Sport Health

Incorporating The Bulletin

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Cover photograph: Australian Sports Commission

Lots of optimism –but when will it start making a difference?

By Dr J

SMA can enter the summer season this year with a renewed sense of optimism about the potential for growth in the organisation, having seen the annual conference in Melbourne exceed expectations. Linking sports medicine to both injury prevention and physical activity from the conference viewpoint meant that more than 1000 people attended. More importantly, the presence of administrators from bodies such as the Department of Health and Ageing at the conference (probably due entirely to the physical activity stream) led to optimism that sports medicine might actually one day become a blip on the political landscape in Australia.

Roald Bahr certainly gave an excellent keynote address on the opening day, but was he just preaching to the converted? As SMA members, we all believe that, if sports medicine was better funded and resourced across the board, physical activity levels would rise (and therefore heart disease, diabetes and cancer levels would drop). Correct me if I'm wrong but I didn't see Tony Abbott or Rod Kemp or John Howard (or Kim Beazley) in the audience at Roald's talk, and I don't know that any of them would have been bothered at all by any of the contents*.

We live in an age where physical activity and injury prevention should be enormous priorities for Australia and therefore organisations such as SMA, ACHPER, ACSP, SPG, etc should be flush with money. That these organisations (and many of their members) are merely treading water financially is a symptom of the fact that lip service is paid to both physical activity and sports injury prevention but there is no Federal Government resolve to make either of these areas work from the top.

If I was giving the Howard Government a mark out of 10 in these areas, it would be zero out of 10 for sports injury prevention and it would be minus 4 or minus 5 out of 10 for physical activity. With respect to sports injury prevention, the Federal Government literally does absolutely nothing and, with respect to physical activity, it has policies which actually discourage physical activity and it has not been motivated to change these policies despite watching activity levels go backwards in the last decade.

As a sports physician, I have most vested interest in how my own society (the ACSP) is doing, and at the moment there is much collective backslapping at how the ACSP is about to have its application for specialty recognition assessed for the first time. Included in the application is a letter from the relevant assessment body in 1994 saying that the assessment of sports medicine should proceed in the "near future". Depending on your time scale, 2005 may seem like the near future from 1994, but in some aspects it is quite a long time. For example, over this period the percentage of women in Australia under 30 who are considered obese has risen from 5% to 13%, according to the Australian Longitudinal Study on Women's Health.

Specialty recognition for sports medicine may seem to those on the outside like an indulgence, but all it would do (if it actually ever occurs) is bring sports medicine into line with every other recognised area of medicine in Australia. Sports medicine is the only area of medicine in this country that is officially recognised as a branch of medicine with a high-quality legitimate training program (which it has been since 1998) but is not considered to be a specialty (general practice in this sense is considered a specialty). Because of this status, ACSP registrars and new Fellows in Australia are actually only given provider numbers (ie, licences to practice under Medicare) by courtesy of the Government breaking its own legislation. Section 19AA of the Health Insurance Act forbids Medicare rebates being paid to "a patient in respect of a service rendered by a medical practitioner, where the practitioner completed their internship on or after 1 November 1996, unless the practitioner is recognised as a specialist, consultant physician or general practitioner". Sports physician registrars and new Fellows who completed their internships after 1/11/96 are neither specialists, consultant physicians nor GPs, so strictly speaking they should not be allowed to participate in Medicare.

Somehow this Government is breaking its own rules for the time being, so the need to gain specialty recognition for sports medicine is pretty acute when some of our registrars and even Fellows are literally practising using provider numbers which they are strictly not meant to have and therefore could be taken away on whim by any future government.

I can also guarantee to you that specialty recognition for the ACSP has not been granted over the past 15 years for reasons that have absolutely nothing to do with merit. The ACSP has been lied to by, and has unfortunately believed the lies of, a succession of health ministers, government bureaucrats and even the AMA. The lies have followed the theme of "if you have your house in order and make sure your practice standards and training program are high quality, then you will soon get assessed by the relevant body and specialty recognition will proceed".

This is actually the complete opposite of the truth. The Government has acknowledged that our standards are high and our training program is adequate by giving our new Fellows and registrars special provider numbers that they aren't even meant to have. It has refused to do a formal assessment (which perhaps may be finally done over the next 2 years by the AMC) because it would be harder to resist the call to bring sports physician rebates under Medicare in to line with other areas of medicine.

That it doesn't want sports physicians to have equal rebates to other branches of medicine can only be due to a philosophical belief that sports medicine should be user-pays rather than underwritten by the Government, which I am sure is the attitude of politicians like Howard, Abbott, Costello, Nelson and Kemp. In fact, I could just imagine that, if any of these Liberal Party heavies were in the room at Roald Bahr's presentation, they would be secretly thinking "…you mean that physical inactivity and obesity levels are much higher in lower socioeconomic areas of major cities (which traditionally vote for Labor)…and what exactly is the problem?!"

This government wants sports physicians to be able to stay in practice, so that our top athletes are cared for well and wealthy members of society can also access good sports medicine treatment by paying high out-of-pocket fees. However, it wants to keep the government contribution towards sports medicine to a bare minimum as it believes that sports medicine is a luxury for the well-to-do rather than an important service for society (a bit like plastic surgery, perhaps).

Specialty recognition would have occurred by now in Australia if the ACSP had followed any strategy other than having a high quality standard of practice and training program. In the United Kingdom, where standards of sports medicine are generally very poor by comparison, the National Health Service has approached the leaders in sports medicine and has given them specialty recognition and huge funding to set up a training program, because they saw a need that was not being met (particularly for their elite athletes).

Ironically, if instead of being appointed director of surgery at Bundaberg Hospital, Dr. Jayant Patel had joined the ACSP training program, I am sure sports medicine would have had an AMC assessment completed by now. If we had actually had a rogue practitioner in our midst who was out there killing people, the audit of the ACSP, which the Government currently claims it has been unable to do over the last decade, would have been prioritised to the top of the queue.

Just as there are no votes in specialty recognition for sports medicine, there are also no votes in sports injury prevention and in promoting physical activity. There are votes in Olympic medals, and hence the Federal Department of Sport has put the majority of its resources into this area. If the government was being honest, which does not seem to be its want, it would rename Senator Rod Kemp the Minister for Elite Sport and admit that it saw no need for a Minister for Exercise.

If there really was a minister for promoting and assisting sport, he or she would have felt obliged to resign from the Federal Liberal party after Brendan Nelson announced that his Voluntary Student Unionism legislation plan was official Liberal Party policy. This is because, with respect to physical activity, the universities of 2005 are the bodies in Australia that have the correct template, and the government wants to smash them for having the cheek to make sporting club membership compulsory.

If you actually wanted to make a difference to physical activity levels in Australia (which this Government clearly doesn't), the first thing you would do would be to force every Australian to pay money to join a sporting or exercise-based club. Those who chose actually to participate would be getting partially funded by those 'members' who were inactive and who only joined because they were forced to. This would be a tax on inactivity, which is what Australia desperately needs.

The universities, with compulsory sports union levies, have this tax on inactivity in place and Brendan Nelson proposes to make it illegal. He released this policy and cried "Why should a single mother of two studying nursing be forced to pay for sporting facilities that she doesn't use?" As I said, if we actually had a real minister for sport (whose charter was to increase physical activity levels), he would have had to resign on the spot. Fancy having a system which encouraged people to exercise!

The Olympics came and went and justified (to the Howard Government) that money for sport should basically go to elite athlete programs. To this Government, there are no votes in physical activity policies. John Howard's Government is behaving as if it wants people sitting on their arses watching the Prime Minister hand out the medals at sporting events, rather than actually participating in sport.

We stayed quiet at the Olympics, but we should be prepared to protest next March at the Commonwealth Games if the following is still the case:

1) the Federal government still has an official policy that it wants to lower membership at university sports unions around Australia;
2) sport is still the only major "injury" area that is not prioritised for research funding by the Federal Government;
3) there is still no plan for an Australian national sports injury surveillance system (which New Zealand has shown is completely achievable and not excessively costly);

» *Continued on page 23*

Sport in the Heat

SMA's guidelines for sporting clubs and associations and the physically active

Physical activity levels in the general Australian community are low and falling. The urgency of the question how we deal with this is great and growing.
In the last few weeks, there have been launches of four significant developments which can – if followed through – exert strong influence on how we deal with a major community health issue

- SMA's new guidelines for sport and exercise in the heat
- Australian Government guidelines on exercise for older people
- SMA's new pre-exercise screening system
- The report on the first 10 years of the Australian Longitudinal Study on Women's Health.

Every year in hot weather Sports Medicine Australia receives requests from sporting clubs and associations, individuals and members of the media asking whether or not their sporting events or training should be modified, curtailed or cancelled in hot weather and when it is safe to play sport or be physically active in the heat?

To help organisations, coaches, teachers and other individuals when conducting sport in hot weather, SMA has produced this revised set of guidelines. These new guidelines are based on the latest research as well as the expertise of SMA's medical and scientific members.

Most people understand the importance of physical activity for good health but it is just as important that, when levels of activity rise, the risk of harm is minimised. And it is even more important for those who have not recently or regularly taken part in sport or physical activity.

These guidelines are not binding, but SMA reminds all parties that they must act responsibly. We encourage a common sense approach and consideration of the comfort and well-being of all individuals including participants and officials.

Modification or cancellation of events, training or withdrawal from participation may be appropriate even in circumstances falling outside these recommendations.

There are many factors to be considered when clubs and associations are contemplating modifying, postponing or cancelling sporting events or training.

Sporting organisations need to be aware of the difficulty of settling "one size fits all" guidelines in this area. For normally healthy active people, the only dangers from heat illness are likely to arise from high intensity exercise such as endurance running. Most community sport does not reach this level for periods long enough to cause serious harm. Many types of sport, such as cricket and tennis, are usually safe at higher temperatures because of the lower intensity of the play.

One area of higher risk for organisers of community-level sport is in the conduct of marathons and fun runs and bike rides. These events are more likely to see participants push themselves beyond their normal boundaries of activity, and organisers need to take extra precautions.

However, at any time, high intensity exercise in a hot environment, with the associated elevation of body temperature, can lead to heat illness. Heat illness in sport presents as heat exhaustion or the more severe heat stroke.

Heat exhaustion

Heat exhaustion is characterised by a high heart rate, dizziness, headache, loss of endurance/skill/confusion and nausea. The skin may still be cool/sweating, but there will be signs of developing vasoconstriction (eg, pale colour). The rectal temperature may be up to 40°C and the athlete may collapse on stopping activity. Rectal temperature should only be measured by a doctor or nurse.

To avoid heat exhaustion, if people feel unwell during exercise they should immediately cease activity and rest. Further benefit comes if the rest is in a shaded area with some passing breeze (from a fan if necessary) and the person takes extra hydration. Misting or spraying with water can also help.

Heat stroke

The characteristics of heat stroke are similar to heat exhaustion but with a dry skin, confusion and collapse. Heat stroke may happen with an athlete who has not been identified as suffering from heat exhaustion and has persisted in further activity. Core temperature measured in the rectum is the only reliable diagnosis of a collapsed athlete to determine heat stroke.

This is a potentially fatal condition and must be treated immediately. It should be assumed that any collapsed athlete is in danger of heat stroke. The best first aid measures are Strip/Soak/Fan:

- Strip of excess clothing
- Soak with water
- Fan
- (Ice placed in groin and armpits is also helpful.)

The aim is to reduce body temperature as quickly as possible. The athlete should be referred immediately for treatment by a medical professional.

Important: heat exhaustion and heat stroke can still occur even in the case of good hydration.

Environmental Factors

1. Temperature

Ambient temperature is the most easily understood guide available, and is most useful on hot, dry days

AMBIENT TEMPERATURE	RELATIVE HUMIDITY	RISK OF THERMAL INJURY	POSSIBLE MODIFYING ACTION FOR VIGOROUS SUSTAINED ACTIVITY
15 - 20		Low	Heat illness can occur in distance running. Caution over-motivation.
21 - 25	< 60%	Low - moderate	Increase vigilance. Caution over-motivation.
26 – 30	< 50%	Moderate	Moderate early pre-season training intensity. Reduce intensity and duration of play/training. Take more breaks.
31 – 35	< 30%	High – very high	Limit intensity. Limit duration to less than 60 minutes per session.
36 and above	< 25%	Extreme	Consider postponement to a cooler part of the day or cancellation.

OR

WBGT

Further information might be gained from what is known as the Wet Bulb Globe Temperature (WBGT), which is suitable for hot, humid days

WBGT	RISK OF THERMAL INJURY	POSSIBLE MODIFYING ACTION FOR VIGOROUS SUSTAINED ACTIVITY
< 20	Low	Heat illness can occur in distance running. Caution over-motivation.
21 - 25	Moderate to high	Increase vigilance. Caution over-motivation. Moderate early pre-season training intensity and duration. Take more breaks.
26 - 29	High - Very high	Limit intensity. Limit duration to less than 60 minutes per session.
30 and above	Extreme	Consider postponement to a cooler part of the day or cancellation (allow swimming).

The Bureau of Meteorology (BOM) produces ambient and WBGT readings for many locations in Australia. You can check these readings and a guide for the relative risk for your location at www.bom.gov.au/products/IDS65004.shtml or by clicking the "Local Hot Weather alerts" button at www.sma.org.au

Dehydration

Dehydration is fluid loss which occurs during exercise, mainly due to perspiration and respiration. It makes an athlete more susceptible to fatigue and muscle cramps. Inadequate fluid replacement before, during and after exercise will lead to excessive dehydration and may lead to heat exhaustion and heat stroke.

To avoid dehydration, SMA recommends that:

- athletes drink approximately 500 ml (2 glasses) in the 2 hours before exercise;
- during exercise longer than 60 minutes, 2-3 cups of cool water or sports drink (500-700 ml) are sufficient for most sports;
- after exercise, athletes replenish their fluid deficit to ensure that they are fully re-hydrated, but not over-hydrated
- refer to SMA's free DRINK UP brochure available as a web download at http://www.sma.org.au/information/ or from your local National Pharmacies store.

Points to consider:

Will your players and officials be able to consume enough fluid during the event?

Even a small degree of de-hydration will cause a decrease in performance

Take care not to over-hydrate. Drinking too much fluid can lead to a dangerous condition known as hyponatraemia (low blood sodium). Aim to drink enough to replace lost fluids, but not more than that.

Factors to consider before cancelling or modifying a sporting event or training

(Remember not only to take players into account but also umpires, officials and volunteers.)

N.B. It is important to watch for unusual "heatwave" conditions or variations from the average temperature for the time of year. This is one situation where there may be a greater danger of heat illness.

2. Duration and intensity of an event

- The combination of extreme environmental conditions and sustained vigorous exercise is particularly hazardous for the athlete. The greater the intensity of the exercise, the greater the risk of heat related symptoms; eg, distance running is more of a problem than stop-start team events.
- Player and official rotation may also be considered
- Reducing playing time and extending rest periods with opportunities to rehydrate during the event would help safeguard the health of participants.
- Provision of extra water for wetting face, clothes and hair is also important.
- A fan to enhance air movement would be beneficial

3. Conduct of competition and training (hydration and interchange opportunities)

- Associations may consider dividing games into shorter playing periods rather than halves to allow for extra breaks.
- Coaches may consider alternative training times and venues during hot weather.
- Remember, even five minutes rest can cause a significant reduction in core temperatures.
- It is important to consider the welfare of officials, as well as players.

4. Time of Day

- Avoid the hottest part of the day (usually 11 am-3 pm). Scheduling events outside this time should be a consideration throughout any summer competition, training or event, regardless of the temperature.

5. Local Environment

- Radiant heat from surfaces such as black asphalt or concrete can exacerbate hot conditions.
- The type of exercise surface and the amount of sunlight vary significantly with different sporting activities and therefore must be analysed for each individual sport.
- An air-conditioned indoor venue will provide less of a problem. A hot indoor venue or an outside venue without shade cannot be considered an acceptable environment.
- Airflow should be considered, including fans in change rooms or appropriately placed.

Remember, air movement decreases heat stress. However, a following wind can increase problems for runners or cyclists by actually reducing air movement.

Host (personal) factors

1. Clothing

- Type of clothing is vital in minimising health risks associated with exercise in heat.
- Fabrics that minimise heat storage and enhance sweat evaporation should be selected.
- Light weight, light coloured, loose fitting clothes, made of natural fibres or composite fabrics with high wicking (absorption) properties, that provide for adequate ventilation are recommended as the most appropriate clothing in the heat. This clothing should complement the existing practices in Australia that protect the skin against permanent damage from the sun.
- This should apply to the clothing worn by players, umpires, other officials and volunteers.

Protective clothing

If clothing is worn for protective reasons, ensure that it is worn only while training and competing in hot weather. Some examples include leathers in motorcycling and mountain biking, protective equipment for hockey goalkeepers and softball and baseball umpires. Remove non-breathable clothing as soon as possible if the participants or officials are feeling unwell in hot conditions. Start cooling the body immediately via ventilation and/or a cool spray such as a soaker hose or a hand-held spray and a fan.

2. Acclimatisation of the participant

- Acclimatisation of the participant includes umpires, other officials and volunteers as well as players.
- Preparation for exercise under hot conditions should include a period of acclimatisation to those conditions, especially if the athlete is travelling from a cool/temperate climate to compete in hot/humid conditions.
- It has been reported that children will acclimatise slower than adults.
- Regular exercise in hot conditions will facilitate adaptation to help prevent performance deteriorating, or the athlete suffering from heat illness, during later competitions. Sixty minutes acclimatisation activity each day for 7-10 days provides substantial preparation for safe exercise in the heat.

3. Fitness levels/athletic ability of participant

- A number of physical/physiological characteristics of the athlete will influence the capacity to tolerate exercise in the heat, including body size and endurance fitness.
- In endurance events, accomplished but non-elite runners, striving to exceed their performance, may suffer from heat stress. The potential for heat-related illnesses would be exacerbated if they have not acclimatised to the conditions and have failed to hydrate correctly.
- Overweight and unconditioned athletes, umpires, officials and volunteers will generally also be susceptible to heat stress.
- Refer to SMA's free DRINK UP brochure available from www.sma.org.au/information or your local National Pharmacies store.

4. Age and gender of participant

- Female participants may suffer more during exercise in the heat because of their greater percentage of body fat.
- Young children are especially at risk in the heat. Prior to puberty, the sweating mechanism, essential for effective cooling, is poorly developed. The ratio between weight and surface area in the child is also such that the body absorbs heat rapidly in hot conditions.
- In practical terms, child athletes must be protected from over-exertion in hot climates, especially with intense or endurance exercise.
- Although children can acclimatise to exercise in the heat, they take longer to do so than adults.
- Coaches should be aware of this and limit training for non-acclimatised children during exposure to hot environments.

NB: Children tend to have a more "common sense" approach to heat illness than adults. They "listen to their bodies" more and will usually slow down or stop playing if they feel distressed in the heat. *On no account should children be forced to continue sport or exercise if they appear distressed or complain about feeling unwell.*

- Veteran participants may also cope less well with exercise in the heat. Reduced cardiac function is thought to be responsible for this effect.

5. Predisposed medical conditions

- It is important to know if athletes, umpires, officials or volunteers have a medical condition or are taking medication that may predispose them to heat illness.
- Examples of illnesses that will put the participant or official at a high risk of heat illness include asthma, diabetes, pregnancy, heart conditions and epilepsy. Some medications and conditions may need special allowances.
- Participants and officials who present with an illness such as a virus, flu or gastro or who are feeling unwell are at an extreme risk of heat illness if exercising in moderate to hot weather.
- Participants or officials who may be affected by drugs or alcohol may be at an extreme risk of heat illness if exercising in moderate to hot weather.
- SMA has produced Pre-exercise Health Check Guidelines. These should be used if pre-existing medical conditions are suspected or if the participant has no recent record of activity. The Guidelines can be downloaded from **www.sma.org.au**

6. Other factors to consider

- Preventative measures can be undertaken to minimise heat injuries. Examples include the provision of shade, hats, appropriate sunscreen, spray bottles and drinking water.
- It is important to have trained personnel available to manage heat injuries and designated recovery areas for patients.
- In situations where heat problems may be expected, an experienced medical practitioner should be present.

Heat stroke is potentially life threatening. Any indication of this condition should be immediately referred for medical assessment.

Women's Health 10 years on

The Australian Longitudinal Study on Women's Health has issued a series of reports on women's health, including weight gain, ageing, use of rural health services and the use of tobacco and alcohol.

The reports have been compiled at the halfway stage of the 20-year study, which is examining the health of more than 40,000 women over three generations all over Australia.

The study is being conducted by a team of researchers from the University of Newcastle and The University of Queensland and is funded by the Australian Department of Health and Ageing.

The women taking part were selected in three age cohorts – 18-23, 45-60 and 70-75 – and they will remain throughout the study. Each group is comprehensively surveyed every three years so that comparisons can be made over time and between age groups. Three surveys have been conducted and analysed and a fourth is in progress.

They take a comprehensive view of health throughout life, including physical and emotional health, access to health services, health behaviour, sociodemographic factors such as employment and education, and key life events such as childbirth and widowhood.

The study was begun in 1996, thanks to Carmen Lawrence, the then Minister for Health. The current Minister, Tony Abbott, acknowledging this on 14 September when he launched the reports, also announced that the Government would provide another $4.62 million over the next three years so that the study can continue.

Sport Health reports on some significant areas in the reports.

Weight

In 1996, the younger women had the lowest average weight (62.6 kg) and the mid-age women the heaviest (68.6 kg), a difference of 6 kg. By Survey 3, the younger women had gained more weight than the mid-age women. Average weight was 67.4 kg for the younger group and 71.0 kg for the mid-age group, a difference of 3.6 kg.

The pattern of weight change was different in the older cohort: their average weight decreased during the first six years of the study.

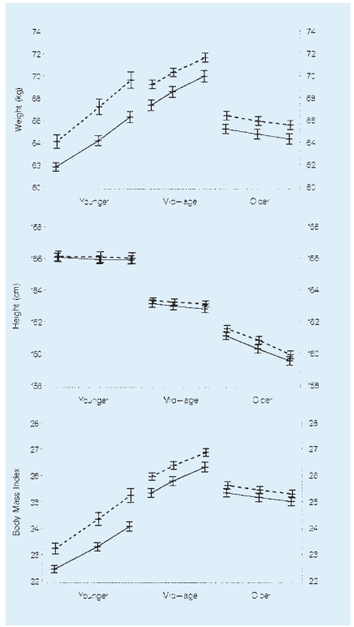
In all three age cohorts, the average weight of women in rural and remote areas was higher than that of urban women. Young rural women also gained weight faster than any other group.

In 1996, average body mass index of the younger women was 22.7 compared with 25.7 for the mid-age women and 25.5 for the older cohort. Again, in all three cohorts BMI was consistently higher for women in rural and remote areas than for urban women. Average BMI increased with time among the younger and mid-age women but decreased slightly among the older women.

The proportion of younger women in the underweight category (BMI <20) decreased with successive surveys. Over the period 1996-2003, the proportion in the overweight (BMI 25-<30) and obese (BMI >30) groups also increased. The proportion of mid-age in the overweight and obese categories also increased over time. By Survey 3, 54.3% of the mid-age women had a BMI >25 compared with 45.7% in 1996. In contrast, BMI in the older cohort remain largely unchanged, apart from a slight increase in those who were underweight.

On average, the younger women gained 649 g a year, compared with 494 g in the mid-age group, while the older women lost 162 g a year. Average weight gain was significantly higher in younger than in mid-age women, and significantly higher in younger women in rural and remote areas than in younger urban women.

Longitudinal analyses of weight gain among younger and mid-age women in the study have shown that weight gain is occurring across all socio-economic groups.



Average weight (top), height (middle) and BMI (bottom) of women who reported these data at every survey.

Solid lines chow data from rural/remote women. Data were collected from younger women in 1996, 2000 and 2003; from middle aged women in 1996, 1998, 2000 and 2003, and from older women in 1996, 1999 and 2002.

After adjustment for confounders, the factors found to be associated with weight gain in younger women were:

- Having BMI outside the healthy weight range at the start of the study
- Sitting more than 4.5 hours a day
- Eating takeaway food
- Restrictive eating practices.

Factors associated with weight gain in mid-age women were:

- Quitting smoking
- Hysterectomy
- Menopause
- Low levels of physical activity (less than 150 minutes a week)
- High sitting time (more than 4.5 hours a day)
- Being overweight or obese in 1996, and with high energy intake.

Although previous studies have shown cross-sectional relationships between BMI and health problems, the study is the first in Australia to be able to demonstrate the prospective relationships between weight gain and a range of health problems:

- Stiff and painful joints
- Back pain
- Tiredness
- Incontinence
- Hypertension
- Diabetes
- Heart disease.

The policy issues raised by the weight gain problem are

- As health problems caused by excess weight accumulate over time, the large numbers of 'baby boomer' (mid-age) women who are already overweight or obese, and the continuing weight gain in this group, pose an escalating health threat for the future. Major efforts to control weight gain among middle-aged people are needed if Australia is to avoid substantial increases in chronic disease, loss of productivity and declining wellbeing in the next 10-20 years.
- At the same time average BMI among younger rural women is now approaching that of women who are 25 years older. It is therefore likely that the health problems associated with overweight will start to appear much earlier in this generation of women, especially in rural areas.
- Women who are quitting smoking, going through menopause, have sedentary jobs or live in rural areas should all be targeted by efforts to increase energy expenditure and decrease energy intake. Small but consistent changes in physical activity and diet are needed to reverse the energy imbalance and halt the weight gain which underlies the current obesity epidemic.

Average annual weight change in grams

	NUMBER OF WOMEN	AVERAGE ANNUAL WEIGHT CHANGES (GRAMS PER YEAR) (95% CONFIDENCE INTERVAL)
Younger women		
Urban	3676	606 (571,641)
Rural/remote	2094	725 (676,755)
Total	5770	649 (620,678)
Middle aged women		
Urban	3360	515 (476,555)
Rural/remote	5582	477 (446.509)
Total	8942	492 (467,516)
Older women		
Urban	2939	-157 (-190, -125)
Rural/remote	3838	-166 (-197, -136)
Total	6777	-162 (-185,-140)

Healthy ageing

The study provides a picture of ageing that challenges negative stereotypes. At the time of the first survey in 1996, the women in the older cohort were aged 70 to 75. They were selected at random and represented the full range of health and functioning at that age. More than one third rated their health as excellent or very good at this time and fewer than 5% rated their health as poor. By Survey 3 in 2002, although the women were aged 73 to 81, the overall responses on self-rated health were unchanged.

At Survey 3, most of the women lived in houses (69%) or flats, units or apartments (21%). Fewer than 9% lived in retirement villages, nursing homes or hostels.

More than 90% were able to perform independent activities of daily living such as cooking, bathing and dressing. Eighty-three percent reported no difficulty seeing newspaper print (with glasses if necessary), 87% reported no difficulty hearing conversation (with a hearing aid if necessary) and 88% could bath and dress themselves without being limited by their hrasllth.

More than one third said they could walk at least a kilometre, 58% could walk half a kilometre and 73% could walk 100 metres.

More than half, however, reported difficulties with stairs or with lifting and carrying groceries.

The most chronic conditions among the older age group are hypertension

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Survey responses and percentages of deaths ans withdrawals for older women for Surveys 1,2 and 3.

	SURVEY1	SURVEY 2		SURVEY 3	
	NUMBER	NUMBER	%	NUMBER	%
Respondents	12,432	10,433	84	8647	77
No return	-	823	7	1184	11
Withdrawn/too frail	-	688	6	856	7
Died	-	488	4	569	5
Total	-	12432	100	11256*	100

* Excludes women who had died, withdrawn or were too ill by Survey 2

SMA'S pre-exercise screening system 2005

Physical activity levels in the general community are low and decreasing (AIHW, 2004). The typical physical working capacity or ability to undertake prolonged moderate or vigorous exercise is poor. This is because in the absence of specific, dedicated exercise time, the majority of people in developed countries such as Australia are becoming increasingly sedentary at work and at home, have low energy expenditure in leisure-time pursuits and have low participation rates in active transport.

It is not uncommon for some people to go for many months or even years without undertaking any planned or structured physical activity. When these people decide to alter lifestyle patterns, join a gym or begin regular physical activity they are often unsure about how to be active. Unfortunately, through inappropriate exercise prescription or knowledge of the principles of progressive overload, many people do too much too soon. The result may be extreme muscle soreness or joint problems, or in rare cases they may place themselves at higher risk for acute cardiovascular problems. For many people this is a demotivator and is related to the high dropout rates typically found for these new programs.

Who is it for?

The SMA pre-exercise screening system is a tool for exercise professionals to use when deciding if a person is at a high risk for these problems and is therefore recommended for medical clearance before embarking on an exercise program. Also, the screening system helps to identify those at low or moderate levels of risk during exercise and directs them to begin a tailored physical activity program without the need to seek medical clearance. This is the most common route for the majority of the population. Undertaking regular physical activity is important for the health of everyone.

The SMA screening system is part of the broader effort to encourage physical activity. It is designed to provide a level of guidance so that those who are beginning regular physical activity are directed in an appropriate way to increase their safety and help them enjoy the experience. The SMA pre-exercise screening system is a modification of the American College of Sports Medicine's (ACSM) guidelines for pre-exercise screening and testing (ACSM, 2000).

The ACSM guidelines are recognised as an important benchmark for the following reasons (Olds and Norton, 1999):

- The ACSM is an internationally recognised leader in the areas of exercise science and sports medicine
- The ACSM has produced six editions of their guidelines for pre-exercise screening and testing over the past 30 years which have been based on several decades of scientific, clinical and epidemiological research
- Similarities between Australian and North American populations in areas such as physical activity patterns, and morbidity and mortality statistics in lifestyle diseases such as cardiovascular disease, diabetes and cancer, justify their adaptation for use in Australia.

Stage 1 of the SMA pre-exercise screening system

The first stage of the screening system is a filter to screen out those people who are at a high risk level for exercise-related complications due to underlying cardiovascular, cerebrovascular, respiratory or metabolic diseases. These are people with known disease or who have signs and/or symptoms of disease. Other serious or potentially serious medical conditions that may be exacerbated during exercise are also important at this stage. It is recommended that this relatively small group of 'high risk' clients seek medical clearance before beginning an exercise program or undertaking aerobic fitness testing.

The questionnaire shown on page ……is the tool used to identify who is at high risk at this stage. If a person answers 'Yes' to any of the questions in the questionnaire, they are considered to be in the 'high risk' group. There is, however, scope for the exercise specialist to use a level of professional judgement when interpreting these responses.

For example, swelling or fluid accumulation about the ankles may be related to local joint problems or recent air travel rather than, for example, due to underlying cardiovascular pathology. For those with well controlled diabetes or stable cardiovascular conditions (coronary heart disease (CHD), cardiac failure, stroke and peripheral vascular disease (PVD)) there is generally no need to seek medical clearance before beginning a low – moderate physical activity program such as regular walking (NHF 2005). Also, 'other' medical conditions that may be mentioned are essentially endless so there requires a level of interpretation in deciding if the risk of adverse effects outweighs the known benefits of individually-tailored regular physical activity.

Those who are NOT at high risk can begin low or moderate level physical activity without the need for medical clearance (see Stage 2 Procedures on page……. for specific guidelines and rare exceptions). These people may also proceed to stage 2 of the screening system if there is a desire to exercise at vigorous intensity levels or if there is an intention to undergo exercise testing to maximal levels.

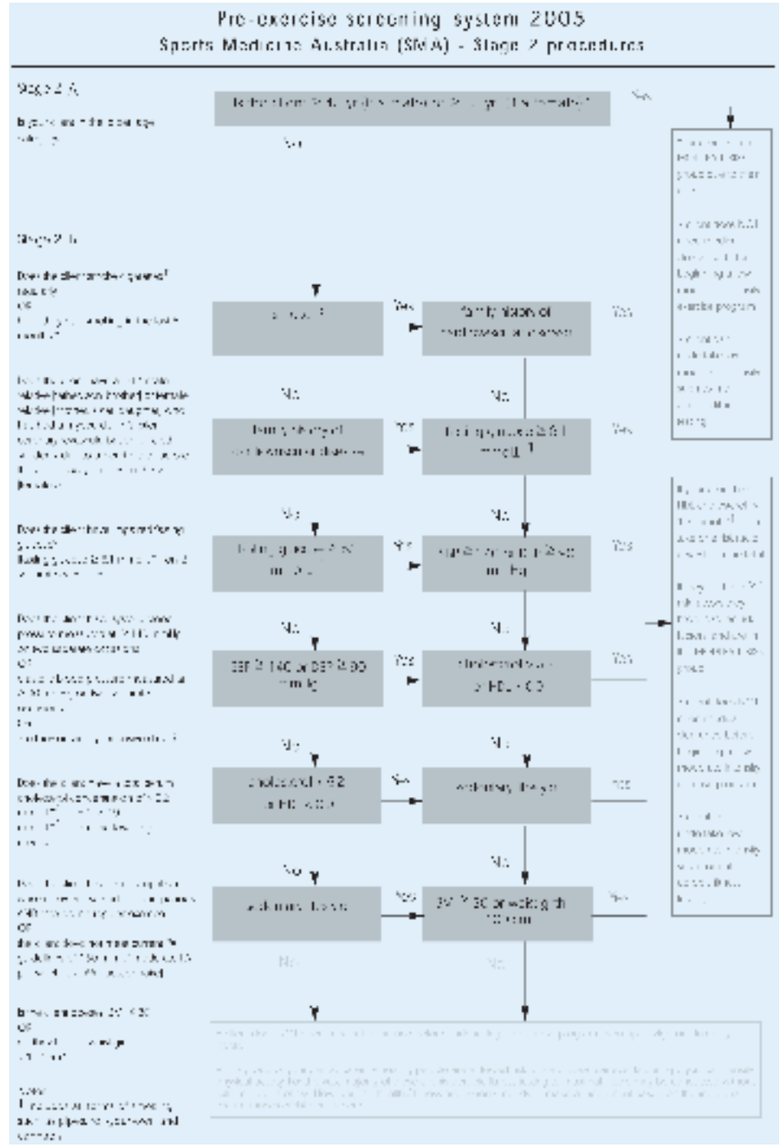
Stage 2

The second stage of the screening system is used to determine those people who are categorised as moderate or lowrisk for exercise-related complications due to underlying cardiovascular, cerebrovascular, respiratory or metabolic diseases (or other medical conditions referred to in the guidelines).

Stage 2 identifies those at moderate risk who are either 'older' and/or who have two or more risk factors for heart disease. For these clients they are classified

as moderate risk and can undertake physical activity up to moderate intensity levels (for example, walking for the majority of people), without medical clearance. Stage 2 procedures and measures can also be used as a valuable adjunct in the general health appraisal of clients and to monitor changes in risk factor status over time and with lifestyle changes. Those who are 'younger' and who have less than two risk factors are considered low risk for exercise-related complications. They can also be tested to maximal levels without medical clearance or supervision.

This screening system was produced by Professor Kevin Norton of the University of South Australia, in consultation with members of SMA. Further details of the system can be found at the SMA website at www.sma.org.au



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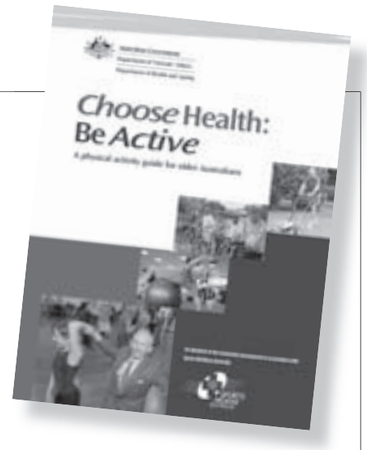
Choose health! Be active!



Two Australian Government Ministers have jointly launched Choose Health: Be Active, a booklet to help veterans and older people generally to improve their health and wellbeing by listing a number of ways to include appropriate forms of exercise in everyday life.

The Ministers were De-Anne Kelly, Minister for Veterans' Affairs, and Julie Bishop, Minister for Ageing.

Choose Health: Be Active was prepared by the two Ministers' departments, in association with SMA.

The starting point is, as the Australian Government Physical Activity Guidelines state, that "everyone should try to do at least 30 minutes of moderate intensity on most days of the week.

Why 30 minutes? Because, the booklet says, "30 minutes is needed to keep your heart, lungs, muscles and bones in good working order. If you can't get to 30 minutes a day, don't worry. Any amount of additional physical activity will improve your health.

"What is moderate intensity? Moderate intensity means you don't have to puff and pant. "You don't have to work up a sweat – but if you do – it's OK. Brisk walking is a great moderate activity. If you don't like walking, try working in the garden or going for a swim."

Choose Health: Be Active lists the four types of activity needed to keep people healthy – moderate fitness activities, strength activities, flexibility activities and balancing activities – and the kinds of exercise that can be done for each group.

The booklet suggests ways to make exercise easier, such as using fridge notes and other reminders, developing exercise routines, varying exercise and using exercise diaries or planners.

It sets out 12 dietary guidelines for maximum vitality, energy and health in older people and suggests a number of exercises that can be done in the home in everyday activities such as waiting for the kettle to boil and talking on the phone.

"For many older Australians, remaining physically active can be a challenge," the Ministers point out in the booklet.

"Choose Health: Be Active shows you simple ways to fit exercise and activity into your daily routine.

"Regular exercise, along with a balanced diet, can help you live life to the full, and to age in a positive, active, healthy way.

"Remember," they say, "inactivity is a health hazard.

"Be Active, start gently – and start today!"

***Choose Health: Be Active* is available from the Department of Veterans' Affairs on 133 254 and the Department of Health and Ageing on 1800 500 853.**

» *Continued from page 9*

and arthritis. Among the National Health priority areas, bone and joint diseases and heart, stroke and vascular disease (including hypertension) are much more prevalent than diagnoses of diabetes, asthma or cancer.

The responses from those who participated in all three surveys showed that there were small but clear declines in physical health consistent with the increases in chronic conditions. This is also reflected in increased use of health services and medications.

Two policy issues were posed in the Healthy Ageing report.

First, that hypertension and arthritis are the most common condition affecting older women. Though not life-=threatening, stiff and painful joint cause most disability. Prevention and management of bone and joint problems should be regarded as a high priority for public health. Importantly, women should be encouraged to maintain safe and appropriate levels of physical activity and weight.

Second, strategies to enhance healthy ageing for women could include:

- Support for women caring for frail husbands or family members, and for widows, specially in the first 12 months after their husbands' death, when grief and the need for adjustment are usually greatest; and
- Informing older women about community services available to them, especially help with transport and home maintenance and home-making services to help women to remain in their own home.

Information on the Australian Longitudinal Study on Women's Health, including surveys and details of scientific publications, can be found at the project website at www.newcastle.edu.au/centre/wha or by calling the research team at The University of Queensland at 07-3346-4691 or sph-wha@sph.uq.edu.au or the University of Newcastle at 02-4923-6873 or whasec@newcastle.edu.au.

Murali's doosra: technology and the law in cricket

by Bruce Elliott, Jacque Alderson, Siobhán Reid and David Lloyd

Technology is playing an ever-increasing role in today's society. Its influence has flowed to sport where technique modification and player movement based on video analysis, "instant replays", commercial breaks during a game and the scrutiny of player behaviour from video are all common occurrences.

However, the use of technology to assess the legality of a bowling action in cricket is a more recent occurrence. With players now competing for very large contracts it is imperative that technique assessment is accurate. That is, similar results must be able to be obtained from different laboratories and over repeated trials from the same laboratory. Results must also be valid; that is, they must actually reflect what happens under match conditions. This paper will outline the system used at the School of Human Movement and Exercise Science (HM&ES) at The University of Western Australia to assess bowling (fast and spin) for the International Cricket Council (ICC).

The analysis system used in data collection must be able accurately to produce angle data at the elbow, as the error tolerance currently provided by the ICC is 10° for fast bowling and 5° for spin bowling. Richards (1999) reported that opto-reflective systems (see reflective markers in Figures 1 & 2) have an error of approximately 1° in a laboratory environment, while this error increases to 3°-4° for video-based systems tested under the same conditions. Opto-reflective systems are generally used in a laboratory environment and so the 1° error would be appropriate for data capture in this environment. However, when bowlers wear a long sleeve shirt and are filmed from 50 m-70 m, as in match conditions, then the error associated with video-based analysis would increase. Bowlers with an upper limb abnormality, where axes of rotation are difficult to assess, must be tested in a laboratory environment. For these reasons a commercially available opto-reflective system (Vicon 612) was used to analyse the 'doosra" action of spin bowler Muttiah Muralitharan. A similar approach was also used in the testing of the Pakistan fast bowler Shabbir Ahmed.

Vicon Analysis System

Cameras

Twelve cameras operating at 250 Hz were strategically placed in a laboratory, so that they defined a calibration space of 5 m (long) x 2.5 m (wide) x 3 m (high). This permitted the full delivery action and initial ball flight to be captured on computer. The laboratory opens on to an oval, which allowed Muttiah Muralitharan to use a full run-up and bowl on to a full-length pitch.

The 12 infra-red cameras were capable of operating at 1000 Hz with a resolution of 1.3 million pixels. However, 250 Hz was deemed sufficient to record all aspects of the bowling action in this particular case. The cameras performed two functions: the first was to illuminate the performance area with the high-powered software-controlled infra-red strobe lights and the second to track the reflection from each opto-reflective marker. During the bowling performance every marker must be viewed by at least two cameras for three-dimensional (3D) reconstruction of marker movement. In normal circumstances each marker, at any point in time, can be seen by more than two cameras. While the cameras are capable of detecting markers as small as 4 mm, at a distance of greater than 10 m, in this analysis markers of 14 mm diameter were used so that these could easily be tracked throughout the delivery.

Calibration

Calibration of the 5 m (long) x 2.5 m (wide) x 3 m (high) space occurs prior to collecting any bowling data. This basic system operation was linked to the calibration of each camera to a tolerance of 1.5 mm. Static bowler specific calibration trials to determine shoulder, elbow

and wrist joint centres (discussed below) are also captured prior to the collection of bowling data.

Model

Irrespective of what analysis system is used, the quality of data will also be a reflection of the "model" used to define joint centres and axes of rotation. The School of HM&ES has developed a "Full Body Model" for the analysis of movement. However, in this paper only the "Upper Body Model" related to the bowling arm in cricket will be discussed (Figure 1). These customised models have been written using Vicon Bodybuilder Bodylanguage software. The model interprets the positional data of the markers attached to the body during the bowling action (Figure 1A). Labels are assigned to each marker creating body segments (Figure 1B). From these segments an anatomical human-form representation is structured and segmental orientations and angles can be determined (Figure 1C).

The 3D reconstruction shown in Figure 1B & C requires accurate identification of joint centres for the upper limb. The following joint centre and joint axes definitions are used in the HM &ES Upper Limb Model.

Shoulder Centre

This relies on accurate placement of an acromion marker positioned centrally on the process (see Figure 2, left and right acromion markers), an anterior shoulder marker (see Figure 2 left anterior marker) and a posterior shoulder marker. The anterior and posterior markers are placed such that a line between the two markers represents the shoulder axis of rotation (approximate midline of the upper arm). The shoulder joint centre (SJC) is then calculated from where a vertical line dropped from the acromion intersects the line between the anterior and posterior markers. The position of the calculated SJC is then recorded in a static trial relative to the coordinate system of the triad located on the upper arm. During a bowling trial the SJC can then be reconstructed relative to the position of the upper arm triad during every frame.

This upper arm triad, which can best be seen on both upper arms in Figure 3, is placed such that two markers run parallel with the long axis of the humerus, while the third marker is oriented medially. Triad marker sets are used in preference to a single marker, so that motion can be accurately reconstructed in three dimensions and to minimise error associated with skin movement.

Imagine trying to digitise the shoulder centre from the views obtained from three video cameras, when the bowler is wearing a shirt. While it may be relatively easy to identify the joint centre from one direction, the ability also to identify this same point, obscured by the body from other camera views, makes this task extremely difficult.

Elbow Centre

Determination of the elbow joint centre is critical to the calculation of an elbow angle. The positions of the two elbow epicondyles relative to the position of the upper arm triad are determined in individual "static trials", prior to data collection (see Figure 2, which shows the position of the right arm lateral epicondyle being recorded). During data capture of the bowling action the position of each epicondyle relative to the upper arm triad is reconstructed. The mid-point of the line joining the two epicondyles represents the "flexion/extension axis" of the elbow.

Figure 1 A, B & C: 3D reconstruction of upper limb markers (A), segments (B) and anatomical structure (C) during the spin bowling action.

Figure 2: Determination of lateral elbow condyle (Picture courtesy of Tom Rovis-Hermann)

Figure 3: Upper Body Model (not all markers can be scene (Picture courtesy of Tom Rovis-Hermann)

Wrist Centre

Calculation of the wrist joint centre relies on the presence of two wrist markers placed on the styloid process of the radius and ulna (see Figure 2, right forearm). During an initial static calibration the position of the wrist markers are recorded relative to the position of another triad placed on the forearm (Figures 2 & 3). Notice how the orientation of this triad is across the lower third of the forearm rather than vertically down as with the upper arm triad. This placement allows for more accurate pronation/supination data. The wrist markers may be removed prior to bowling as seen in Figure 3.

Data collection procedures

Trials are typically collected until six successful deliveries have been recorded. To ensure that trials collected are as representative of the "match-environment as possible, the following conditions needed to be met:

- Ball needed to be of "good length" and spin in the appropriate direction.
- Ball delivery speed needed to be at the higher end of the range recorded from the 2002-2003 Sri Lanka v Australia Test Series.
- An expert cricket coach agreed that the ball was delivered in the appropriate manner.

In this test condition eight successful trials were recorded, so that those with an upper arm rotation similar to that recorded in the Test series between Sri Lanka and Australia could also be matched.

Results

Elbow joint angles for trials from when the upper arm was parallel to the ground until ball release were then provided to the ICC (as shown in Figure 4). These data will not be presented in this article. However, the format for data presentation can be seen in Figure 4 for a representative trial. These data may also be presented as an avi video file, so that one is able to play the action (from all views) at the same time that on watches the change in elbow angle. A screen capture of this procedure is shown as Figure 5.

While it is obvious that Muralitharan bowls with a flexed elbow, it should also be stated that he is unable to extend beyond 160° even under dynamic loading. This is obviously the reason he commenced his spin bowling development with a "bent arm". For this reason bowlers must have an appropriate anthropometric assessment prior to data collection. It should also be stated that the graphs for each of his "successful" trials were remarkably similar.

Figure 4: Representative data from

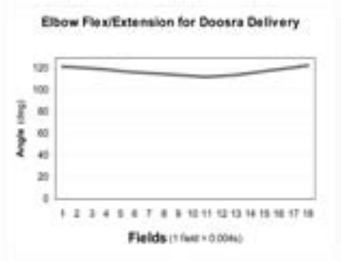
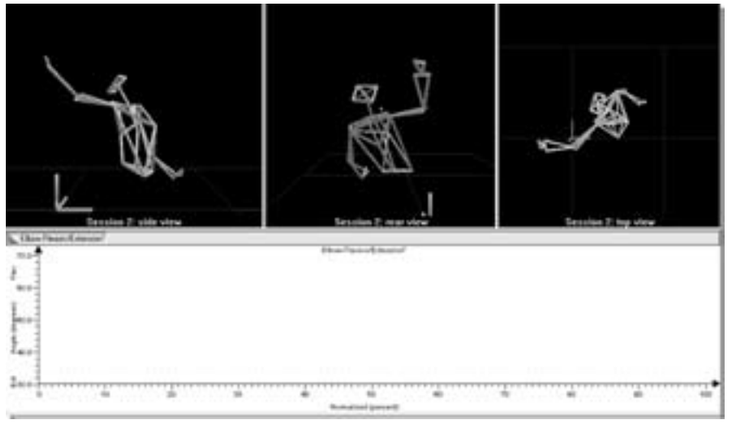


Figure 5: Screen capture linked to changes in elbow angle from when the upper arm was horizontal to the ground until release



Conclusions

It is our opinion that the only way to test the legality of the technique used by spin bowlers is in a laboratory, where a full pitch and run-up are available to the bowler. Where the error tolerance, as set by the ICC is low, it is imperative that extremely accurate data be collected as with the opto-reflective system discussed above. In saying this it is also critical to match "Test Match" conditions as much as is possible. Fast bowlers may be able to be tested in a match environment with more success than with spin bowlers. However, the proviso here would be that they do not have any abnormality of the upper arm (hyper-extendable elbow, large "carry-angle", or fixed flexion deformity at the elbow). In these cases the more accurate laboratory environment must again be used.

References

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AFL injury report: season 2004

By John Orchard and Hugh Seward

The 13th season of the AFL Injury Survey was completed in 2004. The initial survey year (1992) included Australian Football, Rugby League and Rugby Union injuries[1] and the AFL has sponsored surveillance of its own competition ever since. The public release of the annual report, which has been made since 1996[2], makes the AFL injury survey the world's longest running professional injury survey in sport that has been publicly released on an annual basis[3, 4]. The injury survey also has a pivotal position in guiding the AFL Research Board to fund projects which study injuries that are common, severe and/or increasing in incidence in AFL players. Since 1997, the injury survey has accounted for every case of senior listed players missing games through injury in the home and away season[3]. In 2001 this was extended to include rookie listed players and finals matches.

The basis for surveillance methods in the AFL is the van Mechelen paradigm[5]. Table 1 shows the stages of the van Mechelen paradigm and summarises how the AFL injury survey has approached each of these over the past decade.

Table 1 - van Mechelen's recommendations for injury prevention

STAGES OF INJURY PREVENTION	AFL INJURY SURVEY STATUS
1. Identify frequency of common and serious injuries	This has been done for the past 13 years
2. Identify risk factors (both intrinsic and extrinsic) for the most common and serious injuries	Some risk factors are established for muscle strains, knee injuries, groin injuries, concussion etc.
3. Institute preventative programs based on modification of reversible risk factors	Interventions have been made at AFL level (changes to ground preparation, video surveillance, rule changes) and at club level (improved diagnosis, injury prevention programs, more conservative strategies for return from injury)
4. Monitor success of intervention with ongoing surveillance	Injury incidence and recurrence rates have been dropping over the past 8 years, with injury prevalence also at a historically low level

Methods

The methods of the injury survey are now well established and have been previously described in detail[3]. Player movement monitoring essentially requires that all clubs define the status of each player each round to be either: (1) playing AFL football; (2) playing football at a lower level; (3) not playing football due to injury, or (4) not playing football for another reason.

The definition of an injury is "any medical condition that prevents a player from participating in a regular season (home and away) or finals match". The major measurement of the number of injuries occurring is seasonal injury incidence measured in a unit of new injuries per club per season (where a club is defined as 40 players and a season is defined as 22 rounds). The major measurement of the amount of playing time missed through injury is injury prevalence measured in a unit of missed games per club per season, or alternatively percentage of players unavailable through injury. The recurrence rate is the number of recurrent injuries expressed as a percentage of the number of new injuries. A recurrent injury is an injury in the same injury category occurring on the same side of the body in a player during the same season. Therefore, by this definition, an injury of one type that recurred the following season was defined as a new injury in that next season.

All injury rates are adjusted to account for differing player list sizes and number of matches per club in each season, so that the injury rates reported each season represent a hypothetical club with 40 listed players participating in 22 matches.

Results

Weekly player status

Table 2 details player status on a weekly basis over the past eight seasons. The 'average' status of a club list of 43 players in any given week for 2004 was: 34 players playing football per week, 6-7 missing through injury and 2-3 missing through other reasons (such as suspension, being used as a travelling emergency, team bye in lower grade, etc). The injury prevalence (proportion of players missing through injury) was higher in 2004 than in 2003 but still low in terms of the historical average.

Table 2 - Average weekly player status by season

STATUS	1997	1998	1999	2000	2001	2002	2003	2004
Playing AFL	21.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Playing lower grade football	11.8	11.4	11.4	11.3	12.9	12.1	12.0	11.9
TOTAL playing	32.8	33.4	33.4	33.3	34.9	34.1	34.0	33.9
Not playing because of injury	7.7	6.7	6.4	6.2	6.7	6.6	5.7	6.4
Not playing for other reasons	1.9	1.6	1.8	1.8	1.8	2.3	2.5	2.5
TOTAL not playing	9.6	8.3	8.3	8.0	8.5	8.9	8.2	8.9
Players in injury survey (per club)	42.3	41.7	41.7	41.4	43.4	43.0	42.2	42.8
Injury prevalence (%)	18.1	16.1	15.4	15.0	15.5	15.3	13.5	14.9

Table 3 - Injury incidence (new injuries per club per season)

BODY AREA	INJURY TYPE	1997	1998	1999	2000	2001	2002	2003	2004
Head/neck	Concussion	0.6	0.7	0.5	0.6	0.7	0.7	0.3	0.3
	Facial fractures	0.8	0.7	0.8	0.7	0.4	0.4	0.6	0.8
	Neck sprains	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.1
	Other head and neck injuries	0.2	0.2	0.2	0.1	0.3	0.2	0.3	0.2
Shoulder/ arm/ elbow	Shoulder sprains and dislocations	1.0	0.9	0.7	0.7	1.1	0.9	1.3	1.0
	A/C joint injuries	0.9	0.9	0.6	1.3	0.9	1.1	0.3	1.1
	Fractured clavicles	0.4	0.4	0.3	0.5	0.3	0.3	0.2	0.6
	Elbow sprains or joint injuries	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3
	Other shoulder/arm/elbow injuries	0.6	0.5	0.2	0.5	0.5	0.8	0.5	0.4
Forearm/ wrist/hand	Forearm/wrist/hand fractures	1.1	1.7	1.7	1.4	0.8	1.1	0.8	1.1
	Other forearm/wrist/hand injuries	0.4	0.4	0.4	0.7	0.3	0.4	0.9	0.4
Trunk/back	Rib and chest wall injuries	1.1	0.5	0.8	0.7	0.4	0.8	0.7	0.6
	Lumbar and thoracic spine injuries	1.9	1.6	1.5	2.2	1.6	0.9	1.0	1.7
	Other trunk/back/buttock injuries	1.0	0.9	1.0	0.5	0.4	0.4	0.4	0.6
Hip/groin/ thigh	Groin strains and osteitis pubis	4.1	3.3	3.1	3.0	3.5	3.9	2.8	3.1
	Hamstring strains	6.8	6.4	6.8	5.8	6.1	4.5	5.9	6.3
	Quadriceps strains	2.5	3.0	2.4	2.0	1.6	1.7	2.0	1.9
	Thigh and hip haematomas	1.3	1.3	1.1	1.1	0.6	1.0	0.3	1.1
	Other groin/hip/thigh injuries	0.4	0.2	0.3	0.4	0.3	0.3	0.4	0.3
Knee	Knee ACL	1.2	0.8	0.7	0.5	0.9	0.8	0.6	0.6
	Knee MCL	0.7	1.3	1.2	0.9	1.2	0.9	1.0	0.7
	Knee PCL	0.6	0.3	0.7	0.5	1.0	0.4	0.5	0.7
	Knee cartilage	0.9	1.1	1.1	1.2	1.9	1.3	1.7	1.2
	Patella injuries	0.2	0.4	0.1	0.2	0.2	0.4	0.1	0.1
	Knee and patella tendon injuries	0.5	0.6	0.7	0.7	0.5	0.8	0.7	0.4
	Other knee injuries	1.4	0.4	0.9	1.3	0.8	0.5	0.7	0.7
Shin/ankle/ foot	Ankle sprains or joint injuries	2.7	2.8	2.1	2.7	2.0	2.5	2.6	2.6
	Calf strains	1.9	2.3	1.4	1.9	1.6	2.2	1.6	0.9
	Achilles tendon injuries	0.4	0.3	0.5	0.4	0.2	0.4	0.4	0.2
	Leg and foot fractures	0.5	0.8	1.1	0.6	1.0	0.9	0.5	0.5
	Leg and foot stress fractures	0.8	0.7	0.8	0.5	0.9	0.7	0.9	0.9
	Other leg/foot/ankle injuries	1.9	1.7	1.3	1.4	1.7	0.9	1.5	1.7
Medical illness	Medical illnesses	2.5	2.8	1.6	1.9	1.8	2.3	2.4	2.0
TOTAL INJURIES PER CLUB		41.9	40.3	36.9	37.4	35.8	34.3	34.1	34.9

Injury incidence

Table 3 details the incidence of the major injury categories. The injury incidence (number of new injuries per team per season) continued in 2004 at a level which was historically low. Hamstring strains have been the most common injury in every year of the survey, with generally six of these injuries occurring per club per season and these injuries were again very common in 2004. Concussion, patella and Achilles tendon injuries, calf strains and knee medial ligament injuries all recorded historically low incidence rates in 2004. There was no injury category that showed a substantial increase in injury incidence in season 2004.

Injury recurrence

Table 4 shows the rate of recurrence of the some of the common injury types, particularly muscle strains which have a comparatively high recurrence rate. Some other injuries, such as fractures, concussion and 'cork' injuries have a low recurrence rate. The issue of recurrence for muscle strains is the subject of ongoing research[6]. The rate of injury recurrence has been showing a steady decline over the last seven years, with 2004 having the lowest recurrence rate on record.

Injury prevalence

Table 5 details the amount of missed playing time attributed to the most notable injury categories. In season 2004, hamstring also continued as the No. 1 injury in the game with respect to missed playing time, surpassing both groin injuries and knee ACL injuries.

Certain injury categories, such as concussion, knee and patella tendon injuries and calf strains exhibited historically very low prevalence during season 2004.

Table 4 - Recurrence rates (recurrent injuries as a percentage of new injuries)

INJURY TYPE	1997	1998	1999	2000	2001	2002	2003	2004
Hamstring strains	37%	36%	30%	39%	25%	30%	27%	22%
Groin strains and osteitis pubis	36%	31%	6%	16%	20%	23%	20%	24%
Ankle sprains or joint injuries	20%	21%	9%	11%	17%	16%	6%	11%
Quadriceps strains	35%	20%	20%	18%	10%	17%	9%	3%
Calf strains	15%	15%	17%	32%	17%	13%	14%	6%
ALL INJURIES	20%	19%	14%	16%	15%	13%	14%	10%

Table 5 - Injury prevalence (missed games per club per season)

BODY AREA	INJURY TYPE	1997	1998	1999	2000	2001	2002	2003	2004
Head/neck	Concussion	0.7	0.7	0.5	0.7	1.3	2.0	0.6	0.3
	Facial fractures	2.5	2.1	2.3	2.0	1.3	1.4	1.0	2.2
	Neck sprains	0.7	0.7	1.6	0.3	0.2	0.0	0.3	0.6
	Other head and neck injuries	0.3	0.2	0.4	0.8	1.5	0.2	0.7	0.2
Shoulder/ arm/ elbow	Shoulder sprains and dislocations	5.3	5.9	5.6	4.0	5.4	5.9	5.7	5.9
	A/C joint injuries	2.2	2.1	0.9	3.1	2.1	2.4	0.7	2.5
	Fractured clavicles	1.4	1.6	1.2	3.0	1.6	2.0	1.0	3.5
	Elbow sprains or joint injuries	0.7	1.2	0.2	0.1	0.4	0.3	0.4	0.7
	Other shoulder/arm/elbow injuries	2.4	1.9	0.3	1.3	1.3	4.0	1.6	1.6
Forearm/ wrist/ hand	Forearm/wrist/hand fractures	4.1	5.4	5.9	5.6	2.8	3.1	2.6	3.9
	Other forearm/wrist/hand injuries	0.7	1.3	0.9	1.8	0.3	2.2	3.1	1.2
Trunk/back	Rib and chest wall injuries	2.5	1.0	1.8	1.0	0.5	1.3	1.5	1.1
	Lumbar and thoracic spine injuries	12.2	4.6	8.0	8.5	5.8	5.8	2.4	5.9
	Other trunk/back/buttock injuries	3.7	1.4	2.0	2.2	1.5	1.7	1.5	2.1
Hip/groin/ thigh	Groin strains and osteitis pubis	17.4	13.9	9.4	7.5	13.6	15.8	13.6	13.3
	Hamstring strains	21.0	21.0	22.6	22.9	21.4	15.7	18.8	21.7
	Quadriceps strains	8.6	9.5	6.7	5.6	3.8	4.3	6.0	4.2
	Thigh and hip haematomas	2.4	1.8	1.5	1.8	0.6	1.9	0.5	1.7
	Other groin/hip/thigh injuries	1.7	0.5	2.3	1.5	1.7	1.2	1.5	2.6
Knee	Knee ACL	19.8	15.8	10.8	4.8	13.6	16.5	10.8	10.1
	Knee MCL	3.3	4.3	3.3	3.5	4.8	3.3	2.9	2.9
	Knee PCL	1.9	2.2	5.2	2.3	5.9	2.3	2.0	6.5
	Knee cartilage	4.0	5.6	5.3	8.6	12.5	6.0	7.0	6.1
	Patella injuries	0.9	1.6	0.8	1.8	0.8	2.5	0.6	0.1
	Knee and patella tendon injuries	2.4	1.6	3.9	3.9	2.5	3.7	2.9	0.9
	Other knee injuries	3.9	1.2	2.2	3.6	2.5	1.0	2.4	1.3
Shin/ankle/ foot	Ankle sprains or joint injuries	7.2	6.9	3.9	6.8	4.3	5.9	5.3	6.7
	Calf strains	5.8	6.4	3.4	5.7	3.4	4.4	3.9	1.7
	Achilles tendon injuries	1.3	1.4	1.3	1.6	0.7	0.9	1.5	0.8
	Leg and foot fractures	2.6	5.4	8.8	4.6	7.2	7.9	3.0	3.7
	Leg and foot stress fractures	4.9	4.0	6.7	3.8	4.4	3.9	5.3	6.3
	Other leg/foot/ankle injuries	6.4	5.1	3.1	4.1	4.2	2.3	3.7	4.3
Medical illness	Medical illnesses	4.2	3.7	3.3	2.8	2.6	2.9	3.9	4.2
MISSED GAMES PER CLUB PER SEASON		159.2	141.9	135.9	131.8	136.4	134.7	118.7	131.0

The only injury category which showed historically high injury prevalence in season 2004 was knee posterior cruciate ligament (PCL) injuries. The incidence of PCL injuries was not significantly different to that of past seasons, but two ruckmen underwent PCL reconstructions (which is a rarely performed procedure) early in the season and therefore missed many games. This increased the average severity and overall prevalence of knee PCL injuries. This injury category is discussed in detail later in this report.

Analysis & discussion for significant injury categories

Knee anterior cruciate ligament (ACL) injuries

There have been 115 complete ACL injuries occurring in AFL matches (both senior and reserve grades) during seasons 1992-2004 inclusive, 27 with a mechanism involving direct contact to the knee or leg, and 88 with either no player to player contact or an indirect contact mechanism (which were designated 'non-contact' injuries). Of these 88, 35 involved a landing mechanism, 14 involved indirect contact through tackling with the remainder change of direction while running. In addition, there have been 58 ACL injuries in other (non-AFL) matches, 21 occurring during training sessions and 1 occurring in a listed player outside football. These occurrences are detailed in Table 6.

Over recent seasons, great attention has been paid to the possible contribution of ground conditions to injury rates, particularly with respect to knee ACL injuries. The overall injury prevalence has been consistently higher in the teams based in northern states compared to teams based in Victoria and in games played earlier during the season (Table 7)[7]. It has been hypothesised that perhaps grounds are generally harder in the northern venues, which might lead to greater injury rates, although investigation has shown that grounds in the northern venues are generally not harder than Victorian grounds[7-12]. Major AFL venues have taken Penetrometer readings prior to games to attempt to assess the risk of injury and its relationship to ground hardness[4, 9]. However, the relationship found between injury and ground hardness to date seems to have been minimal[4, 9]. The fact that efforts have been made, since this was first postulated, to prepare grounds that were not excessively hard, has made this relationship more difficult to study.

Recent research suggests that the grass types used on stadium fields and thatch depth, more so than ground hardness, may be more likely to be responsible for the 'early-season' and 'warm-season' biases for ACL injuries that have been previously noted[13]. It is unlikely that surface hardness (independent of shoe-surface traction) is the most important extrinsic risk factor for ACL injury across a variety of sports. Because the interactions of grass type, player choice of boot and shoe-surface traction are not well understood, it is still premature to make any strong recommendations about acceptable ground conditions with respect to safety in preventing ACL injuries. ACL injury rates have fallen over the past few years, but there are not enough comparative data to attribute this to either reductions in ground hardness, traction and/or the removal of cricket pitches at this stage. Perhaps some of these interventions have been successful in combination. There may be other confounding factors, such as individual club proprioceptive training programs, that could have contributed to the recent reduction in ACL injury incidence.

Table 6 - ACL injuries occurring each season in AFL players

SEASON	ACL INJURIES OCCURRING IN LISTED PLAYERS IN:						
	AFL MATCHES –VIC/TAS	AFL MATCHES NORTHERN-	AFL RESERVES MATCHES (VIC)	OTHER MATCHES	TRAINING SESSIONS	OUTSIDE FOOTBALL	TOTAL
1992	4	6	2	4	2	0	16
1993	3	0	2	2	1	0	7
1994	4	3	0	6	2	0	13
1995	7	4	1	2	1	0	14
1996	5	5	2	7	3	0	19
1997	11	3	4	3	2	0	21
1998	2	8	1	4	2	0	15
1999	1	3	2	2	0	0	8
2000	2	2		4	0	0	8
2001	4	7		6	2	0	17
2002	4	2		9	3	1	15
2003	4	1		6	1	0	11
2004	3	3		3	2	0	9
Total	54	47	14	58	21	1	173

Table 7 – Relative risk of ACL injury by month of year

MONTH	MATCHES	ACL INJURIES TOTAL	NON-CONTACTT	ACL RATE
January	9	0	0	
February	130	8	7	30.8
March	244	12	11	24.6
April	613	27	22	22.0
Early-season total	996	47	40	23.6
May	641	17	11	13.3
June	531	16	13	15.1
July	628	16	11	12.7
August	638	14	10	11.0
September	199	5	3	12.6
October	2	0	0	0.0
Late-season total	2639	68	48	12.9

Knee posterior cruciate ligament (PCL) injuries

The rate of knee posterior cruciate ligament (PCL) injuries has varied from year to year although the total injury incidence has not particularly increased from 1997 to 2004 inclusive. However, this injury is the one major injury category which is more common and prevalent in a specific player position (the ruckman). Player position analysis and injury are not a major focus of the injury survey, as few players stick to a particular position over the course of an entire game. Running, marking, kicking, handpassing and contesting for possession are components of almost every position on the field. Aside from perhaps full forward and full back, the ruckman is the only position on the field with a unique task (ruck duels).

Details regarding the incidence of specific PCL injuries are listed in Table 9. More ruckmen have suffered PCL injuries since 1999, and three to four per year have suffered this in the centre bounce ruck contest. At the same time fewer players appear to have suffered this injury in falls around the ground, which may reflect the improvement in ground preparation producing softer playing surfaces.

Table 8 - Key indicators for PCL injuries over the past eight seasons

POSTERIOR CRUCIATE INJURIES	1997	1998	1999	2000	2001	2002	2003	2004
Incidence	0.6	0.3	0.7	0.5	1.0	0.4	0.5	0.7
Prevalence	1.9	2.2	5.2	2.3	5.9	2.3	2.0	6.5
Severity	3.3	7.4	7.2	4.8	5.9	5.9	4.4	9.0

Table 9 – PCL injuries in ruckmen and all players 1992-2004

YEAR	NEW PCL INJURIES CAUSING MISSED GAMES	PCL INJURIES IN RUCKMEN (TOTAL)	PCL INJURIES IN RUCKMEN IN CENTRE BOUNCES (TOTAL)
2004	13	6	5
2003	8	4	2
2002	7	3	3
2001	18	6	4
2000	8	4	4
1999	12	3	3
1998	5	2	2
1997	10	1	0
1996	10	1	1
1995	9	1	1
1994	8	2	2
1993	4	0	0
1992	7	0	0

New rules have been introduced to limit the ruckman's run up, with the introduction of a 10-metre outer circle. The rationale for this change is to reduce the momentum of any knee contact, while maintaining the spectacle of this unique contest, and thereby reducing the severity of any subsequent injury. It is expected that the trend of higher PCL injuries amongst ruckmen will be reversed, reducing the morbidity among ruckmen and extending their careers.

Hamstring injuries

Hamstring strains remain the most common injury in the AFL. Previous analysis of hamstring and other muscle strain data shows a high rate of recurrence[6, 14-16]. The current AFL data show that management of these injuries has become more conservative over the last decade in the AFL. The mechanisms of hamstring injury in football are overstriding when sprinting, bending to pick up the ball while running or attempting to break out of a tackle[17]. The risk of recurrence is high and persists for three months after return to play because players often return with subtle strength deficits and/or biomechanical compensations[6]. There is research identifying the role of MRI as a predictor for safe return to play (without recurrence) from hamstring strains through the measurement of the size of the lesion[18].

In a similar fashion to injuries overall, Table 10 shows that hamstring strains have decreased in incidence, prevalence and recurrence rate over recent seasons, with little change in overall average hamstring injury severity.

Concusion

Concussion rates have been low and, if anything, declining over the last decade. It is acknowledged that the 'true' incidence of minor concussions is underestimated by the injury survey, in that there are a number of clinical cases of concussion that occur but do not result in games being missed, which therefore do not satisfy the injury survey definition. However, it is very apparent that these cases are not leading to long-term problems with this diagnosis. While the injury survey in its current form cannot be used to assess the number of players who remain on the field, or return to the field, having suffered a concussion in the same game, the lack of apparent long-term consequences of concussion management vindicates the current management of AFL medical staff.

Conclusions

Table 12 shows that, from 1997 to 2004, injury incidence and injury recurrence rate have gradually decreased. Injury severity (average number of games missed per new injury) has stayed fairly constant. Because the recurrence rate is dropping, this indicates that the average new injury is keeping players out for longer, but the longer new injury recovery time is being counterbalanced by the reduced time missed from recurrent injuries.

It is pleasing to show the gradual decreases in injury incidence and prevalence, notwithstanding a higher prevalence in 2004 compared to 2003. Certainly the ongoing trends in the injury rates vindicate the approach the AFL is taking towards injury surveillance and research. The AFL is one of the few professional sports in the world (if not the only one) which can say it has successfully followed the recommended van Mechelen paradigm for sports injury prevention[5] (Table 1). Possible variables that may have positively affected injury rates include: (1) the program of ground condition surveillance by all major venues with a resulting greater focus on safety; (2) the specific move by grounds to promote rye grass use as the predominant species; (3) video surveillance and low tolerance to foul or illegal play, showing a continuing influence on reducing concussions; (4) the establishment of a research board with a knowledge increase from the specific projects to have arisen out of this funding; (5) improved management and prevention of injuries at club level; (6) changes to player footwear that have occurred over the past seven years; and (7) changes in styles of play that have occurred over the past seven years.

Table 10 - Key indicators for hamstring strains over the past eight seasons

HAMSTRING STRAINS	1997	1998	1999	2000	2001	2002	2003	2004
Incidence	6.8	6.4	6.8	5.8	6.1	4.5	5.9	6.3
Prevalence	21.0	21.0	22.6	22.9	21.4	15.7	18.8	21.7
Severity	3.1	3.3	3.3	3.9	3.5	3.5	3.2	3.4
Recurrence rate	37%	36%	30%	39%	25%	30%	27%	22%

Table 11 - Key indicators for concussion (injuries causing missed games) over the past eight seasons

CONCUSSION	1997	1998	1999	2000	2001	2002	2003	2004
Incidence	0.6	0.7	0.5	0.6	0.7	0.7	0.3	0.3
Prevalence	0.7	0.7	0.5	0.7	1.3	2.0	0.6	0.3
Severity	1.1	1.0	1.1	1.1	1.8	3.1	1.7	1.0

Table 12 - Key indicators for all injuries over the past eight seasons

ALL INJURIES	1997	1998	1999	2000	2001	2002	2003	2004
Incidence	41.9	40.3	36.9	37.4	35.8	34.3	34.1	34.9
Prevalence	159.2	141.9	135.9	131.8	136.4	134.7	118.6	131.0
Severity	3.8	3.5	3.7	3.5	3.8	3.9	3.5	3.7
Recurrence rate	20%	19%	14%	16%	15%	13%	14%	10%

The AFL injury profile continues to be consistently defined and published in both the sports medicine scientific literature and in public media releases[3]. Hamstring injuries, knee ACL injuries and groin injuries (including osteitis pubis) are consistently the most prevalent injuries in AFL players.

The major findings of the 2004 injury survey are that:

1. ongoing rates of injuries remain low in historical terms;
2. recent trends in PCL injuries in ruckmen justify the recent centre circle rule change; and
3. concussion rates (including severity and recurrence rates) are low, vindicating current management in AFL players.

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Ankle sprains and sports physiotherapists

By Tania Pizzari

Ankle sprains, particularly lateral ligament sprains, are one of the most commonly treated musculoskeletal injuries. Patients may present to a GP with a swollen and bruised ankle after an incident during sport, work or everyday activities. It may be a first time sprain or could be a recurrent injury. What happens when such a patient attends a clinic? Perhaps x-rays are requested, non-steroidal anti-inflammatory medications are prescribed, crutches are provided, or exercises are suggested. Consider a routine referral to a physiotherapist?

Referral to a physiotherapist

While most simple ankle ligament sprains seemingly improve without intervention, there is evidence to support referral to a physiotherapist will improve recovery. Research shows early mobilisation and functional rehabilitation of ankle sprains result in better outcomes than if the injured ankle is immobilised or not rehabilitated at all. Physiotherapy management ensures less residual symptoms, improved range of motion and walking speed, earlier return to work and greater comfort and a reduced risk of recurrence.

Physiotherapy management of an acute ankle sprain involves the reduction of pain and swelling, restoration of ankle motion, muscle conditioning, proprioception training and functional exercises to allow a successful and timely return to sport, work or everyday activities.

Early referral is the key to a good outcome in this condition. Patients should be seen as soon after the injury as possible to avoid prolonging symptoms and impairment and to reduce the chances of a drawn out rehabilitation process. Rehabilitation can begin immediately, so there is no need to wait before a referral is considered. All patients can benefit from physiotherapy, not just those who are failing to progress through the natural recovery process

Although a common and simple injury, evidence suggests specialist intervention will improve recovery of a sprained ankle

Who to refer to?

Your local physiotherapist will be able to provide an appropriate rehabilitation service to assist you with achieving the best outcomes for your ankle sprain patients. Physiotherapists who are members of Sports Physiotherapy Australia, a special group within the Australian Physiotherapy Association, are well placed to deal with all sports-related, musculoskeletal injuries and provide an adjunct to the care of your injured patients.

Tania Pizzari, PhD, BPhysio(Hons), is a physiotherapist in private practice, Lecturer at the School of Physiotherapy, La Trobe University, and Clinical Editor of Sportslink, the official magazine of Sports Physiotherapy Australia.

To locate your nearest SPA member, visit www.

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AUSTRALIAN PHYSIOTHERAPY ASSOCIATION
Sports Physiotherapy Australia

» *Continued from page 3*

4) there is still no national plan for monitoring and increasing physical activity levels (other than the odd random advertisement), with no minister taking on responsibility for these levels;

5) catastrophically injured athletes still only receive $250K payouts under existing insurance arrangements (compared to payouts of $4 million if injured on the roads or at work);

6) insurers in the private health system are still not allowed to give people with a healthy lifestyle the risk-rated reductions they deserve;

7) sports physicians are still the only doctors in the Australian medical system who are recognised as being fit to practise in a specific area but are not considered to be 'specialists'; and

8) the sports physicians' training program is still the only recognised advanced medical training program that receives no government or public hospital funding.

It is all well and good sitting around in a circle feeling great because a couple of gurus from Norway and Holland have flown over at our expense and told us what a great job we are doing. But when sports medicine, sports injury prevention and physical activity promotion all continue to be snubbed by our own government and we don't agitate enough to change this situation, we really aren't doing enough.

* Though the senior policy adviser to Senator Kate Lundy, Labor's Shadow Minister for Sport and Recreation, was a delegate and did attend all four days of the conference.

JSAMS – Moving on

by Caroline Finch, Editor-in-Chief

Sports Medicine Australia has entered into a partnership with Elsevier Australia to enhance the Journal of Science and Medicine in Sport, now to be known more affectionately as JSAMS. This reflects the Journal's editorial commitment to delivering the highest quality research to its readership in a timely manner. Advancements in the electronic arena are central to the Journal's ongoing development and relevance, and we will be implementing a completely electronic system, designed to shorten the total publication time. Key initiatives include electronic submission and management of peer review via a web-based tracking system, a new Journal web site, and electronic publication on Science Direct.

From 2006, all subscribers to JSAMS will have on-line access to the fully electronic journal, as well as their print copies. Institutional subscribers will be able to access the journal via Science Direct. The entire print archive of JSAMS will be digitised and made available online back to 1998. JSAMS will be promoted via both the Elsevier, and Elsevier Health websites, and associated electronic 'alerting services' to ensure increased readership of the journal.

From November 2005, all authors will need to submit their manuscripts through a new submission portal. The Elsevier editorial system will be used to manage the entire peer-review process from submission of a manuscript to the appropriate Editor, to final transmittal to Elsevier's production department. Papers will be submitted via the 'Authors Gateway', which can be accessed via www.elsevier.com/locate/jsams. This will significantly reduce the time it takes to review a manuscript and provide feedback to authors. Authors will be able to upload documents, figures and tables as separate items, and have these automatically compiled into a PDF file for easy transfer. Importantly, authors will be able to track the progress of their papers through the reviewing process.

All JSAMS reviewers will be registered in a Reviewers Database. All readers and authors of the journal are invited to join this Reviewers Database from November 2005. To do so, you should send an e-mail with your areas of expertise, highest qualification and full address details to jsams@sma.org.au. There will also be the opportunity for reviewers to register at the Elsevier exhibition booth during the October 2005 Australian Conference of Science and Medicine in Sport in Melbourne.

Publication via Science Direct will also have a number of other significant benefits for our authors and the JSAMS readership. Electronic annexes attached to the published research, such as additional data, appendices, survey tools, etc, will be published on-line. "In press" manuscripts will be made available online as soon as the electronic file is available, usually within six weeks of acceptance, and prior to compilation of the print issue.

In recognition of the larger number of high quality paper submissions that the JSAMS has received over recent years, and the number of papers that are accepted for publication, we will also be moving to six issues per year from 2006. The first electronic issue will be available in February 2006.

These improvements to JSAMS will have a positive impact on both our readership and authors. With more readers, more people will cite papers we publish and our impact factor will increase. More authors will find JSAMS to be a great journal to submit to.

I hope that you will be as excited about these improvements to JSAMS as the Editorial Team and I are. With these new directions, we will be well on our way towards maintaining our role as a leading publisher of international research relating to the medicine and science of sport, exercise and physical activity.

Comings, Goings, Happenings

Good news from the Commonwealth Government for exercise physiologists and sports physicians.

First, from 1 January next year, exercise physiologists will be able to provide Medicare services to sufferers of chronic and complex illness. This will (among other things) improve the team-based approach to treating chronic disease.

Marilyn Feenstra, SMA National President, called it a timely and positive step. SMA had long been an advocate of multidisciplinary medicine and has always regarded exercise physiologists as an essential part of this team.

But there was still a serious anomaly to be corrected in the professional status of exercise physiologists, she said, because, unlike other university-trained health professionals, their services were not GST-exempt.

SMA has lobbied the Government for a number of years on behalf of the exercise physiologists. The most recent case was during a meeting with Ms Julie Bishop. the Minister for Ageing, by SMA members Dr Rob Reid (SMA ACT President), Professor Caroline Finch, Professor Wendy Brown and Gary Moorhead (SMA CEO).

The other good news for SMA and sports medicine is that the Federal government has begun the formal process of evaluationg the submission of sports physicians for specialist status.

* * *

Professor Peter Fricker (Director, the Australian Institute of Sport) writes:

"A small correction if I may. You have apologised to my colleague Dr Ken Maguire with reference to a statement from the ASC that I "was the first Medical Officer at the AIS" and that this statement is incorrect. The facts are that Ken was indeed the first staff doctor at the AIS , in 1982, but I was in fact the first medical officer when I acted in an honorary capacity from my private practice from the day the AIS started on January 26 1981. There was no other medical officer at the AIS during the first year of its operations and I was kept busy with regular attendance at training sessions etc.

When Ken left the AIS at end-1982 I was appointed to the AIS staff and commenced duties on February 1 1983.

"I would add that Ken's work in setting up the clinical services for the AIS is always acknowledged."

* * *

National SMA has lost the services (and ever-cheerful company) of Dominic Feenan.

Dominic was National Safety Sport Program Coordinator, advertising manager of SMA publications and IT and general Mr Fixit at the national office.

Rainer Wilton, Education Manager for the New South Wales branch of SMA for more than a year now, has also moved on and out of the sports medicine field. His place in Sydney has been taken by Stewart Priddis, previously the executive assistant at the national office.

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