingestion of suboptimal doses or even increase the risk of side effects and/or inadvertent doping.

The use of supplements in adolescent athletes is not recommended by leading organisations. Research regarding the efficacy of supplements in adolescent athletes is sparse and the safety of supplementation use in younger athletes has not been well established. Junior athletes have far more potential for performance gains through natural maturation and growth, experience and development in their chosen sport, combined with well-designed nutrition and recovery regimens. Long term performance outcomes are more likely to be achieved through consistent well-planned training and athlete management, rather than widespread and unplanned supplement use. Keep an eye out for the Sports Dietitians Australia Position Statement: Sports Nutrition for the Adolescent Athlete in the coming months for further details.

“… many supplements do not go through rigorous scientific testing methods prior to sale on the general market and often advertising of supplements is based on anecdotal support rather than gold standard randomised control trials or meta analyses.”

As this article highlights, understanding the underlying mechanisms of action, effective dosing protocols and potential side effects of specific supplements can be complicated. The expertise of an Accredited Sports Dietitian should be considered an essential component of your team to ensure that appropriate, individualised recommendations are provided to athletes, coaches and support staff.

Accredited Sports Dietitians are qualified dietitians with further training and practice experience in sports nutrition. They are at the forefront of evidence-based, scientific nutritional support and participate in a rigorous assessment process to attain their qualification and be recognised as such, through Sports Dietitians Australia’s (SDA) Career Development Pathway. This includes regular audit and re-accreditation every three years.

SDA’s Career Development Pathway is highly regarded and valued by its members, and is recognised nationally and internationally. It sets the benchmark for knowledge and practical experience required to be called an Accredited Sports Dietitian. Further, members with higher level academic qualifications and practical experience are recognised as Advanced Accredited Sports Dietitians.

The network of Accredited Sports Dietitians is strong and collegiate, with nutrition best-practice information and ideas shared freely, ensuring integrity and a high moral compass amongst the SDA membership. In the end, only safe and ethical practices safeguard the wellbeing and performance of any athlete.

Alison Garth
Accredited Sports Dietitian
Consultant Sports Dietitian to SDA

References, as indicated within the article, are available at sma.org.au/publications/sport-health
Your annual report
Brought to you by Papercut

Your annual report is arguably the most important document your company publishes. It’s vital that it is clear, accurate and readable and that it adheres to financial regulations.

Here are some tips to ensure yours is all that and more:

- **Design:** Your designer will need to know the structure of the report and what content should be included in the design. A concept that demonstrates the cover design and internal layout should be developed for your approval first up.

- **Style:** Advise your designer early on if your annual report needs to comply with a style guide. Styled section breaks, tabs, large page numbers and colour coding can help the reader navigate your report easily.

- **Format:** Australian federal government annual report formats must be B5 portrait (250mm high x 176mm wide) to meet tabling requirements. If you are not a government department then you can choose any format you like, however staying with standard formats such as B5 and A4 will be the most economical to publish.

- **Editing:** Investing in a professional editor will ensure that the text for your annual report is the final draft – ready for the designer to layout, and a thoroughly edited report could save money in author revisions after the layout has been done.

- **Text:** Ideally, final text should be supplied to your designer in MS Word. Any tables should be part of the MS Word document, rather than dropped in as images of MS Excel tables. Track changes should be accepted and dealt with before supplying the final text to your designer.

- **Images:** Images will make or break a report, and good quality images should always be supplied as high resolution (300dpi) JPEG or TIF files. Files smaller than 1 megabyte may not print clearly. Images taken from the web are only ever good to go back on the web and are not suitable for print.

- **Indexing:** This is a specialised last stage component that is generally outsourced to an indexing professional. Most designers can help you to arrange this service. Financial pages are not indexed, so they don’t need to be in place when indexing is done. However, the indexer will need to know how many pages to allocate to financial information before they can start.

- **Figures:** Graphs, charts and figures created in MS Excel can be recoloured and formatted in specialised design programs. If you supply files in MS Excel your designer will be able to style them to match the report.

- **Financial pages:** Financial reports are best supplied as PDF files and are placed into the document exactly as supplied. Although they cannot be formatted to match the rest of the document, the designer can outline them with a fine line or drop shadow to indicate that the pages have been inserted.

- **Accessibility:** Have you addressed accessibility for your report on the web? There are a number of file types that possess accessible features that are regularly used. HTML is the preferred format for government. Accessible tagged PDF or Word files are an alternative. Look at your audience and decide on the best solution for your company to ensure you have considered accessibility for your viewer.

For more information please visit our website at www.papercut.net.au and download our free Annual Report Guide.

Papercut offers a wide range of creative services including graphic design, web design and development, brand, concept and strategy development and print management. Papercut are a Government preferred supplier and serve many small business clients locally and nationally. We are committed to our clients and offer exceptional quality, flexibility, and fast turnaround times from a small and friendly team. Papercut are strongly committed to the environment, and assist clients to reduce their carbon footprint by choosing environmentally responsible suppliers and products while operating business from a sustainable studio.

For more information visit www.papercut.net.au
What’s in a name: the confusion surrounding position titles

Brought to you by Sportspeople Pty Ltd

After working in the recruitment industry for close to a decade, I thought I’d heard it all. That was until a colleague recently suggested we change a position title from ‘Coordinator’ to ‘Administrator’ in order to attract someone more senior. When I started my training back in 2004, I was provided with organisational charts that read something like this: (lowest to highest ranking) Administrator, Officer, Coordinator, Team Leader, Manager. Therefore when being presented with the idea that an Administrator position was more senior, it truly blew my mind!

“… nothing is more important to a job seeker than position title, location and remuneration.”

I then took this idea to Facebook with a quick poll asking respondents to rank the position titles. The only consistency here was the inconsistency in answers. Many respondents insisted that Coordinator was the most junior position title and others disagreed. Some even noted they have had all these position titles in various organisations with practically the same level of responsibility.

When recruiting at any level the aim is to attract qualified, experienced and highly skilled candidates. The issue here is, as employers become more creative with position titles in order to attract the best candidates, (I’ve even seen Receptionist positions titled ‘Director of First Impressions’) the end result is candidate confusion. So how do candidates know when an advertised position matches their desired level of responsibility? The answer is most often remuneration. While all the other information in the job advertisement is important, nothing is more important to a job seeker than position title, location and remuneration. While position title and location are always mentioned, too often remuneration is overlooked by employers as not being a critical element in the job advertisement. Analysis of positions listed at the Sportspeople Jobs Market over the years has consistently shown advertisements specifying the remuneration level receive more views as well as applications from more relevant candidates.

“As remuneration is a key element for most job seekers it makes good sense to provide an indicative range when advertising a position. The Sportspeople Jobs Market, like many other job-boards, requires salary as a mandatory field, although advertisers can elect to make the salary public or keep it ‘secret’. It is recommended to display the salary whenever you can and check out other similar positions currently being advertised to determine whether your salary is at an appropriate market level. For example, if you have a Sports Trainer position paying $20 per hour and there’s another ten Sports Trainer positions paying $50 per hour, you may need to shift your expectations. Importantly as the minimum superannuation guarantee increases over the next six years, we also suggest the base amount is provided separate of the superannuation component.

The information collected from the Sportspeople Jobs Market is consistent with the advice Sportspeople has provided in the past. Candidates self-screen and therefore are more likely to view advertisements and express an interest in jobs where the remuneration is stated. Although an exciting position title may seem the way to attract the best candidates, for almost any position clearly stating the remuneration level continues to assist the recruitment effort.

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
Are you puzzled with the status of the staff you hire?

Brought to you by Davidsons

It is not an easy task for small business owners to work out whether the staff they hire are employees or contractors under the current law.

So what’s the difference between an employee and a contractor and what responsibilities lie with employers if contractors are in fact employees?

Generally speaking an ‘employee’ is a person contracted of services and a ‘contractor’ is contracted for services. Sound confusing? That’s because it is.

The distinction is quite complex and is not black and white, however it is one which can have vast impacts when it comes to the following areas:

- Payroll tax.
- Pay as you go withholding.
- Superannuation.
- Fringe Benefits Tax.
- Pay and leave entitlements.
- Workcover.

It is an area that is extremely topical of late with the Australian Tax Office and Fair Work Australia continuing to place more emphasis on the importance of this distinction.

July 21, 2013 marked the due date of the first new reporting requirements as part of the building and construction industry. These changes were announced as part of the 2011/12 Federal Budget and required a number of discloses in regards to payments to contractors. Whilst this is only in relation to the building and construction industry, it is believed that this is only the tip of the iceberg and before we know it, it will have a widespread application across many industries.

The Australian Taxation Office has provided some guidance when determining whether a person is an employee or a contractor. The guidance includes giving consideration to the following factors:

Control – how the control is exercised during the performance of the work.

Integration/Organisation – the usual place the person performs services.

Results – whether the contract provides for the achievement of a specified result and how the fee payable for the outcome is calculated.

Right to delegate – can the person delegate or subcontract the work to a third party.

Risk – is there a responsibility for risk that lies with the person.

Tools and equipment – is the person required to provide his own tools and equipment or has the employer provided the tools and equipment to the person during the performance of the services.

Uniform – whether a person is required to wear a company uniform.

These are not definitive factors and the facts of each individual case need to be considered as a whole.

So are you or your staff an employee or a contractor?

If you are still unsure of the answer, or would like some further assistance, please contact us on 03 9699 9422.

Davidsons Accountants and Business Consultants specialise in a range of service offerings of Tax, Audit, Financial Services, Personal Insurances and Self-Managed Superannuation. For more information visit www.davidsons.com.au or follow Davidsons on Facebook and Twitter.

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Keep your eyes on the prize.
Brought to you by Great 2 Tweet U

When you first take the plunge and start using social media to connect with clients and market your business, there are three things that should be at forefront of your social media plan. Those three things can be described in three simple words.

**GOALS  CONTENT  EVALUATE**

**Goals**

You wouldn’t start a business without having some hard and fast goals. The same goes for social media. If you don’t know what you’re trying to achieve, how will you actually achieve anything?

A lot of people new to the medium make the mistake of getting caught up with likes and followers. While this is an easy way to see if you’re page, or account, is creating a bit of momentum, focusing purely on numbers is a mistake.

If you have 1000 likes on your Facebook page, but only 10% of those likers are actively engaged in your product or service, what’s the point?

But if you have 300 likers, 80% of who are actively re-posting, commenting and sharing, the real benefits of having a social media presence will become clear.

Shares and comments are a better way to gauge your social media success. And if you’re content is being shared, then the likes will follow.

**Content**

Good content is what engages followers and helps you grow. Treat your social media as a news outlet; it’s a way for you to communicate with your customers and clients.

Breakdown the week into themed days, this means you’re adding content regularly and posting something at least once a day.

Your themes could include; tip of the day, Friday funny, weekly promotion, etc. Deciding what you focus on each day is entirely up to you.

Also make sure if something “news-worthy” happens during the day that you post or tweet about it. Don’t make the mistake of constantly posting “special deals.” Facebook especially is like being in a room with a group of friends, you wouldn’t walk into a room and start telling everybody what specials you have this week.

Also using photographs is a great way to add further interest and engage.

**Evaluate**

This is an important step many users’ new to social media neglect. At the end of each month check your posts and tweets, see which ones were shared the most or received the most likes. This process will help you streamline your content; continue to post similar items to your most popular weekly content.

Remember “you have to give the people what they want.”

Great 2 Tweet U are the social media specialists who manage your Facebook and Twitter presence. Headed by Daniel Hoy, a journalist with 15 years’ experience, they can help you to produce a consistent, well planned message that helps grow and promote your brand. Drive sales, build brand awareness, increase customers or simply connect more regularly with the customers you have. For more information email daniel@great2tweetu.com.au
Asics Conference of Science and Medicine in Sport 2013 speaker profiles

Keynote speakers

Professor Per Aagaard

ACSMS 2013 presentations:
- Neuromuscular plasticity to training: Spinal and supraspinal adaptations.
- Hyperactivation of skeletal muscle stem cells by means of blood flow restricted resistance exercise: Implications for muscle hypertrophy in sports and the clinical setting.

Professional positions:
- Professor in Biomechanics and Head of the Muscle Physiology and Biomechanics Research Unit at the Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark.
- Guest Professor at the Institute of Neuroscience and Physiology, Department of Clinical Neuroscience and Rehabilitation, Sahlgrenska Academy, University of Gothenburg, Sweden.

Research interests:
- Adaptive change in neuromuscular function and muscle morphology/architecture induced by training and detraining/inactivity, including ageing and immobilisation.
- Effect of resistance training on musculoskeletal health and neuromuscular function in young and old adults, myogenic stem cell activation with acute exercise and long-term training, antagonist muscle coactivation, spinal motor function during walking and running, in vivo muscle-aponeurosis-tendon function, knee ligament (ACL) injury, muscle-tendon injury, tendinopathy, and exercise/training/biomechanical analysis in elite sports including aging master athletes.

Professor Jiri Dvorak

ACSMS 2013 presentation:
- Football for health – a global health initiative of FIFA.

Professional positions:
- Professor at the University of Zurich.
- Senior Consultant in Neurology at the Schulthess Spine Center in Zurich.
- Chief Medical Officer to FIFA.
- Chairman of F-MARC (FIFA Medical Assessment and Research Centre).

Research interests:
- Prevention of communicable and non-communicable diseases using the popularity of football within a larger project, ‘Football for Health’.

Dr Matthieu Saily

Australian Institute of Sport Supported Speaker

ACSMS 2013 presentations:
- Pubic apophysitis – a forgotten clinical entity of groin pain in athletes.
- Osgood Schlatter Disease – an ultrasound grading system with practical application.

Professional positions:
- French Sport Physician.
- Sports Physician at the Centre Biologie et Medecine du Sport at Pau (Sports Medical Centre) developing PRGF use in sport injuries.

Research interests/experience:
- MSK ultrasound.
- Growth related injuries and sport issues on immature athletes in various sports including football, athletics and squash.
- Development of long term athlete strategies.

View more information on ACSMS 2013 speakers at sma.org.au/conference/speakers/
Refshauge Lecturer

Mr Craig Purdam
Australian Sports Medicine Federation Fellows Sponsored Speaker

ACMS 2013 presentations:
- Tendinitis to tendinopathy: The past, present and future of an ongoing challenge in sports medicine.
- Examination and management considerations in the chronic, recurrent hamstring strain.

Professional positions:
- Deputy Director – Athlete Services and Head of the Physical Therapies unit at the Australian Institute of Sport.
- Adjunct Professor to the University of Canberra.
- (Honorary) senior fellow at the University of Melbourne.

Research interests:
- Tendinopathy.
- Chronic hamstring injury and tissue loading.
- Adaptation and healing mechanisms.

ACMS 2013 conference highlights
1. Hands-on diagnosis and treatment workshops.
2. Group discussions on the latest interventions and techniques.
3. The latest in multidisciplinary sports medicine, sports science, injury prevention and the promotion of physical activity with free papers covering: upper limb, lower limb, physical activity and communities, sports cardiology, clinical exercise physiology, sports biomechanics and skill acquisition, injury prevention, exercise in the heat, knee, nutrition, exercise science, back and hamstring, physical activity – children and adolescents, sports and health psychology, injury and football codes, physical and older adults, clinical and cutting edge, and sport studies.
4. A unique opportunity to network at the following social events:
   - Welcome Reception
   - ASMF Fellows Dinner
   - Scientific Poster Session
   - Discipline Group Dinners
   - Conference Dinner.
5. Plus the opportunity to explore the culture and beauty of Thailand.

Register now at http://sma.org.au/conference/

Invited speakers

Professor Kim Bennell
ASICS Sponsored Speaker

ACMS 2013 presentation:
- Maximising joint health: Preventing and managing knee osteoarthritis in the athlete.

Professional positions:
- Professor of Physiotherapy and Director of the Centre for Health, Exercise and Sports Medicine in the Department of Physiotherapy, University of Melbourne.
- Australian Research Council Future Fellow.

Research interests:
- Understanding biological factors contributing to disease pathogenesis, developing and evaluating novel conservative non-drug interventions, and elucidating mechanisms that underlie treatment efficacy for chronic musculoskeletal conditions particularly osteoarthritis.
- Interventions including exercise, insoles, footwear, physiotherapy, bracing, taping and pain coping skills training.

Dr Charlotte Suetta

ACMS 2013 presentation:
- Changes in muscle power and postural control after immobilisation and re-training: Effects in young and old individuals.

Professional position:
- MD.

Research interests:
- Changes in muscle function with aging, inactivity and physical training.
- Changes in muscle morphology, neuromuscular function and muscle mechanical properties with disuse related inactivity in elderly patients as well as effects of different rehabilitation regimes in elderly patients after hip-surgery
- Modulation in cellular signalling pathways involved in the initiation and temporal development of human disuse muscle atrophy, and specifically examining if ageing affects the molecular regulation of human disuse related muscle loss and the sub-sequent ability to regain muscle mass.
**REGISTRATION FORM**

**ASICS CONFERENCE OF SCIENCE AND MEDICINE IN SPORT**

**CONTACT DETAILS**

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**Special Requirements - Dietary, Physical etc**

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**REGISTRATION FEES**

**Sports Medicine Australia Membership**

Join SMA now to be eligible for one of the ASMF Fellows awards. Conference awards are only available to SMA members. Joining fee of $40 waived for Conference delegates. SMA membership is open to anyone with an interest in or direct involvement with sports medicine, sports science, physical activity promotion or sports injury prevention and a minimum three year full time tertiary degree (or studying full time for a degree for student membership).

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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.

Registered delegates receive access to all sessions being offered during the conference. Delegates also receive lunch, morning and afternoon teas, entrance to the Welcome Reception, Poster Session and Conference Dinner, entrance to the Trade Exhibition, a detailed Conference Program, and a Conference booklet.

**Social Program**

Costs are included in the registration fee unless otherwise noted above. For catering purposes please Tick □ if attending.

- Welcome Reception (Tues 22 October)
- ASMF Fellows Dinner (Wed 23 October) (open only to ASMF Fellows)
- Conference Dinner (Fri 25 October)

**Pre Conference Workshop**

FULL - Tendon Workshop (Tuesday 22 Oct, 9:30am - 5:00pm)

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First Australian sports medicine centre accredited by FIFA

Dr Andrew Jowett (second from left) accepting OPSMC’s FIFA Medical Centre of Excellence accreditation.

Sport Health interviews Dr Andrew Jowett, Sport and Exercise Medicine Physician and Clinic Director at Olympic Park Sports Medicine Centre (OPSMC). OPSMC is the first Australian sports medicine centre accredited by FIFA to join a prestigious list of 32 other medical centres and clinics worldwide, to provide excellence in care to footballers and support the work of the FIFA-Medical Assessment and Research Centre (F-MARC).

Can you provide Sport Health with Olympic Park Sports Medicine Centre’s background?

Since 1987, OPSMC (which started as a collaboration with the Australian Sports Medicine Federation to provide multidisciplinary sports medicine care), has become an internationally renowned multidisciplinary sports medicine clinic that provides care to all levels of sportspersons from the ranks of amateur athletes to Olympic Champions. OPSMC has three campuses located at Olympic Park, East Melbourne and Geelong.

Who is your client base?

OPSMC practitioners assist:
- Active individuals.
- Elite athletes.
- Teams, coaches and training staff.
- Children and parents.
- Employers and employees.
- Non-sporting individuals.
- People with disabilities.

We mainly treat your average active community members involved in amateur and recreational sports and activities. We also see elite athletes from time to time (mainly in the form of specialist appointments); however members of professional teams will most likely be treated in the team environment.

What specialists does Olympic Park Sports Medicine Centre employ?

OPSMC has around 70 specialists over the three locations spanning: sports physicians, physiotherapy, clinical Pilates, women’s health physiotherapy, podiatry, soft tissue therapy, sports and performance psychology, nutrition, exercise physiology, sports cardiology, tennis specific MSK screening, cycling set up, hand therapy and orthopaedic (surgical) services.

Their management of injuries may include:
- Assessment of movement, including video analysis.
- Assessment of equipment, e.g. bikes, football boots.
- Exercise programs for stretching, strengthening and flexibility.
- Consideration of medical related conditions, such as asthma and diabetes.
- Advice on lifestyle requirements such as nutritional and psychological guidance.

“In terms of the ‘game’ of football, we are seen as novices. Similarly in football medicine we are also seen as novices… However, there is a perception we are trying to change…”

Congratulations on your recent accreditation as one of FIFA’s Medical Centres of Excellence. Can you give us an insight into what this means?

Thank you. We received the Centre for Excellence title last year, and it was launched in March this year.

The aim of the worldwide network of FIFA Medical Centres of Excellence is to improve the healthcare of football players and other athletes at every single level of the game through knowledge.

The Centres promote the philosophy of injury prevention and uses the power of football to contribute to the improvement of public health to tackle the ‘Unhealthy triad – fast food, soft drinks and physical inactivity’ leading to overweight, diabetes and other non-communicable diseases in young adolescents. FIFA therefore accredits established centres that have demonstrated their leadership in football medicine.
“This accreditation provides footballers in Victoria with access to the expertise of the wider network of FIFA and F-MARC… this may start a wave of similar processes in other sports…”

How did this come about? What was the process for accreditation?

Once I finished with the Socceroos (Andrew spent 10 years as the Socceroos doctor) I stayed involved with football as an advisor to Football Federation Australia (FFA) and the Football Player’s Association. Through my involvement, I was aware of the Medical Centres of Excellence program and was invited to put in an application. This was supported by FFA who were keen to have an Australian centre recognised. Once the application was submitted the turnaround time for OPSMC to gain accreditation was roughly 18 months.

All Centres have to undergo a strict selection process. Accreditation is granted for a period of five years during which all Centres report annually on their activities. This involves a detailed submission of the activities of the clinic specifically as they relate to football, covering the following areas:

- Clinical expertise.
- Team physician experience.
- Prevention.
- Research expertise.
- Management of football events.
- Other football-related programs.

What is Olympic Park Sports Medicine Centre’s history with football?

Since the qualifying matches of the 1956 Olympic Games, football has enjoyed a long history at the Olympic Park precinct. As the only FIFA recognised soccer stadium in Australia, Olympic Park hosted a number of international football matches. In total, Australia played 34 internationals (including six World Cup Qualifiers) at Olympic Park for 11 wins, 11 draws and 12 losses. Teams such as Chelsea, Everton and other top European clubs also took on the Aussies and the Vics. Meanwhile, various state based and local competitions as well as the National Soccer League utilised the field for decades. It was even the site for a one-off charity match between a select VFL team led by Jack Dyer and a VFA team led by Jack Salvia – Port Melbourne.

Then, with the advent of the A-League in 2005, Melbourne Victory exploded onto the sporting scene in front of capacity crowds at Olympic Park Stadium. Whilst Victory outgrew Olympic Park Stadium after a couple of seasons, the club maintained an administrative presence at Melbourne Park and continued to utilise Olympic Park and Gosch’s Paddock as a training base. Victory also has a women’s team in the W-League, which occasionally play their matches at Olympic Park.

OPSMC’s involvement with football also grew from the mid-1990s when I spent 10 years as the Socceroos doctor leading the World Cup in 2006. I was succeeded by Dr Peter Brukner who then was involved in the campaign through to South Africa 2010. OPSMC now provides medical services to Melbourne Victory Football Club. A number of our physiotherapists are also involved with teams including some at community level.

“FIFA accreditation means recognition for OPSMC and sports medicine in Australia in the football world.”

What does the FIFA accreditation mean for Olympic Park Sports Medicine Centre?

FIFA accreditation means recognition for OPSMC and sports medicine in Australia in the football world.

It provides a vehicle for us to be involved in:

- Providing high level sports medicine care and education to footballers in our region.
- Dialogue and research to access and engage with Asia and the Asian football community.
- Research with some international collaboration.
- Opportunities with the FIFA Medical Network, for example conferences worldwide.
- The roll out of FIFA’s message i.e. The FIFA Medical Committee and F-MARC have clear goals: to protect the health of the 265 million players worldwide, to promote football as a safe and healthy leisure activity, and to develop its contribution to world health.
- The concept that injury prevention is possible.
- Football for health and education.

What does this centre mean for football within Victoria/Australia?

This accreditation provides footballers in Victoria with access to the expertise of the wider network of FIFA and F-MARC.
We are also looking to engage players at a community level to pass on the messages of injury prevention; continue to develop and enhance the medical program at Melbourne Victory; provide medical/paramedical staff for the Australian representative team; and we hope to be involved in the Asian Cup in 2015.

For more information on the FIFA Centre for Excellence program visit http://www.fifa.com/aboutfifa/footballdevelopment/medical/aboutus/excellencecentres/index.html

“The honour of being accredited as Australia’s first FIFA Medical Centre of Excellence is both recognition of the practitioners who make OPSMC a leading multidisciplinary sports medicine centre and a challenge to contribute to the wider football community in education, training, research and quality care.” – OPSMC Director, Dr Andrew Jowett

How do you think Australia is perceived in relation to football sports medicine on a world scale?

In terms of the ‘game’ of football, we are seen as novices. Similarly in football medicine we are also seen as novices, although there is worldwide recognition for our work in sports medicine generally, especially our work in concussion and its research and management programs. However, there is a perception we are trying to change through our FIFA Medical Centre of Excellence work and the conferences we attend (Andrew is hoping to present at the next FIFA conference in Milan next year).

“The aim of the worldwide network of FIFA Medical Centres of Excellence is to improve the healthcare of football players and other athletes at every single level of the game through knowledge.”

We can take our direction from the current leaders in football sports medicine: the Scandinavian countries particularly Norway with football being their number one sport and their medical research being top quality, and Spain with its fantastic research centre in Barcelona.

Where to from here?

OPSMC is developing relationships with the University of Melbourne through its Western Clinical School and Victoria University to foster research projects.

It provides expertise in managing football injuries and a centre that will pass on the messages of FIFA to the football community.

Do you think this will be the start of other Australian football centres being accredited?

Perhaps, more importantly, this may start a wave of similar processes in other sports, which I believe is really important. There is no reason why other sports can’t develop a similar platform and engage sports medicine centres/providers to do a similar sort of thing to look after their players and community. Why couldn’t you have a netball accredited Medical Centre of Excellence? Given how competitive the sporting market is becoming, this would be a great model to follow.

FIFA is quite an exhaustive process, there are 33 centres around the world so I am not sure there would be much benefit to another football centre within Australia, but it is certainly possible. The Asian Cup which is being held in 2015 may present some opportunities.

For more information on the FIFA Centre for Excellence program visit http://www.fifa.com/aboutfifa/footballdevelopment/medical/aboutus/excellencecentres/index.html

Dr Andrew Jowett
Sport & Exercise Medicine Physician
Medical Director OPSMC
MB BS MSc (Sports Med, Uni of London)
Hons FACSP

Andrew assists members of the general public achieve their sporting, health and fitness goals by drawing upon his expertise at the elite level. Andrew has special interests in sports such as all football codes, baseball and throwing sports as well as musculoskeletal problems such as exercise-induced leg pain, groin pain, tendon problems and shoulder pain. His Master’s research was into compartment syndrome and he continues to develop research into groin pain. Over the past five years he has also developed his expertise in the use of the Dolorclast radial shockwave unit for treatment of tendinopathy at OPSMC. Andrew remains a medical advisor to Football Federation Australia having retired after 10 years (and three world cup campaigns) as Socceroos doctor. He is a Fellow of the Australasian College of Sports Physicians as well as holding affiliations to Sports Medicine Australia and the AFL Medical Officers Associations both as a member and on the executive.
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The Worlds Most Protective Mouthguard........ At Your Convenience
Matthew Dunn, School of Health and Social Development Deakin University, looks at the new wave of synthetic drugs and the implications for professional athletes.

Legal highs. Herbal highs. Party pills. Synthetic LSD. The media has made reference to a variety of substances using a variety of these names. The recent death of a Sydney teenager, who jumped off a balcony allegedly under the influence of synthetic LSD, has put these substances further into the spotlight. It may be easy to think that this is not an issue for sport, but it is. As the current investigations into the alleged use of peptides and hormones in various sporting codes show, athletes exist in the real world and the sporting world, and there can be unpleasant and unexpected ramifications when these two meet.

“A survey of elite athletes in Australia found that 8% of athletes had used one of six illegal drugs in the past year.”

“However, two-fifths of the Australian general population have used an illegal drug at some time in their life, and approximately 15% have used an illegal drug in the past year.”

So what are these substances? My colleagues and I have been using the broad term ‘emerging psychoactive substances’ to encapsulate any of these new synthetic substances. This can include synthetic cannabinoids, such as Spice, K2 and Kronic; synthetic stimulants, such as mephedrone and methylone; and synthetic psychedelics, such as 2C-I and 2-CB. In essence, these substances are designed to be similar to banned substances such as cannabis, methamphetamine, MDMA or LSD. In some cases, such as synthetic cannabinoids, they are structurally dissimilar from the chief psychoactive compounds they are designed to ‘mimic’, but produce similar subjective effects. Regardless, these substances are designed to produce similar effects to substances that are illegal, all the while by being legal themselves.
“The message to athletes is this – if you choose to use these substances, you may pick a legal one or you may pick an illegal one. Do you really want to test the law? Furthermore, as the recent peptides saga has demonstrated, there is the ‘law’ and then there is the ‘sports law’. While these substances may not be on the Prohibited List, they may fall under the S0 clause.”

These substances are not new – they have been around for the past 10 years. However, they are expanding onto the market at a rapid pace. In Europe, the estimation is that there is one new substance arriving on the market each week. The response world-wide has been to enact bans each time a new substance is detected. A federal ban was enacted in Australia in June on 19 synthetic drugs for a period of 120 days, to allow time for the states and territories to try and come together for a coordinated legislative response. The problem with this response is that when one substance is banned, another takes its place. These substances are designed to circumvent the laws. This, in turn, provides confusion to the average person on the street. Are these substances legal or illegal?

To many, this question is irrelevant. Generally, people indicate a desire not to use psychoactive substances. However, two-fifths of the Australian general population have used an illegal drug at some time in their life, and approximately 15% have used an illegal drug in the past year. Clearly, there is demand for these substances. People may choose not to use illegal substances because they are illegal; but what if they were legal?

“These substances are not new – they have been around for the past 10 years. However, they are expanding onto the market at a rapid pace. In Europe, the estimation is that there is one new substance arriving on the market each week.”

These emerging substances have been marketed as legal alternatives to illegal drugs. In some instances, this is correct; the substance being sold has not been regulated. In some instances, this is incorrect; the substance being sold is similar to a substance that is already illegal, and thus it too is considered illegal. In some instances, it may be legal in one country but illegal in another. The marketing of these substances as ‘legal’ appeals to those who wish to use a psychoactive substance but do not want to break the law. That these substances can be purchased over the Internet also increases their potential appeal; however, data from Australia suggests that the online availability of these substances has been overhyped in the media, and many who use these substances purchase them from shops or from their sources of illegal drugs.

So what implications does this have for athletes?

Firstly, the legal status of these substances is not as clear cut as it is for substances such as ecstasy or cannabis. The message to athletes is this – if you choose to use these substances, you may pick a legal one or you may pick an illegal one. Do you really want to test the law? Furthermore, as the recent peptides saga has demonstrated, there is the ‘law’ and then there is the ‘sports law’. While these substances may not be on the Prohibited List, they may fall under the S0 clause.

“These substances are designed to circumvent the laws. This, in turn, provides confusion to the average person on the street. Are these substances legal or illegal?”
Secondly, athletes do use illegal drugs. A survey of elite athletes in Australia found that 8% of athletes had used one of six illegal drugs in the past year. There are various reasons for illegal drug use among athletes. Some may use because they enjoy the effects. Some may use because of mental health reasons. Some may use because they are curious. In the absence of any data, the reasons why an athlete may use illegal drugs could be considered to be the same for these new substances.

“In some cases, such as synthetic cannabinoids, they are structurally dissimilar from the chief psychoactive compounds they are designed to ‘mimic’, but produce similar subjective effects. Regardless, these substances are designed to produce similar effects to substances that are illegal, all the while by being legal themselves.”

The third reason combines the first and second. One of the major concerns regarding these synthetic substances is that those who work in occupations where drug screening occurs may switch to these substances to avoid detection. A recent survey of synthetic cannabinoid users in Australia found that 8% reported using these substances for this reason. Athletes may use these substances to avoid detection in screening by doping controls.

When it comes to substance use, we cannot bury our heads in the sand and pretend it doesn’t happen. What we need to do is have open dialogue with athletes and ensure they are as fully informed as they can be. This is especially true with these new substances, where there is much we do not know.

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Exercise Physiologist, Tara Kelly provides insight into what it was like to work in Cambodia as a sports medicine professional.

If travelling to work in a tuk-tuk everyday, being paid for your clinical services in the way of food, and being creative and resourceful with your treatment modalities and exercise prescription sounds like fun, then working in a third world country is for you!

“Despite having amazing facilities that could service a number of patients at any one time, encouraging the implementation and integration of hydrotherapy services was extremely challenging.”

How I came to work in Cambodia

I first travelled to Cambodia in 2008 and learnt of its history during the PolPot regime whilst I was travelling throughout. I was amazed at the generosity, kindness and attitude the Khmer people held, given the extent of what they had experienced (and only thirty years prior to my arrival).

Personally, I was run down due to work commitments at the time and the prognosis of my father’s recent lung cancer diagnosis was not favourable. As a result, I was emotionally attached to Cambodia and vowed to return in the future in a voluntary capacity. In January 2011, I returned to clinical work as an Exercise Physiologist in private practice after four and a half years working in the corporate sector. I missed the
RCRC is a local non-government organisation (NGO) based within the Chey Chumneas Referral Hospital and a project of Rose Charities Australia. Both organisations are dedicated to improving health and rehabilitation services in Cambodia. RCRC provides rehabilitative intervention for members of the community (marginalised Cambodian children and community members with disability, illness or injury) and patients at Chey Chumneas Referral Hospital, working together with government health services.

“As it’s not hard to imagine that the profession of Exercise Physiologist had never been heard of prior to my arrival!”

The work
As an Accredited Exercise Physiologist I am a tertiary qualified allied health professional who specialises in the delivery of exercise, lifestyle and behavioural modification programs for the prevention and management of chronic diseases and injuries. In Cambodia this was not only challenging, but rewarding, given the lack of knowledge and understanding of exercise in general; let alone evidence based practice and the role it plays in managing chronic illness, improving health outcomes and rehabilitation. Exercise was perceived as running and few people were interested in doing so given the climate, and to be honest, I don’t blame them! Therefore, part of my role was to assist with broadening their knowledge of exercise and its role when used as an adjunct therapy to manual treatment within the rehabilitation process. What we, as Exercise Physiologist’s fortunate to live in a first world country and in particular Australia, take for granted is how second nature exercise and its components of mode, type, variety and intensity are. This however, was a completely foreign concept in Cambodia, but well received.
“… we implemented the use of a paint roller and a piece of PVC pipe as our ‘foam roller’ and looked into the possibility of using bags of rice or sand as cuff weights!”

A typical day

A typical working day would consist of travelling to Ta Khmao via tuk-tuk each morning to commence at 8am at RCRC’s clinic within the Chey Chumneas Referral Hospital. Ta Khmao is 12 kilometres from Phnom Penh, Cambodia’s capital city which is roughly a half hour tuk-tuk ride. At 12pm we would break for lunch/siesta and resume working at 2pm. At 5pm the day was finished. Given the distance most patients travelled to reach RCRC the majority would be seen in the morning (some patients with appointments, others without) as this was a safer time to be travelling to and from remote areas.

I would stay for lunch which was local Khmer cuisine cooked fresh daily by the cafe/shop owner within the hospital grounds where we were often accompanied by a tabby cat which we would also feed. I would then head back to my guest house in Phnom Penh where I would continue to work on clinical education resources for the practising clinicians. These were to become an ongoing reference to assist the clinicians with increasing their current knowledge of exercise and a tool to provide patients with home exercise programs that could be progressed as appropriate. During my spare time I roamed the various small and large markets in search of items that could be sourced and implemented as either exercise equipment or treatment apparatus. Markets are far and wide in Cambodia and therefore the majority of the resources I found would be reasonably accessible to most people.

“Clinical practices such as manually palpating for anatomical landmarks, touching skin and even sourcing images that were appropriate for educational resources all had to be tactfully approached.”

The patients

As this was a free service patients came from far and wide primarily via word of mouth to receive treatment. On a daily basis patients ranged from paediatric to aged care with conditions varying from hemiplegia due to a moto (motorbike) accident, children with cerebral palsy and polio requiring serial casting, to aged care chronic low back and neck pain as a result of years of travel on a tuk-tuk or moto and/or heavy manual labour such as farming.

There were few referrals from the hospital itself however the general medical ward would refer the odd stroke and/or cardiac patient. There were though a handful of referrals that were inpatients whilst I was there. Hopefully this continues to increase as it presented a great opportunity to provide assessment, treatment, advice and assistance as early as possible to both the patients and their families. The lack of referrals was mainly due to physiotherapy not being widely understood or recognised within the hospital setting. Therefore, it’s not hard to imagine that the profession of Exercise Physiologist had never been heard of prior to my arrival!

“Exercise was perceived as running and few people were interested in doing so given the climate, and to be honest, I don’t blame them!”

I was also fortunate enough to visit LaValla School, in the Prek Reang District of Kandal province. La Valla School provides educational services to enable children with physical disabilities to integrate into mainstream education. They are funded solely by the Christian Marist Brothers and the majority of the pupils are residents. RCRC have established a professional mentoring relationship between their senior physiotherapist to support and upskill a new graduate physio with respect to assessing the children and integrating hydrotherapy into their rehabilitation process.

“There were birds in the surgical ward and most patients had an IV line that either a family member or they themselves held up in the air.”
Another professional relationship has also been established between RCRC and a NGO, Tiny Toones. Tiny Toones uses break dancing and the culture of hip hop to engage, inspire and educate young children from some of Cambodia’s most impoverished neighbourhoods. Tiny Toones provides a safe environment where learning is enjoyable and they are encouraged to explore their creativity through music production which includes beat making, rapping, DJing, lyric writing, break dancing and graffiti art. This is creating a positive sense of identity and community for over 200 children from the slums whilst also providing them with basic computer, English and Khmer skills, and above all, the freedom to be children. This was an amazing environment to be in and gives the RCRC clinicians an opportunity to assess and treat acute musculoskeletal injuries and be responsible for managing their rehabilitation from start to finish.

Peak performance requires more than skill alone

Developed specifically for endurance athletes, Endura Rehydration is an exclusive electrolyte formula to help athletes perform at their peak, promote endurance and optimise hydration.

The electrolyte ratio difference
Endura Rehydration contains a full spectrum of electrolytes in ratios specifically chosen for sports rehydration. Electrolyte imbalance may contribute to intracellular muscle dehydration which can impair energy production. Endura Rehydration contains higher levels of intracellular electrolytes (magnesium and potassium) than many sports formulas to specifically target intracellular muscle hydration. Endura also provides the AIS recommended percentages of sodium and carbohydrates to assist rapid stomach emptying for fast hydration.1

The importance of magnesium
Endura Rehydration provides a high concentration of Meta Mag®, a highly absorbable patented form of magnesium to help shorten muscle recovery time and prevent muscular cramps and pains. Unlike many other forms of magnesium, Meta Mag® dissociates intracellularly, rather than in the digestive system.2 This means higher absorption and maximum results for the athlete, without gastric discomfort; an imperative attribute for formulations taken before or during prolonged exercise.

Isotonic vs hypertonic prescribing
Endura Rehydration can be prescribed as an isotonic or hypertonic dose depending on the needs of the athlete. When prepared as a 350 mL isotonic drink, Endura Rehydration has an osmolarity in a similar range to an athlete’s own body fluids. This enables rapid absorption for fast rehydration during exercise whilst supplying fast and slow release carbohydrates for energy. When prepared as a hypertonic dose, Endura Rehydration provides a higher carbohydrate load per 200 mL for glycogen replacement making it ideal for more frequent dosing during pre-event loading and recovery periods.

The challenges
There were many challenges on a daily basis during my time in Cambodia. Living and working in a third world country is extremely different to being a tourist. From a clinical perspective, cultural sensitivity was of most importance with respect to male and female traditional perceptions. Clinical practices such as manually palpating for anatomical landmarks, touching skin and even sourcing images that were appropriate for educational resources all had to be tactfully approached. There were more often than not daily power outages for unknown periods of time which affected the treatment modalities available, including the means of keeping cool such as a fan. The availability of resources, from food to equipment, varied which had to be taken into consideration when providing and prescribing both exercise and treatment. Both these had to be flexible in order to be replicated with easily attained apparatus from remote areas.

Key applications for sports health professionals
The following patients may benefit from using Endura Rehydration:
• Those who need to perform in peak condition and support their training and competing demands.
• Those who need to support their body’s hydration requirements.
• Those who want to help shorten muscle recovery time.
• Those requiring relief from muscular pain and cramps.

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for ongoing self management. This is where the creativity of an Exercise Physiologist was handy and we implemented the use of a paint roller and a piece of PVC pipe as our ‘foam roller’ and looked into the possibility of using bags of rice or sand as cuff weights! The availability of water was inconsistent so flushing the toilet was done by pouring water via a bucket down the toilet and disposing toilet paper in a bin beside it. There were birds in the surgical ward and most patients had an IV line that either a family member or they themselves held up in the air. These are all things that are considered ‘normal’ in daily life in Cambodia and it’s amazing how quickly you adapt but it is so far from what is considered ‘normal’ in the daily life of those who are fortunate to live in a first world country.

“Knowledge and education in general is behind the eight ball and physiotherapy is currently a three year diploma with no practical component, only moving to a degree in 2014. It is only accepted in a limited capacity and there are very few physiotherapists employed as physiotherapists but rather as nurses.”

Interesting stories/patients
I worked closely with a 20 year old male patient who was left sided hemiplegic due to a moto accident nine months prior. He was a very determined and motivated young man wanting to improve. He spoke very limited (actually no) English but had a great sense of humour. We focused on improving his gait through part practise, breaking each component of the gait cycle down to achieve a more efficient and biomechanically sound pattern. With his consent we were able to film our work with him on my iPad which will prove an invaluable resource for future learning for the clinicians and will visually represent his progress and improvement.

“we… take for granted how second nature exercise and its components of mode, type, variety and intensity are.”

As an Exercise Physiologist we face many and varied barriers to exercise. However, I must admit that the one that stands out the most would be that of an allied health professional not wanting to commit to a specific therapy due to culturally perceived aesthetic reasons. It’s a strong Khmer belief that fair skin and a long nose are considered beautiful and therefore, a darker complexion and a shorter nose not so (lucky for me I am both fair skinned and long nosed and traffic literally stopped). This is why the Khmer people wear long sleeves and pants the majority of the time and their cosmetic and beauty products contain bleach.

Despite having amazing facilities that could service a number of patients at any one time, encouraging the implementation and integration of hydrotherapy services was extremely challenging.

“Living and working in a third world country is extremely different to being a tourist.”

Health care in a third world country
In comparison to a first world country the initial differences that are glaringly obvious is that fact the healthcare, particularly with respect to allied health professionals, is virtually non-existent. It relies heavily on money and the ability of the person who requires the healthcare to pay. No money, no help. There are limited outreach services and the majority are funded by donations so they are limited with how far they can reach. Knowledge and education in general is behind the eight ball and physiotherapy is currently a three year diploma with no practical component, only moving to a degree in 2014. It is only accepted in a limited capacity and there are very few physiotherapists employed as physiotherapists but rather as nurses. Yes, I saw a qualified physiotherapist placing IV lines and suturing wounds! There are few nursing staff and the families play a major role in the care of their loved one whilst hospitalised including bathing, toileting, dressing and feeding. Other allied health services are not accepted at all purely as they are unknown including Exercise Physiology.

I am incredibly appreciative of RCRC for allowing me to become involved and accepting Exercise Physiology and what it can offer. I would do it again in a heartbeat, if not Cambodia, elsewhere.

Tara Kelly
Exercise Physiologist
AEP, ESSAM
B. Ex. Sc, G Dip Ex Reh
Cycling
How to move well for efficiency and injury prevention

Specialist Sports Physiotherapist, Paul Visentini, provides an overview of the relationship between the body and the bike and how the body can be optimised for cycling to improve mechanical efficiency and injury prevention.

Physiotherapists are perfectly placed to help the ever-growing cycling community to become better riders as well as to prevent pain and injury. Whilst there are a myriad of ‘bike set-up’ protocols available, some more evidence based than others, very few ‘bike set-up’ practitioners take into account the body and its neuromuscular and kinematic abilities.

“One can change activation patterns in cyclists!”

There is no argument that understanding the geometry around optimal configuration is an important component for efficiency and injury prevention, and some leading ‘Bike-Fit’ proponents argue the neuromuscular perspective. There are also endless references to optimal pedalling technique – ‘spinning the pedals’, ‘elegant’, ‘wipe the mud off the shoe’, ‘like a duck swimming’ or ‘smooth and continuous’, implying that optimising activation patterns has a distinct role in good pedalling technique.

“Riders with poorer co-ordination will use the power muscles more at lower loads, with earlier fatigue, less efficiency and greater potential for adverse kinematics.”

Overuse injuries make up a large portion of injuries in aerobic sports that require long training sessions with a monotonous routine (e.g. long-distance running, bicycling or cross-country skiing). The greatest prevalence in overuse injuries in cycling is at the lumbar spine and knee, and efforts to prevent overuse injury should focus on these areas.
Maintaining or restoring precise movement of specific segments is the key to preventing or correcting musculoskeletal pain⁶, and physiotherapists are clinically the best placed to be precise in the assessment and management of the movement patterns of the cyclist.

**Pedalling technique and activation**

Historically the understanding of pedalling technique involved using the power muscles (gluteals/quadriceps) from 12 to 4 o’clock on the clockface, with the peak power phase at about 3 o’clock⁷, the calf activating towards the end of the push phase (6 o’clock), the hamstrings and tibialis anterior pulling back and up, with the hip flexor (psoas), in the backstroke.

Top Dead Centre (TDC) is at 12 o’clock, and Bottom Dead Centre (BDC) is at 6 o’clock.

However, even as far back as 1996, Gregor in his review paper, showed EMG graphs with activation of the gluteals and quadriceps initiating at approximately 11 o’clock, with the hamstrings highly active from 2 o’clock and through the power phase to BDC. The gastrocnemius was active from 2 to 9 o’clock, peaking also through the power phase. So a more contemporary view of the pattern of muscle activation in pedalling looks like this:

![Image of pedalling technique and activation]

Note the extensive range of hamstring activation, as well as the calf, especially in the power phase, in an agonist/antagonist relationship to control the pedal stroke. Also the activation of tibialis anterior, and vastus lateralis and medialis, at the end of the recovery to prepare to push over the top of the pedal stroke.

Epidemiological research regarding cycling overuse injuries is almost non-existent, and there is no evidence of cause and effect regarding closed kinetic chain deficits in activation and strength and cycling injuries.”

The most efficient pedalling needs to maintain power at the top and bottom of the pedal stroke.⁸ Given that the peak of power is at 3 o’clock on the clockface, maintaining power at the TDC and BDC becomes a challenge of co-ordination/activation.
Co-ordination

Blake looked at muscle co-ordination patterns in cycling, finding that peak efficiency occurred at 55 per cent VO2 max, with efficiency being the relationship between power output and metabolic cost. At optimal efficiency there was an even spread of activation levels between the muscle groups, but as the workload increases, there was a greater emphasis upon the power muscles (Gluteus Maximus [GMx], Vastus Lateralis [VL], Vastus Medialis [VM]), and less efficiency (least at 90 per cent VO2 max), with a higher level of variation in the timing of the co-ordination muscles (hamstrings, rectus femoris [RF], gastrocnemius).

EMG Intensity Maximums

- Blake showed the GMx and VL/VM are the power muscles acting vertically, but with the VL/VM activating earlier in the pedal stroke at higher workloads, and GMx increasing the most relatively, as workload increases. An increase in the work done by the power muscles relative to the co-ordination muscles is a common theme with increased workload and fatigue states.10

- Periods of high workload (hills/powering) and fatigue have a relationship with the clinical presentation of pain in the cycling community. Rarely does pain present in ‘easy’ riding.

- The GMx has the greatest potential for increased power as it functions at low MVC at maximum efficiency. One can imagine it, and the VL/VM being the gears, and the co-ordination muscles the clutch, allowing for synchronous change in gears and timing of activation. So the ‘gears/power muscles’ increase their activation level significantly with increased workload, whilst the co-ordination muscles don’t increase their activation for power, but they function for smooth transmission of the power, especially in the TDC/BDC positions.

- The idea that the hamstrings and calf muscles work synergistically with the power muscles to co-ordinate the fast and powerful moments of hip, knee and ankle extension resonates well from a movement analysis perspective, with early activation of quadriceps and tibialis anterior at TDC to gain a good angle for the horizontal vector component, also a notion that makes sense. Add the strong and smooth transmission of force to the pedal through ball of foot contact and good foot and ankle range and position, and the proposed model of power and co-ordination presented by Blake is highly usable for the physiotherapist in optimising efficiency and injury prevention in cycling.

- “An increase in the work done by the power muscles relative to the co-ordination muscles is a common theme with increased workload and fatigue states.”

The co-ordination correlate on the bike is high cadence pedalling (100RPM+), with riders who struggle with their co-ordinative muscle activation finding it difficult to maintain a smooth pedal stroke and ‘bouncing’ around on the seat. Practice of high cadence pedalling is common in well-trained cyclists – therefore the practice of optimising co-ordinative patterns exists.

- So the higher the workload, the more dominant the power muscles become, with a less efficient and more vertical pedal stroke. If the power muscles are deficient other muscles must fill the gap as workload and fatigue increase. Riders with poorer co-ordination will use the power muscles more at lower loads, with earlier fatigue, less efficiency and greater potential for adverse kinematics.

Assessment

- In the clinic one can extrapolate the pedal stroke, essentially a concentric contraction with the foot moving forward and down, to aspects of closed kinetic chain (CKC) deficit. CKC theory has its basis in sequential segmental shared loading of the joints and muscle groups, and detailed assessment is essential, especially addressing aspects of gluteal function, areas of fatigue/overload and general co-ordination.
“… improving strength, improving endurance, improving activation and co-ordination generally, and specific to the pedal stroke mechanics, will improve cycling efficiency and prevent injury!”

If the gluteal bulk is deficient in timing of activation, strength or endurance, there is likely a compensation with increased work done by the Adductor Longus (AL), Psoas or Tensor Fasciae Latae (TFL) 11, but especially the quadriceps and medial hamstrings (MH)/adductor magnus (AM) bulk.12 Regardless of efficiency of pedal stroke a similar power output per pedal stroke is recorded with differing activation patterns at similar workloads.13 Hence, a gluteal deficit might be compensated for by the quadriceps working harder (a common pattern in the recreational cyclist), which of course is less efficient and loads the quadriceps excessively. The higher the quadriceps force, the higher the patellofemoral joint compression forces 14, the greater the risk of patellofemoral pain syndrome (PFPS), the most debilitating injury in cycling.15

Conversely, a decrease in quadriceps force generation ability has been linked to PFPS.16

If the MH and AM overwork, local fatigue, proximal hamstring tendinopathy and sciatic nerve related symptoms can occur.

With poor co-ordination generally, the power muscle groups will both overwork, giving rise to local overuse and fatigue, or similar overuse and fatigue in the muscles which compensate for the power muscles to extend the hip and knee i.e. TFL/MH/AM. Further, poor co-ordination is likely to cause kinematic disturbance such as dynamic knee valgus and lateral pelvic tilt, with likely sequelae of PFPS 17 and lumbar pain.

“The higher the quadriceps force, the higher the patellofemoral joint compression forces, the greater the risk of patellofemoral pain syndrome, the most debilitating injury in cycling.”

Management

Epidemiological research regarding cycling overuse injuries is almost non-existent 18, and there is no evidence of cause and effect regarding closed kinetic chain deficits in activation and strength and cycling injuries. A lack of evidence should not exclude optimising the CKC as a management strategy – in cycling there is little evidence underpinning most theories regarding bike set-up and pedalling technique. However, it has
been shown that land-based strength exercises enhance earlier activation of Biceps Femoris (BF) and Rectus Femoris (RF) \(^1\), and that elite level cyclists have purer activation patterns than novice cyclists and elite triathletes.\(^2\)

“There is no argument that understanding the geometry around optimal configuration is an important component for efficiency and injury prevention, and some leading ‘Bike-Fit’ proponents argue the neuromuscular perspective.”

One can change activation patterns in cyclists!

Therefore, improving strength, improving endurance, improving activation and co-ordination generally, and specific to the pedal stroke mechanics, will improve cycling efficiency and prevent injury!

Logically, management is based upon assessment findings, and could initially involve lower limb strength, especially of the power muscles – the gluteals and quadriceps. Optimising activation and co-ordination in a functional way is the ultimate goal. Cycling, as stated, is essentially a concentric activity of the lower limb with relative up and forward movement of the pelvis (down and backwards movement of the foot), with pedal interface force through the ball of the foot\(^2\) and knee angles 30–110 degrees and hip angles 55–90 degrees.

A ‘monkey squat’ type single leg step up with progression onto the toes, might be the most functional on-ground activation exercise for cycling. Adding speed is an obvious inclusion. On-bike exercises for strength and speed are essential, but one might emphasise gluteal activation, top and bottom dead centre momentum, calf and ankle activity, and smooth pedal stroking with good posture and kinematics.

Conclusion

In the relationship between the body and the bike, given that bicycle geometry is adequate, optimising the body for cycling can give great improvement in mechanical efficiency and injury prevention. This can be achieved on and off the bike, and requires an understanding of the neuromuscular and kinematic variables of cycling and the load mastery components of the closed kinetic chain.

Paul Visentini, FACP

Paul Visentini FACP is a Specialist Sports Physiotherapist and a director of Physiosports Brighton. He has a special interest in Cycling and Closed Kinetic Chain mechanics, and will be presenting “The Science of Cycling” in Melbourne November 22 and 23, 2013 with Rob Brown (Orica Greenedge Physiotherapist).

References, as indicated within the article, are available at sma.org.au/publications/sport-health
Discipline group news and events

Australasian College of Sports Physicians (ACSP)

News:

Call for membership:

- ACSP is the professional body representing training and assessing Sport and Exercise Medicine (SEM) Physicians in Australia and New Zealand. Associate Membership is open to all registered medical practitioners with an interest in the field of SEM and applications are now invited. Benefits include regular news bulletins, access to sport and exercise medicine journals, CPD (MOPS), professional conference and education activities, opportunity for collegial interaction and collaborative research opportunities. Applications for Associate Membership can be obtained from www.acsp.org.au, emailing office@acsp.org.au or phoning +61 3 9607 1321.

Upcoming events:

- 2013 ACSP Annual Scientific Conference
  ‘Partners in Performance’
  November 20–23, 2013
  Wellington, New Zealand
  This is a combined Sports Medicine New Zealand and ACSP event
  For registration forms see www.acsp.org.au
  or email office@acsp.org.au

For more information visit www.acsp.org.au

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

News/upcoming event:

- The Australian Institute of Sport in conjunction with State Institutes and Academies of Sport and the Australian Psychological Society’s College of Sport and Exercise Psychology will be launching the Sport Psychology in the Winning Edge: Practitioner Conference 2013. This inaugural one-day conference will be produced by and for Australia’s sport psychology practitioners working with Olympic and Paralympic sport and will feature:
  - Keynotes from successful Australian elite sport programs discussing the nuts and bolts of effective and integrated psychology services.
  - National Sporting Organisation sport psychology leaders who will discuss their service program development planning and implementation.

Sessions will focus on information sharing with the goal of shaping future direction of best practice and collaborative sport psychology services. Conference attendance is strictly limited.

Sport Psychology in the Winning Edge: Practitioner Conference
September 16, 2013
QAS, Brisbane

For more information visit www.groups.psychology.org.au/csep/
Sports Dietitians Australia (SDA)

Upcoming events:

September 2013
7 Nutrition for Exercise & Sport Course – QLD (Brisbane)
   Nutrition for Exercise & Sport Course – WA (Perth)

October 2013
18 Public Lecture FREE – Storey Hall, RMIT SDA
   Vice President, Alan McCubbin, together with athletes
   and sports specific sports dietitians, will share their
   nutrition insights to optimise endurance performance
   and provide practical solutions. Attendees can also
   access free sports nutrition advice from SDA members.
   Not to be missed if you’re a cyclist, runner or triathlete.
   For more information visit
   www.sportsdietitians.com.au/PublicLecture
   or follow us via Twitter @sportsdietaustralia
19 2013 SDA Conference in Melbourne
   Performance Nutrition – Measurement,
   Manipulation, Application
   This conference will provide delegates with the latest
   research on body composition, sports nutrition science
   and nutrient timing. Keynote speakers include Asker
   Jeukendrup and Louise Burke.
   For further details visit

November 2013
9 Nutrition for Exercise & Sport Course – NSW (Sydney)
   For more information visit www.sportsdietitians.com.au

Sports Doctors Australia (SDrA)

News:
- Congratulations to Associate Professor Gavan White
  on being Guest Editor of the British Journal of Sports
  Medicine, the July edition, on behalf of SDrA and SMA.

Upcoming events:
- SDrA is involved in leading two sessions at the Asics
  Conference of Science and Medicine in Sport 2013 in
  Phuket. One is a workshop on ‘lower limb injuries’ and
  the other is a ‘symposium of current management of
  concussion in a sporting setting’. Dr Neville Blomeley
  is the presenter/moderator of both.

For more information visit www.sportsdoctors.com.au

Sports Physiotherapy Australia (SPA)

Upcoming events:
- Biennial Australia Physiotherapy Association conference
  ‘New moves’
  October 17–20, 2013
  Melbourne
  Pre conference workshops plus extensive social
  program on offer
- Ongoing professional development will continue
  through late 2013, including lectures and courses.

For more information visit www.physiotherapy.asn.au

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WWW.SMA.ORG.AU
The Journal of Science and Medicine in Sport

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

News

JSAMS has recently received an Impact Factor of 2.899 (up from 2.542 in 2010, down from 3.034 in 2011). This now ranks it 10th in the Sport Sciences category. This is a great achievement and thanks goes to Journal Editor, Professor Greg Kolt, and the Elsevier team who compile the Journal.

What does Impact Factor mean?

The Impact Factor is an important, albeit retrospective, indicator of a journal’s quality. It is a measure of the number of current citations to articles published in a specific journal in a two year period divided by the total number of articles published in the same journal in the corresponding two year period. Impact Factors are usually published in mid-June (i.e. it takes about six months for the calculations and checks to be made).

Citation behaviours and Impact Factors vary markedly between disciplines but it is valid to compare those for journals in the same field and to note trends over time. To assist this process Journal Citation Reports categorise journals in a number of fields within which they can then be ranked by Impact Factor.

Podcasts

Listen to interviews with authors discussing their work and the latest from JSAMS, via podcast at jsams.org or through iTunes by searching Journal of Science and Medicine in Sport.

Top 10 Sport and Exercise Science and Medicine Journals

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<th>Rank</th>
<th>Abbreviated Journal Title (linked to journal information)</th>
<th>ISSN</th>
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<th>Impact Factor</th>
<th>5-Year Impact Factor</th>
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