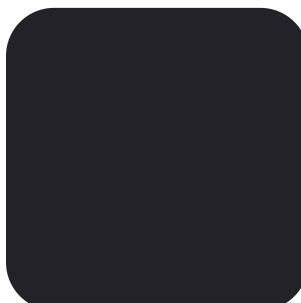
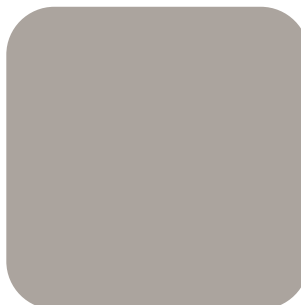


Sports Injury Prevention Taskforce

Final Report
March 2013





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Sports Medicine Australia and vicsport staff are thanked for managing the consultation forums, with independent facilitation provided by Ian Clark (plans@work).

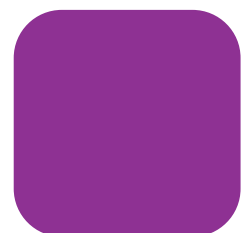
The Victorian Injury Surveillance Unit (VISU) at Monash University kindly provided data on hospital-treated sports injuries. A copy of all VISU reports prepared for the taskforce is included in Appendix 2. Ms Laura Delaney, triage nurse, Warrnambool Base Hospital Emergency Department is particularly thanked for providing an overview of the sports-related injuries presenting at the hospital.

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Disclaimer

This report was prepared by the Sports Injury Prevention Taskforce in response to the terms of reference established by the Minister for Sport and Recreation. The report's primary purpose is to provide information and advice to assist in identifying the most practical methods to advance the implementation of acceptable processes for reducing sports-related injuries. The objective is to improve sports participation rates and the health and wellbeing outcomes sought from such participation.

The views, advice and recommendations expressed in the report are those of the taskforce members as determined by consensus and are not necessarily those of any one particular member, member organisation or other contributor.





Taskforce membership

Sharelle McMahon - Chairperson	Netball Victoria/Melbourne Vixens and Australian Diamonds.
Ms Susan George (March 2012 onwards)	Director, Community Sport and Recreation. Department of Transport, Planning and Local Infrastructure.
Mr Michael Cahill (November 2011 to February 2012)	Group Manager, Policy and Sector Development, Sport and Recreation Victoria, Department of Transport, Planning and Local Infrastructure.
Professor Caroline Finch [^]	Monash University – Monash Injury Research Institute. Head of the Australian Centre for Research into Injury in Sport.
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[^]Professor Finch moved to the University of Ballarat in January 2013 to establish and lead the Centre for Healthy and Safe Sport (CHASS) as one of the collaborating centres within the Australian Centre for Research into Sports Injury and its Prevention (ACRISP).



Executive summary and key recommendations

The Victorian Government established a Sports Injury Prevention Taskforce to examine the sports injury related barriers that prevent people from leading a more active lifestyle and to provide advice on improving risk management strategies and sports injury prevention.

The overall contribution of sport to the community is a very positive one. Governments are investing in sport based programs to significantly improve health through boosting participation rates at the grassroots level. Participation in sport brings significant health and social benefits to Victorians. In addressing the terms of reference the taskforce established four long term aspirations:

- 1) More people are participating in sport – and less people are injured.
- 2) People involved in sport are passionate about injury prevention.
- 3) Sports injury prevention messages are well understood.
- 4) Sports injury prevention has the same profile and importance as other community safety and public health issues.

Sports-related injury is a major component of accidental injury in Victoria. It is second only to road traffic injuries in terms of years lost to disability and direct hospital costs. For children under 15 years, sports-related injuries now represent four times the public health burden when compared to road trauma related costs.¹

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. This figure is based on limited hospital data and is estimated to represent only a third of all direct medical costs attributable to sports injury in Victoria.

The Sports Injury Prevention Taskforce has estimated that each year in Victoria approximately 4,500 people drop out from participation in five of the top team based sports due to sports injuries.

In the absence of effective injury prevention strategies and plans, the net rate of reduction in participation in all organised sport, due to injury related drop out, is expected to reach nearly 20,000 per year by 2020.

There is some emerging momentum for good practice in sport which could be further built on, such as the recent AFL concussion and sports trainer policies, and Cricket Australia's rotation policy.

The approach and scope of this report

The taskforce identified a shortlist of focus areas and developed a set of criteria to help determine what would be in scope.

This included the availability of compelling evidence, the potential for solutions that are practical to implement and the opportunity to influence the culture around sports injuries to create systemic, long term community change.

During this process the potential for improved facility design and standards to reduce injury risks was noted but considered outside of the scope of the report and the remit of the taskforce.

Four consultation forums, to discuss the issues identified and the focus adopted by the taskforce, were held in July and August 2012 with invited stakeholders, including the five sports identified for initial attention. The future support and involvement of all sports, the Australian Sports Commission and local government will be critical to the successful implementation of many of the report's recommendations.

To further improve the chances of the proposed sports injury prevention strategies being accepted and implemented, the taskforce concluded the benefits that injury prevention offers to both participation and performance outcomes should be more widely and consistently promoted.



This could be assisted by identifying mechanisms and opportunities to help drive a change from the 'performance or prevention' approach to sports injury to 'performance with prevention' equals 'success'.

The focus areas

Many sport injuries are predictable events that can be prevented. Investment in the use of prevention strategies on many levels, which is the approach taken with other public health concerns, could deliver benefits to both participation and performance outcomes in sport as well reduce the personal and health costs attributable to sports injuries.

The sports sector is very complex, multi-layered and diverse. The taskforce has identified the following four focus areas through which the linked themes of participation, performance and sports injury prevention and management could be driven over the next three years:

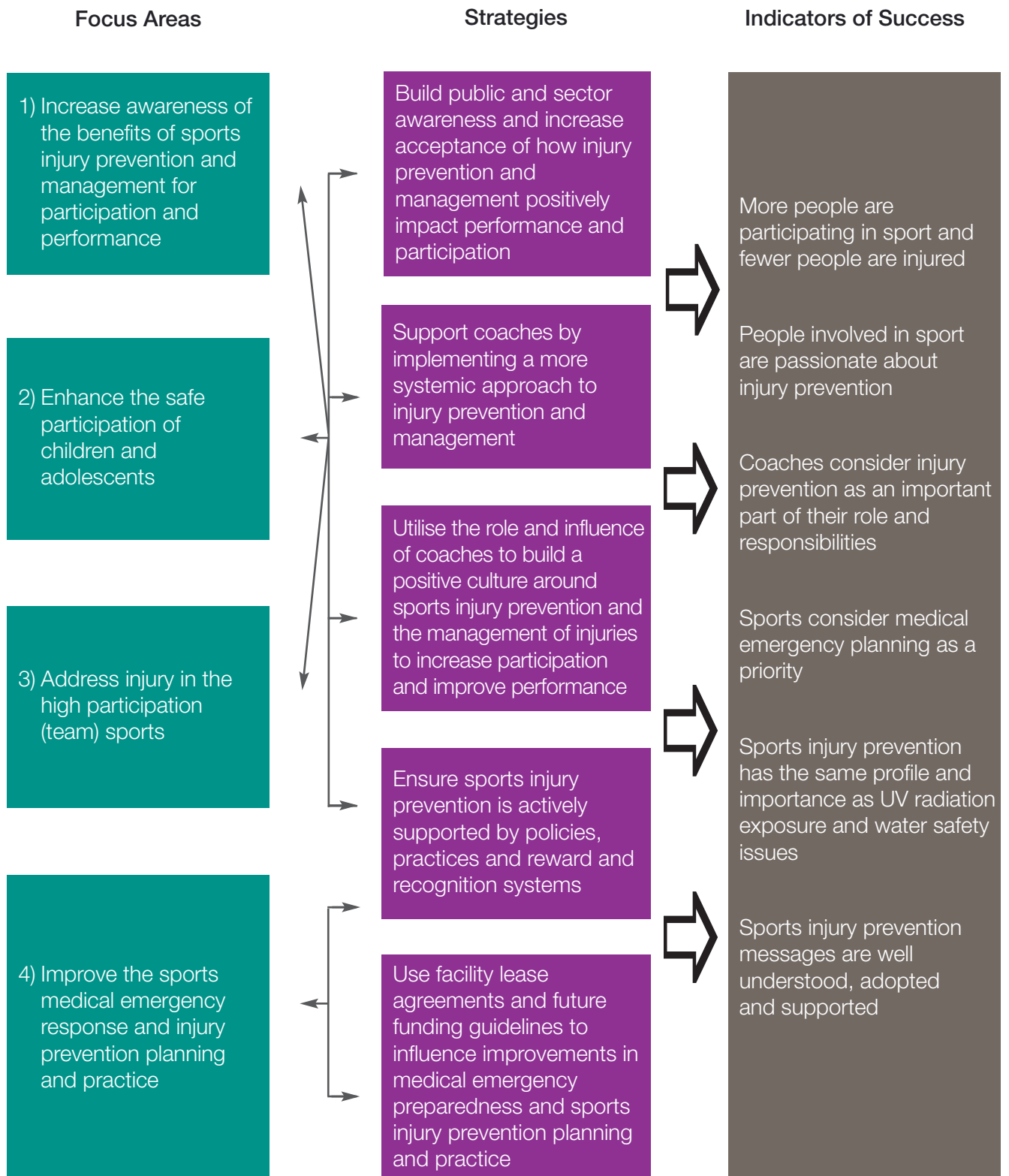
1. Increase the awareness of the benefits of sports injury prevention and management.
2. Enhance the safe participation of children and adolescents.
3. Address injury in the high participation (team) sports.
4. Improve the sport medical emergency response and injury prevention planning and practice.

The relationships between these four areas and the delivery of performance, participation and injury prevention outcomes are summarised by the taskforce in Figure 1.





Figure 1: Focussed interventions to drive participation, performance and sports injury prevention in Victoria





Key enablers

There are three suggested approaches across the four areas the taskforce believes should initially be considered. These are:

- **Use existing government supported sports development, injury prevention and management initiatives as platforms to facilitate change.**

The taskforce recognises that budget and resources are constrained and therefore recommends existing programs be leveraged to facilitate change. Other relevant programs and initiatives could be encouraged to collaborate and to incorporate sports injury prevention actions and related accountabilities. The initial resources needed to achieve this would be relatively modest.

- Commence work with the five high participation sports of Australian football, basketball, cricket, football (soccer) and netball.

All of these five sports have relatively sophisticated structures, systems and processes in place that engage with clubs, coaches and participants. They provide the best opportunity to trial the initial actions and demonstrate and promote the benefits of injury prevention strategies.

- **Increase efforts to ensure coaches are skilled, which must include all coaches being well trained in injury prevention.**

Coaches are involved in the majority of organised sports settings. Their attitude, knowledge and management of sport injuries will have a major influence on the safety of athletes and the culture of injury related risk management within sport.





Recommendations

In the context of the suggested approaches across the focus areas, the strategies and actions recommended by the taskforce are:

Strategy 1: Build public and sector awareness and increase acceptance of how injury prevention and management positively impact performance and participation.

- ▶ Based on the findings of the taskforce, develop common messaging for government and non-government agencies involved in the sector.
(Key agencies involved: SRV, SMA and Sports – SSAs)
- ▶ Seek commitment from state and local governments to incorporate the key injury prevention and management messages as part of public health and wellbeing planning.
(Key agencies involved: VicHealth, DH, SRV, MAV and vicsport)
- ▶ Provide and promote information to actively counter the myths and misconceptions around sports injury.
(Key agencies involved: Tertiary education/research bodies, SMA and SRV)
- ▶ Publish simple check lists to determine if a person is 'fit to play', and if injured, when 'ready to return'.
(Key agencies involved: SMA)

Strategy 2: Support coaches by implementing a more systemic approach to injury prevention and management.

- ▶ In conjunction with the five priority sports identified by the taskforce, develop systems to ensure the latest injury prevention information is effectively transferred to community clubs, coaches and, where appropriate, parents.
(Key agencies involved: Sports – SSAs, SMA, Tertiary education/research bodies, vicsport and SRV)
- ▶ Engage with relevant tertiary accrediting bodies to create an injury prevention module that can be included in tertiary sport and recreation curricula.
(Key agency involved: SMA and sports injury researchers)
- ▶ Support the creation of an injury prevention module that can be delivered to administrators, volunteers and trainers.
(Key agencies involved: SRV, vicsport and SMA)



Strategy 3: Utilise the role and influence of coaches to build a positive culture around sports injury prevention and the management of injuries to increase participation and improve performance.

- ▶ Have sports injury prevention and the knowledge of responsible management of injury embedded into coaching courses.
(Key agencies involved: SRV, vicsport and SMA)
- ▶ Work nationally with sports to have sports injury prevention and knowledge of the responsible management of injury into the National Coaching Accreditation Scheme (NCAS).
(Key agencies involved: SRV)

Strategy 4: Ensure sports injury prevention is actively supported by policies, practices and reward and recognition systems.

- ▶ Work nationally with sport towards a review of the 'Coach's Code of Behaviour' to strengthen injury prevention and management, in particular compliance with return to play rules for injured players and new rules designed to reduce injury.
(Key agencies involved: Sports – SSAs and SRV)
- ▶ Strengthen injury prevention and management, including the adoption of Sports Injury Tracker, as a part of club development initiatives/excellence programs.
(Key agencies involved: SMA, VicHealth, SRV and vicsport)
- ▶ Encourage government and community awards to include recognition of sports injury prevention.
(Key agencies involved: SRV, vicsport, VicHealth and DH)
- ▶ Use grant and funding processes to encourage State Sporting Associations/governing bodies to demonstrate a commitment to continuous improvement in reducing sports injuries (e.g. injury prevention promotion, appointment of safety officers, development of an injury prevention plan and recording all sports injuries and participation in sports injury prevention research projects).
(Key agencies involved: SRV, VicHealth and vicsport)



Strategy 5: Use facility lease agreements and future funding guidelines to influence improvements in medical emergency preparedness and sports injury prevention planning and practice.

- ▶ Develop a sports medical emergency template for use by facility managers and clubs.
(Key agencies involved: SMA, MAV and SRV)
- ▶ Work towards all council and government funded sports facilities having a sports medical emergency plan in place with key information posted in prominent and accessible locations within the facility (e.g. next to the AED).
(Key agencies involved: SMA, MAV and SRV)
- ▶ Use future grant funding guidelines to encourage councils and government to have sporting clubs, as part of any sporting facilities lease agreement, demonstrate sports injury prevention readiness (some examples would be evidence of sports medical emergency plan, policies, pre-match inspections, responsible match/training-day safety officers and first aid accreditations).
(Key agencies involved: SRV, DH and MAV)

Other matters

Some additional issues and complementary actions raised by the taskforce for future consideration include:

- continue efforts to improve sports injury data and partner in sports injury prevention research to build a stronger evidence base to make more informed decisions
- assess club excellence programs and develop and evaluate a model program that includes excellence in sports injury prevention and extend the program across all major organised team sports.



1 Introduction

1.1 Background

The Victorian Government established the Sports Injury Prevention Taskforce in November 2011 to identify and address the injury and safety-related barriers that prevent people from leading a more active lifestyle.

"Increasing participation in sport and recreation – getting people more active, more often – is high on my agenda, and this government is working hard to reach that goal. There are many barriers to fitness, but injury and fear of injury are significant obstacles to boosting and sustaining participation in sport.

A large number of sports injuries can be prevented or reduced simply by improving knowledge in the community on how to better respond to injuries when they occur."

The Hon Hugh Delahunty MP
Minister for Sport and Recreation

1.2 Terms of Reference

The taskforce was appointed to consider and provide advice related to the following terms of reference:

- better integrate sports injury prevention and risk management within the state and local government processes for promoting and ensuring community health and wellbeing
- strengthen the injury prevention and risk management knowledge, skills and considerations in the delivery of sport, from junior community sport through to high performance sport
- recommend priority areas for the development of community education programs and resources in relation to sports injury prevention that will provide practical assistance to community sporting clubs.



1.3 Definitions used in this report

Sport: The taskforce agreed to adopt the definition of ‘sport’ from the National Sport and Active Recreation Policy Framework,² which states:

“Sport” is defined as:

A human activity involving physical exertion and skill as the primary focus of the activity, with elements of competition where rules and patterns of behaviour governing the activity exist formally through organisations and is generally recognised as a sport.

Physical activity: Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure.³ It includes sport and non-sports activities. The non-sport activities can be further subdivided into different categories such as fitness, active recreation and leisure-time pursuits and household, occupational and transportation related activities.



1.4 Acronyms

ABS	Australian Bureau of Statistics
ACE	Achieving Club Excellence program
ACRISP	Australian Centre for Research into Sports Injury and its Prevention
AED	Automatic External Defibrillator
AFL	Australian Football League
ASC	Australian Sports Commission
CALD	Culturally and Linguistically Diverse
CASRO	Committee of Australian Sport and Recreation Officials
CEP	Club Excellence Programs
CHASS	Centre for Healthy and Safe Sport (at the University of Ballarat)
DH	Department of Health
EU	European Union
FIFA	Fédération Internationale de Football Association
FFA	Football Federation of Australia
FFV	Football Federation of Victoria
LGA	Local Government Authority
MAV	Municipal Association of Victoria
NCAS	National Coaching Accreditation Scheme
SCD	Sudden Cardiac Death
SKIDO	The Sport Kids Injury and Drop Out study (Refer to Reference #10)
SMA	Sports Medicine Australia – Victorian and Tasmanian Branch (<i>unless otherwise specified as the ‘National’ office</i>)
SRV	Sport and Recreation Victoria, Department of Transport, Planning and Local Infrastructure
SSA	State Sporting Associations
vicsport	Sports Federation of Victoria Incorporated (<i>An independent member-based organisation representing Victoria’s sport and active recreation sector</i>)
VISU	Victorian Injury Surveillance Unit, Monash University
VEMD	Victorian Emergency Minimum Dataset – the data collected by all 38 Victorian public hospitals that provide a 24-hour emergency department service. (This data is held in a de-identified format by VISU).



2 Principal statement of the problem

A lack of adequate and regular physical activity is a major contributing factor in many forms of chronic disease. Governments are investing in sport based programs to significantly improve health through boosting participation rates at the grassroots level, with the stated objectives being to *'develop healthy and active communities'*⁴ and *'maintain life long involvement in physical activity'*.⁵

The frequency of hospital-treated sports injuries is growing at an estimated rate of 6% per year.⁶ Sport injuries are known to suppress participation and reduce the health outcomes keenly being sought by government.

There are also important personal, social and economic costs associated with sport related injuries that will further reduce the net benefits of sports participation.

Recognising the impact of sports injuries and the need to create safe environments for children, the Canadian Federal Government recently announced the allocation of \$1.7 million to education and awareness programs aimed at preventing injuries in children's sports. This will include projects to help coaches make smarter and safer decisions to prevent injuries.

Source:
<http://www.680news.com/2012/12/03/feds-pump-1-7m-into-sports-injury-awareness-programs/>

2.1 An overview of the impact of sports injuries

Many sport injuries are predictable events that can be prevented or better managed. Like other public health concerns, such as obesity, UV exposure and water safety, sports injury prevention will require ongoing attention and the use of strategies on many levels.

Some of the accumulative effects of sports injuries include:

- 4x greater - the Victorian hospital related costs of sports injuries in children under 15 years, when compared with road traffic injury costs.
- 6% per annum - the estimated annual growth in Victorian hospital emergency department presentations relating to sports injury (meanwhile road related injuries have stabilised).
- 30% to 40% - the estimated percentage of participants experiencing a major sports-related injury that will discontinue playing sport and/or will significantly reduce their physical activity levels.
- 20,000 – the estimated number of participants per year dropping out of sport in Victoria in 2020 due to a sports-related injury.
- 545,000 the number of Australians reported to have a long-term health condition caused by a sport or exercise-related injury.
- \$1.65 billion and up to \$2 billion – some recent estimates of the total burden each year of all sports injuries in Australia.



2.2 Developing the response

The taskforce examined the broader environment which influences sports injury prevention efforts. Figure 2 summarises some of the factors that the taskforce considered in developing a strategic response to sports injuries in Victoria.

Figure 2: The broader sports injury environment





The indicators of success for the prevention response to sports injuries are outlined in **Section 3** with the suggested scope of the initial response set out in **Section 4**.

In **Section 5** the taskforce examines some key areas of impact to highlight the significant costs imposed by sports injuries on participation, children and adolescents, the health system and the community. The potential impacts of not undertaking a more visible prevention based health promotion response to sports injuries are also explored.

With these factors in mind, four focus areas were identified by the taskforce for closer scrutiny in **Section 6**. Under each focus area, the taskforce has provided analysis and comments on the key areas where significant progress can be made to reduce the impact of sports injuries.

This is followed by specific recommendations and actions in **Section 7**.





3 The indicators of success



Safety, which includes encouraging healthy and safe practices in sport, is one of the four principles of the Essence of Australian Sport developed by the Australian Sports Commission (ASC).⁷

The taskforce articulated the aspirations for sports injury prevention in Victoria.

Table 3 outlines key markers that would indicate the actions arising from the taskforce's advice had made a difference.



Table 3: The long term aspirations for sports injury prevention in Victoria

More people are participating in sport and fewer people are injured

- Reliable data is available and reports decreased rates of injury in sport.
- People are confident to play sport and injury in sport is seen as the exception.
- Access to medical support and knowledge reduces the impact of injury.

People involved in sport are passionate about injury prevention

- There are lots of easy things people are doing to minimise the risk of sports injury.
- It's accepted and cool to use safety gear.
- It becomes acceptable to recover properly instead of returning to play when injured.
- Everyone takes responsibility for their safety and respects the safety of other participants.

Sport injury prevention messages are well understood

- People, regardless of their health status or level of sport experience, are making informed decisions about how to safely participate in sport.
- Injury prevention messages are everywhere.

Sport injury prevention has the same profile and importance as other community safety and public health issues

- Strong, collaborative sport injury prevention leadership and culture exists at all levels of sport and government.
- Substantial investment is directed to sports injury prevention.
- Sports injury prevention is an integral part of the Victorian Public Health and Wellbeing Plan.
- Every sports coaching accreditation and health and wellbeing related degree/certificate has an injury prevention unit, which is clearly identifiable within courses.
- Each club has a designated health and safety/injury prevention accredited representative and a robust injury prevention strategy and culture.



4 Determining the scope

The taskforce has identified a short list of focus areas that it believes will lead to the requisite sustained, long-term change. A set of criteria was developed to help determine what would be in scope. The criteria are summarised below:

Demonstrable public benefit – ‘the right problem’

- The problem reaches across many levels of sport.
- Resolution of the problem results in increased participation by the broader community.
- There is compelling evidence to support the problem being selected as a priority issue.

Realistic, socially inclusive and measurable interventions - ‘the right solution’

- Data and data collection systems are available to monitor progress and measure outcomes.
- Solutions are realistic to implement and there are existing solutions that could be implemented immediately.
- The solution is relevant locally and mobilises local support.

Systemic, not just individual, change - ‘long term results’

- Brings about institutional, long term community change.
- Addresses injury prevention, management and treatment, including rehabilitation and recovery.



5 Why sports injuries are a significant problem

This section highlights some of the significant costs imposed by sports injuries on participation, children and adolescents, the health system and the community. It also outlines how the current absence of a sports injury focussed health promotion response confounds both participation and injury prevention objectives.

5.1 Sports injury related reductions in participation and physical activity levels

A study by the European Union (EU) has estimated that 4.6% of all sports injuries result in temporary disabilities (i.e. can be cured within one year) and 0.5% lead to permanent disabilities (i.e. actual disabilities which cannot be cured within one year). This equates to an estimated 30,000 new cases of permanent disabilities due to sport injuries each year in the EU.⁸

If these rates of disability were applied to the very limited sports injury data currently available from Victorian hospital emergency departments for 2009 it would mean, in that year alone, nearly 4,000 Victorians suffered temporary disabilities and seven of those Victorians would experience a permanent disability due to a sports-related injury.

A recent Victorian based study on the potential impact of major traumatic injury on physical activity and return to sport (in participants over 18 years of age) indicated significant sport and active recreation injuries lead to major reductions in vigorous physical activity levels 12 months later.⁹ The study found moderate physical activity levels did not increase to compensate for the decline in vigorous activity. The interruption to exercise habits is suggested as one reason for such a decline and the trend was most noticeable in persons employed in a trade or manual occupation.

The Victorian SKIDO study examined some reasons why children dropped out of sport and in their review of the few studies that have included the impact of injury, noted that injury had been a significant contributing factor to such drop out.¹⁰

The taskforce has estimated the net reduction on Victorian participation in five high participation team based sports due to injury, is currently around 4,500 per year. This is expected to rise steadily to a rate of nearly 8,000 per year by 2020 unless effective injury prevention strategies are implemented and adopted (Figure 3).

The limitations of Victorian sport injury data

The injury data held by Victorian Injury Surveillance Unit is collected by the 38 Victorian public hospitals with 24-hour emergency departments.

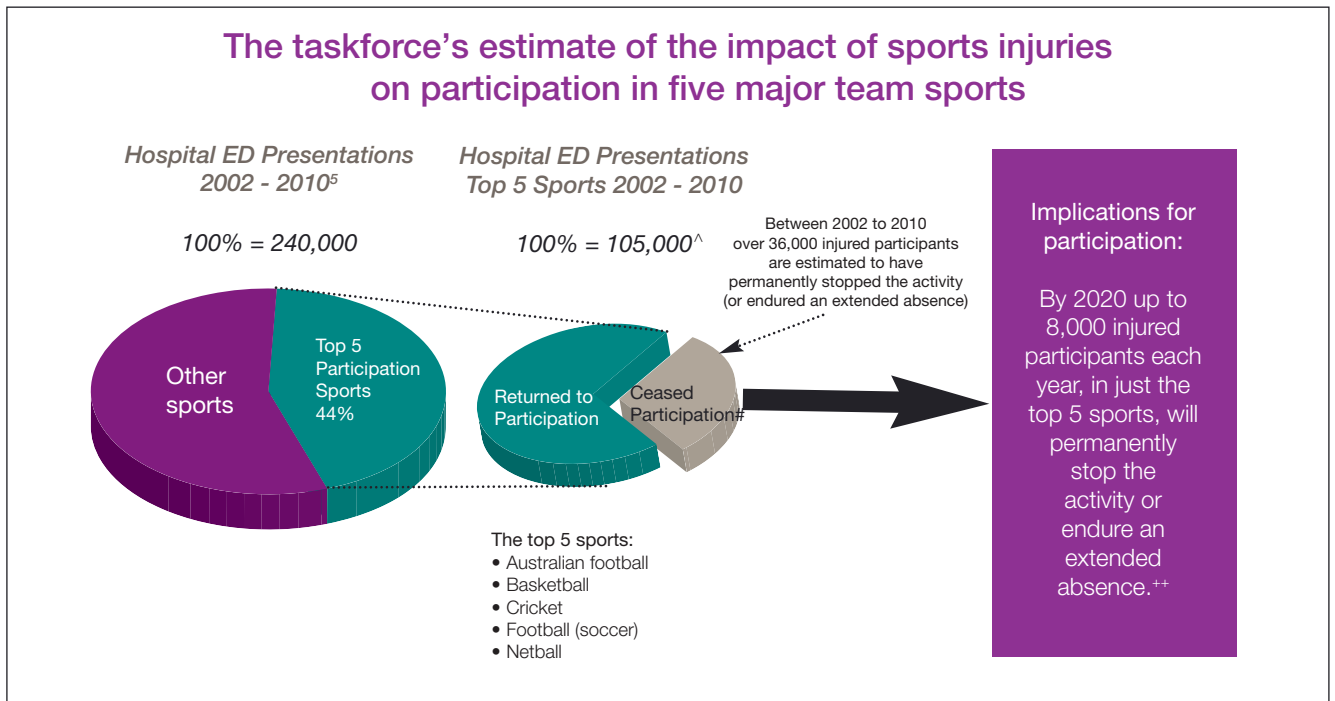
It excludes injuries treated by GPs, at private hospitals and other medical facilities or self treated injuries.

Twenty per cent of the presentation data from the participating hospital emergency departments is not included as it does not specify the activity at the time of injury.

Some additional sports injuries may also be missing from the VISU data as they were possibly coded as 'leisure' or as 'occurring in a place for recreation'.



Figure 3: The impact of significant sports injuries on participation drop out as estimated by the taskforce (using Victorian hospital emergency department presentations 2002-2010)¹¹



Notes: [^]Up to 90% of these injury presentations were likely to be severe enough to require hospital admission for treatment. [#]Based on a low estimated drop out rate of 35%. For example - return to sport rates following serious knee injuries and fractures (12 or more months post-injury or surgery) are at rates of between 40–65%. ⁺⁺Based on the current 6% average increase in sports injuries per year.



Similarly, the potential total drop out by participants in all sports will have risen to a rate of nearly 20,000 per year by 2020 with the ‘accumulated losses’ to sports participation over a ten year period from 2011 to 2020 potentially exceeding 140,000 participants.

Non-traumatic injuries can also have an adverse impact on participation. A small prospective Swedish study involving 30 athletes across 21 sports focused on the impact of hamstring injuries in both recreational and elite athletes. The study reported 14 participants (47%) decided to finish their sports careers due to chronic symptoms from their hamstring injuries. For the remaining 16 study subjects, the time to return to sports was, for the four recreational participants, a median of 62 weeks compared with an average of 25 weeks for the 12 elite participants.¹²

Other studies have detailed the return to sport rates following serious knee injuries and fractures. At 12 or more months post-injury or surgery, only 40 to 65% of patients in these studies had returned to pre-injury sports participation, despite good functional recovery.¹³

“People who take up any form of physical activity but who are then injured are most likely to be those who then give up the activity they tried. It might also be expected that, in many cases, this could put them off trying all new physical activity altogether.”

British Medical Journal Group blogs:
Injury Prevention: Editor’s Blog 3 October 2012¹⁴

The researchers suggested the psychological response to injury will influence whether or not sports participation and related physical activities will be resumed following an injury. In addition to injury severity, other factors such as the length of time being regularly active, the presence of social or club support and access to rehabilitation may all influence the likelihood of a return to participation.¹⁵

5.2 The increasing public health burden of sports-related injuries in children and adolescents

Almost two-thirds (63%) of Australian children aged 5–14 years participate in organised sports outside of school hours.¹⁶ Older children (>12 years) involved in competitive organised sport are considered to be at particular risk for injury.¹⁷

For many children and adolescents, sports injuries will cause only temporary pain or discomfort and functional limitation. For some, injury can lead to one or more of the following:

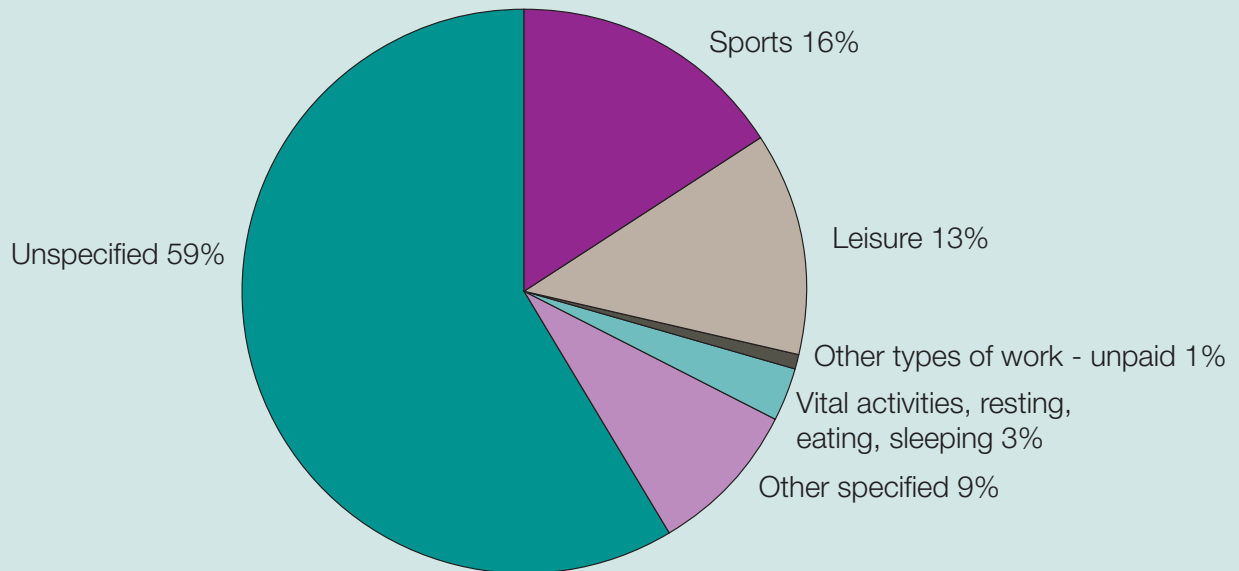
- permanent disability
- traumatic stress
- depression
- chronic pain
- a profound change in lifestyle or decreased ability to perform age-appropriate activities.^{18,19}

The more significant injuries will reduce participation, either temporarily or permanently, and may also result in an overall net loss of health and wellbeing. In addition, some injuries considered as ‘minor’ may carry the risk of future significant disability, especially if the injuries are recurrent.²⁰

VISU hospital treated unintentional injury data shows that, in Victoria in 2009, sport represented the highest specified activity at time of injury for both children (0-14 years) and adolescents and young adults (15-24 years)^{21,22} (Figures 3a and 3b).²³

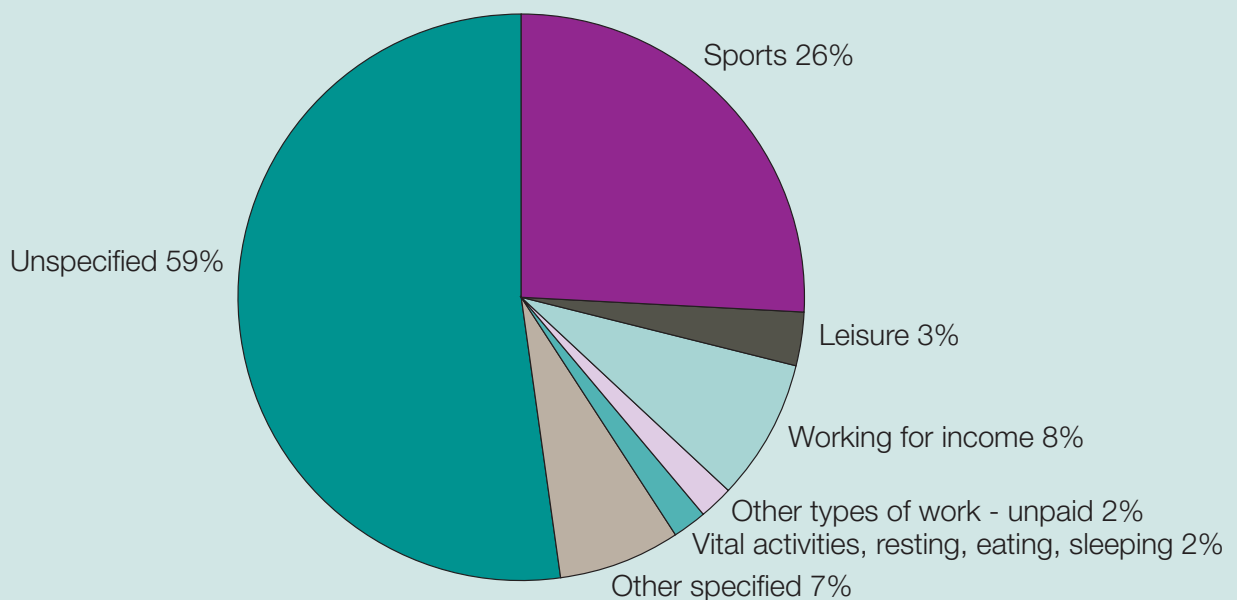


Figure 3a: Child hospital admission by activity when injured, Victoria 2009



Source: Monash University E_Bulletin. Unintentional (accidental) hospital treated injury Victoria, 2009 p.20

Figure 3b: Adolescent and young adult (15-24 years) hospital admission by activity when injured, Victoria 2009



Source: Monash University E_Bulletin. Unintentional (accidental) hospital treated injury Victoria, 2009 p.26

An assessment of Victorian hospital admissions and emergency department presentations between 2004 and 2010 was recently undertaken by the Monash University Injury Research Institute.²⁴ When compared to road trauma related costs, sports-related injuries in children (<15 years) now represent four times the public health burden (Appendix 3).

"Most deaths occurring during sport and recreation activities in Victoria are attributable to drowning and motorbike accidents occurring in unorganised recreational settings."

Source: British Journal of Sports Medicine 2005; 39:573-577



5.3 The medical costs associated with sports-related injuries

The overall contribution of sport to the community is arguably a very positive one. Social and economic costs are also associated with sport related injuries and the costs are both substantial and pervasive.

A 2002 estimate of the total cost per annum to Australia of sports-related injuries was \$1.65 billion.²⁵ The authors of this estimate noted such figures are often disputed but added the true burden of sports injuries is unknown. Surveillance systems are currently inadequate (or are underutilised) in the identification of sports injuries and most sports injuries are not treated in hospital settings.²⁶

In 2006, the Medibank Private Safe Sports Report stated that approximately 5.2 million Australians suffer sports-related injuries each year.²⁷ The report estimated the total (direct and indirect) cost of sports-related injuries to the Australian community was \$2 billion in 2005. Table 2 highlights the average cost of medical treatments for common sports injuries in 2006.

Table 2: Most common sports injury types and their approximate cost range per injury in 2006

Knee	\$11,000 to \$16,500
Ankle	\$4,400 to \$6,600
Foot and achilles	\$5,500 to \$6,600
Back	\$15,750 to \$22,000
Shoulder	\$5,500 to \$7,700
Forearm/wrist	\$4,400 to \$6,600
Elbow	\$4,400 to \$6,600

Source: Medibank Private 'Safe Sports Report 2006'

The Victorian 'share' of the Medibank Private estimated \$2 billion cost of all Australian sports-related injuries in 2005, would be approximately \$470 million based on population.



Adverse sports injury related impacts are also linked to other health data. According to a 2003 study in Sydney, NSW, injury is the leading cause of chronic pain, followed by a health problem and the most common type of injury causing chronic pain was a sports injury (13% of people with chronic pain).²⁸ The total cost of chronic pain in Australia in 2007 was estimated by Access Economics at \$34.3 billion – or \$10,847 per person with chronic pain.²⁹

The findings of the above study appear to corroborate the 2001 National Health Survey which stated around 545,200 Australians (2.7% of all Australians) reported having a long-term condition caused by a sport or exercise related injury, representing about 24% of those who had an injury related long-term condition.³⁰

A snapshot of the incidence and cost of sports injuries in Victoria is reflected in the number of people accessing hospital treatment. In 2009, over 30,000 Victorians sought hospital treatment for sports-related injury and more than 10,000 of those required hospitalisation. The direct total hospital cost of such injuries, according to the Victorian Injury Surveillance Unit (VISU) at Monash University, was \$51.8 million.³¹

The total of all direct annual medical costs potentially attributable to sports injuries in Victoria may be up to three times this figure. An Australian Institute of Health and Wellbeing report indicates the sports injury 'share' of the \$4 billion in injury related medical costs in Australia in 2001 was approximately 12% to 15% (or \$480 million to \$600 million). The Victorian share of this figure would be between \$120 million to \$150 million each year, based on population.³²

The current incidence of sports injuries also appears to be increasing, largely in line with increasing population growth suggesting the above mention costs are now probably much higher and will continue to increase in the absence of effective prevention strategies. This growth in sports-related injuries was recently contrasted to the levelling off of road based injuries, which is attributed to the long term and ongoing investment in a broad range of road safety related initiatives.³³

The potential direct medical cost savings in Victoria resulting from a 10% reduction in sports injuries would potentially exceed \$15 million per year, given injuries and injury costs have continued to grow and most injury cost estimates are over six years old. The EuroSafe sports network has suggested the application of evidence based safety management programs by sports organisations in the EU could reduce the number of injuries by at least 25% by the year 2020.³⁴





5.4 Promoting sports safety and injury prevention and the fear of discouraging participation

The Australian Bureau of Statistic (ABS) identifies injury and fear of injury as key barriers to participation in sport and active recreation. The ABS data also indicates that participation is driven by a desire for fitness and health.^{35,36} This suggests information on healthy and safe ways to participate would be welcomed and, if promoted proficiently, would support participation objectives.

There is an unsubstantiated assertion that promoting sports injury prevention will only discourage participation and thereby confound current efforts intended to increase physical activity.

Perceptions of risk may reduce the appeal of sport as a physical activity. Fear of injury is a known reason for why some people do not participate, or may choose to stop participating. It also makes some parents wary about encouraging or permitting their children to participate in some (higher injury risk) sports.³⁷

Despite the impact of sports injuries on participation and physical activity levels, and the significant health related cost, the concern around the potential to discourage participation continues to frustrate efforts to incorporate and actively promote complementary injury prevention elements within many participation initiatives.

In the meantime, sports-related injuries in children (<15 years) have increased and now represent four times the public health burden compared to the road trauma related costs for this cohort (section 5.2), and there remains no highly visible and cooperative effort across the sector to support sports injury prevention initiatives.

The EuroSafe sports network has commented that reducing sports injuries will not just reduce the increasing costs of sports injury related medical treatments but will also make sport more attractive for people to join in, will keep players active for longer within clubs and will enhance individual performance and team success.^{38,39,40}

There is currently minimal health promotion based education taking place to encourage healthy and enduring sports participation. There is also no challenge to the undesirable messages the media generates with its frequent focus on elite and professional athlete injury incidents and issues. This means existing fears and risk perceptions are continuously being reinforced.

The culture of playing on while injured is also often reinforced and glorified. A recent example is the report in *The Australian* newspaper which describes an AFL player's 'heroic' contribution to the 2012 Grand Final. The club doctor is quoted in the article titled, '*How Sydney defeated injury, pain and common sense*' as saying he had never seen a footballer (Adam Goodes) continue in a game with the injury received in the second quarter of the grand final and revealed that one player (Ted Richards) had 12 injections to get him through the game.

Such publicity helps to reinforce the stereotype that injury is an acceptable part of sport and participating when in pain and injured is a noble tradition.

The injury management and medical care provided at the elite level, both during and after an adult professional sporting career is considerably different to that available at the community level. This fact is often overlooked when elite sport athletes and professional sport practices are being viewed or perceived as role models for community sport.⁴¹ The lack of injury prevention related education and awareness at the community level means the practices adopted at the elite level may sometimes serve to:

- normalise pain and injury^{42,43,44}
- hinder the uptake of protective practices and equipment
- encourage, if not almost obligate, participants to play on or return to play while injured.^{45,46}

A US survey found that nearly half of all coaches report receiving some type of pressure – either from parents or children – to play an injured child in a game.

Source: safekids.org



6 The selected focus areas

Injury prevention supports participation and performance

To close the gap between the current rates of sports injuries in Victoria and the aspirations described under indicators of success, the taskforce believes sports injury prevention messages need to be linked to both participation and performance benefits.

Based on the available evidence, four focus areas have been identified through which the theme of participation, performance and sports injury prevention and management could be driven over the next three years.

Reducing the current rates of sports injuries in Victoria will require a focus on:

1. Increasing the awareness of the benefits of sports injury prevention and management to increased and sustainable participation and performance objectives.
2. Enhancing the safe participation of children and adolescents.
3. Addressing injury in the high participation team sports (Australian football, basketball, cricket, football (soccer) and netball) selected by the taskforce – refer to section 6.1.2).
4. Improving the management of sport medical emergency response and injury prevention practice.





6.1 Three suggested approaches across the four focus areas

The taskforce is of the opinion the strategies implemented in response to all four focus areas should consider the use of three specific approaches.

These are the use of:

- relevant existing government supported initiatives
- the relatively sophisticated structures of high participation sport
- the influence and role of coaches.

6.1.1 Existing sports injury prevention and management initiatives

Government supported initiatives such as VicHealth's Healthy Sporting Environments Project, Sports Medicine Australia's Sports Injury Tracker and Smartplay program, are examples of existing platforms that could be used to facilitate change.

6.1.2 Established sport systems and structures of high participation sports

The five high participation sports of Australian football, basketball, cricket, football (soccer) and netball represent about 65% of Victoria's estimated total of all organised sport activity.⁴⁷

The adult participants (defined as persons aged 15 years and older) in these five high participation sports experience a high frequency of hospitalisations. They account for up to 90% of the sports injury hospitalisations in the 16 teams sports reviewed in a recent report prepared by the Victorian Injury Surveillance Unit.⁴⁸

The taskforce suggests these sports become the priority focus under Section 6.4 and form the setting to model most other areas of action. All five sports have relatively sophisticated structures, systems and processes in place that engage with clubs, coaches and participants and will provide the best opportunity to commence the implementation, demonstration and promotion of improved injury prevention strategies.

Aerobics (and fitness) and golf and tennis are also high participation organised activities but do not appear in the lists of the top five sports or active recreation pursuits represented in Victorian hospital emergency department presentation or admissions data. Australian football and basketball have a relatively high frequency of medically-treated injury and the other three sports selected by the taskforce, cricket, soccer and netball, have comparatively high rates of injuries per 1,000 participants.

6.1.3 The role of coaches as key decision makers

Coaches are involved in the majority of organised sports settings, even in those where there is no, or minimal other support personnel or infrastructure.

A coach's attitude, knowledge and management of injured athletes has a major influence on the safety and culture of athletes, from preparation and training regimes through to decisions about whether an athlete is fit to play or should seek treatment.

To avoid the risk of delivering a negative experience to participants, coaches need to be well trained and supportive in terms of injury prevention.

The ASC's '*Coach's Code of Behaviour*' states coaches must place the safety and welfare of the athletes above all else.⁴⁹ This paramount requirement does not appear in the code until point 15 in an 18 point code. The ASC should be approached to ensure the code gives due precedence and profile to athlete safety and welfare and be requested to assist in complementing this expectation by supporting efforts to strengthen the sports injury prevention and management knowledge of coaches.



6.2 Focus Area 1: Increase the awareness of the benefits of sports injury prevention and management

“How can we realistically expect to make a significant impact ... if the information available to professionals and sports participants is not accurate, (is) incomplete, not passed on to the target groups and not acted on even when it is provided?”

British Journal of Sports Medicine Group blogs: Injury Prevention

Editor's Blog. 02 Oct 2012⁵⁰

The taskforce could identify no current sustained or high profile systematic approach to sports injury prevention strategies that is adopted across Victoria. There is no obvious marketing of the participation and performance benefits associated with injury prevention.

The implications of the current lack of a well-formed and coordinated health promotion response, to counterbalance the myths and undesirable or distorted messages concerning sports injuries that exist in the community (and are being amplified by the new social media), are outlined in Section 5.4.⁵¹

To increase the chances for acceptance, adoption and implementation of promoted advice and initiatives, the taskforce believes the participation and performance benefits of evidence based injury prevention actions need to be promoted widely and persuasively to improve awareness and perceptions of their value.

The promotion of the consistent application of known effective preventative strategies has the potential to change perceptions and significantly reduce the number and costs of sports injuries.

Some key examples of these strategies are:

The value of mouthguards in injury prevention is acknowledged but mouthguard use in some relevant sports remains low.

One longstanding injury prevention effort has concerned the continued emphasis on the use of mouth guards in some sports.⁵² Part of the reported success is the ongoing messages, the number and diversity of organisations involved, and the key people driving the message, in particular dentists.^{53,54}

Nonetheless, while most sport participants apparently acknowledge the value of mouthguards in injury prevention, mouthguard use in some relevant key sports remains low.⁵⁵ This relatively easy and low cost personal protective equipment based response is just one example of an available and effective sports injury prevention strategy that would benefit from an increase in profile and promotion.

Lower limb injuries are the most common sports injury and the majority are preventable.

Strength and balance training programs have demonstrated efficacy in reducing lower limb injuries in a number of sports (and other forms of physical activity).^{56,57,58} In most sports lower limb injuries, like many injuries, are still considered as part of the accepted risk of being involved in sport.⁵⁹

The development and promotion of strategies that succeed in enhancing the implementation and uptake of strength and balance training programs have considerable scope to help reduce the incidence and severity of lower limb injuries in the five priority sports identified by the taskforce in Section 6.4.



The growing public fear about concussion, and its potential long-term adverse impacts, needs to be matched by improved education and a more conservative approach to concussion management.

Head injuries, while not as prevalent as lower limb injuries, are more traumatic. Media reports concerning the possible long term impact of head injuries in elite football players are raising fear and public awareness.

Emerging research evidence indicates injuries classified as mild Traumatic Brain Injury (mTBI), including sports-related concussions, should not be treated as minor injuries which will quickly resolve.⁶⁰

Some sports, including the AFL, have recently introduced return to play clearance rules.⁶¹ At the community level strict compliance with similar rules remains equivocal. A recent review of nearly 2,000 NSW community rugby union players observed that of the 187 players who sustained a concussion, most did not receive return-to-play advice post-concussion, and of those who received correct advice, all failed to comply with the three week stand-down regulation.⁶²

To reinforce that head injuries in student athletes need to be carefully and conservatively managed, many US state jurisdictions now have mandated concussion education requirements, stand-down time/return to play clearances and diagnostic systems.⁶³

However it is achieved, the taskforce considers increasing education and awareness of concussion identification and management requirements in sport is a valuable and important sports injury prevention strategy to pursue. The 'Improving the Awareness, Understanding and Management of Concussion in Community Sport' research project funded by SRV and due for completion in September 2013 is an encouraging start.

Beyond the current efforts to improve sports concussion management resources, meaningful improvements in the quality, relevance and profile of other types of sports injury prevention information, being provided to both the sports sector and broader community, is also required.⁶⁴

Finally, the information must reach the participants who need it and there must be encouragement and support to help ensure it is acted on when given.





6.3 Focus Area 2: Enhance the safe participation of children and adolescents

“Physical activity strategies that do not include injury prevention will fail. In fact, they will probably increase injury rates!”

Prof Caroline Finch. British Journal of Sports Medicine Group blogs. 3 October 2012

As outlined in Section 5.1, injury, as a cause of why children dropped out of sport, has not been widely studied but it is believed to impact on participation outcomes. Some adult based studies indicate injury may cause up to one-third of participants to withdraw from sport and active recreation pursuits.⁶⁵

Organised sports participation by children is being promoted as an important and ‘habit forming’ physical activity strategy.⁶⁶ It is argued participation in organised sports will deliver the physical activity levels needed to reduce the risk of chronic disease and support improvements in a broad range of health and wellbeing outcomes that will be carried forward from childhood into the adult years.

Conversely, a Finnish study reported participation in sports clubs is the strongest risk factor for injuries leading to hospitalisation in adolescence and early adulthood.⁶⁷ The study recommended that effective preventive interventions should be directed toward adolescents who take part in sports clubs and coaches (and others) should pay more attention to injury prevention.

The combination of increased exposure and decreased preparedness for sports participation may be contributing to an epidemic of both acute and chronic sports-related injuries in children and adolescents (Section 5.2).

The American College of Sports Medicine has recognised the risks to young and inactive participants and has stated (initial) participation in physical activity should not begin with competitive sport, but should evolve out of regular participation in a well-rounded preparatory conditioning program.⁶⁸

Relatively higher rates of non-participation in sport have been identified in children from one-parent families, culturally and linguistically diverse (CALD) families and families where the main income is unemployment benefits.⁶⁹ These children are frequently the focus of sports participation promotion and program initiatives. This cohort of less active participants is also thought to be at a higher risk of sports-related injury and thus injury-related drop out.⁷⁰ Obese adolescents, another key group frequently highlighted as potential beneficiaries of sports participation initiatives, also have an elevated risk of sustaining a sport injury.⁷¹

Research into organised ice hockey has indicated early specialisation and related practice activities will undermine the motivation of junior participants to continue in the sport. The study recommended youth sport programs should not focus on athletic fitness and intense and routine training but rather involve ‘*sport specific practice, games and play activities that foster fun and enjoyment*’.⁷²

“Over the past fifteen years, children have gone from being a rarity on my operating table to constituting nearly half of all my patients. More than one-fifth of all traumatic brain injuries in children are the direct result of athletic activity. Almost one-half of all sports injuries in adolescents stem from overuse, in which specific muscles and joints are damaged due to repetitive motion as part of athletic training or conditioning.”

Source: Dr. J R Andrews, with D Yeager (2013). *Any Given Monday: sports injuries and how to prevent them, for athletes, parents and coaches – based on my life in sports medicine*. USA. Scribner Book Company



Adolescents who play at a higher sporting level will also have an elevated risk of sustaining a sports injury.⁷³ Many of the injuries experienced by children involved in competitive sport, for example overuse injuries, are both predictable and preventable.⁷⁴

Trends over recent decades show children are more at risk due to increases in:

- participant numbers (reducing overall access to quality coaching/facilities)
- the duration and intensity of training, particularly for girls (overtraining risks)
- earlier specialisation (overtraining/repetitive movement risks)
- year-round training (inadequate rest/rehabilitation)
- multi-sport activities and competitions (inadequate rest/overtraining risks)
- the difficulty of the skills practised (higher injury risk/injury severity).

The injury and related health risks from overtraining and early specialisation in children are well documented.^{75,76} In terms of risks from overuse/overtraining-related injury, children involved in multi-sport activities, and those on scholarships, are potentially the most exposed.^{77,78}

An integral part of the rationale for promoting sport as a means of increasing physical activity is to improve long-term health outcomes. The reality is some children could be participating in sport settings which are exposing them to unnecessary or greater risk of injury. This includes coaches not having the expertise and knowledge to take into consideration the size and fitness and readiness of children for a particular activity. In terms of readiness, aspects of maturation need to be considered in the delivery of some forms of organised sport based activities.

For the adolescent athlete already actively involved in competitive sport, attention to proper technique and skill development, core and neuromuscular conditioning and use of protective equipment and better management of rest periods are examples of practical injury prevention measures. While such measures are known and available to reduce sports-related injuries they appear to be undervalued and underutilised.

In addition to these practical measures, clear guidance on avoiding overtraining and greater awareness on the need for scheduling adequate rest for recovery should be promoted as being essential for participation and performance of adolescents.

Multiple organisations and individuals have 'responsibility' for influencing the provision of injury prevention actions and reducing injury risk to children. Governments, sports organisations and coaches have the greatest opportunity and authority to effect the most change and to ensure the changes are consistent and ongoing (Figure 4).

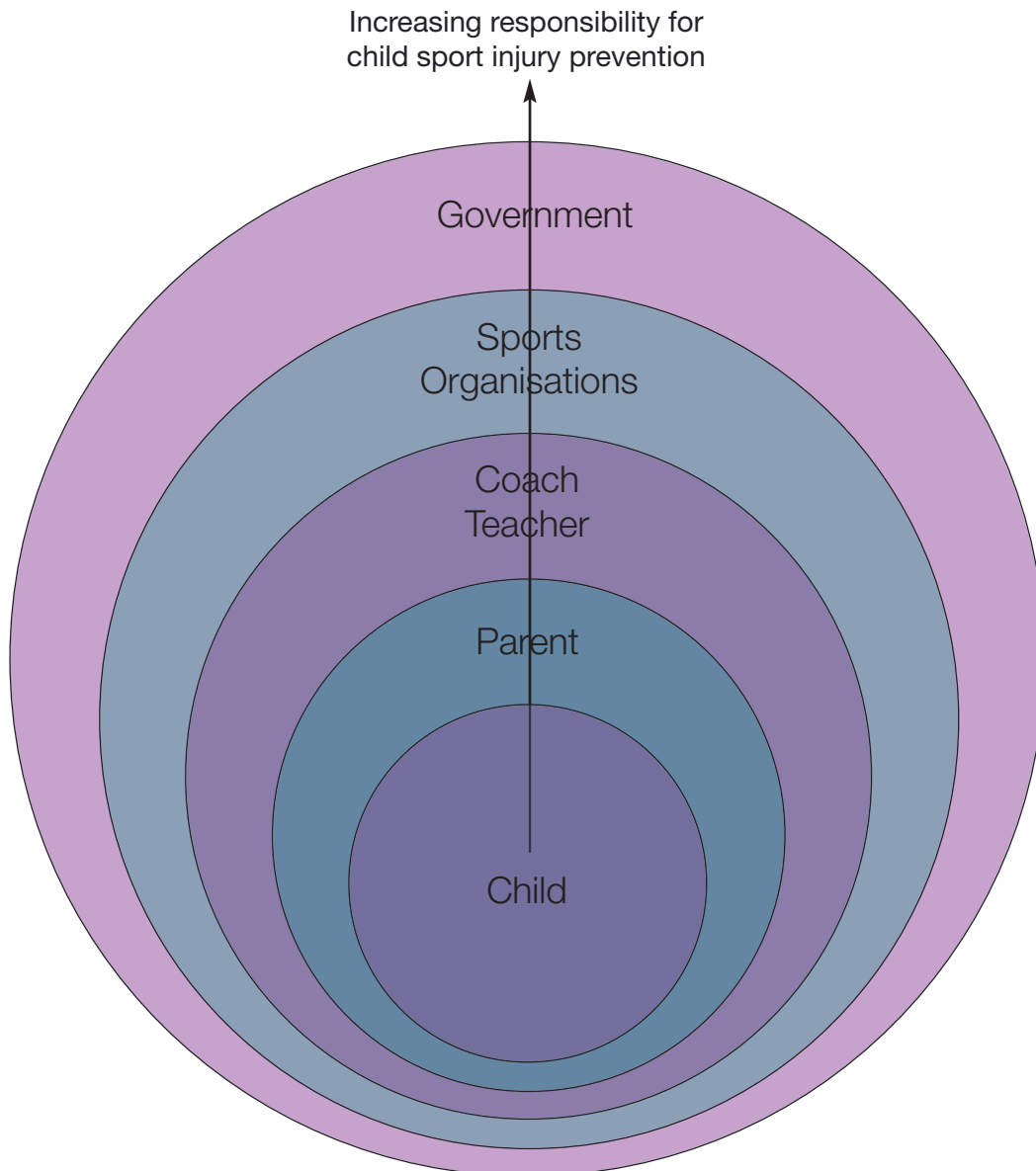
Promoting sports based physical activity programs – a basic checklist

The taskforce suggests sports-based programs being promoted and supported by government should:

- be 'fit-for-purpose' (this includes being appropriate for the skill and fitness levels of the participants being engaged)
- be delivered to an acceptable standard
- include qualified coaching and age-appropriate instruction
- ensure adequate medical emergency plans and resources are in place
- incorporate appropriate injury prevention strategies.



Figure 4: The responsibility hierarchy for child sport injury prevention based on the potential for influence



*Source: Injury Prevention in Child and Adolescent Sport: Whose Responsibility Is It?
Emery, et al. Clinical Journal of Sport Medicine: November 2006*

Physical activity promotion programs that involve sport should include a clear focus on injury prevention initiatives.

Sports participation campaigns and programs would benefit from a clear process being adopted by governments and sports organisations to encourage healthy and safe procedures.

This necessitates actively and visibly incorporating injury prevention related strategies (Section 5.4) and taking steps to ensure the activities being promoted are suitable for the target group(s).

In this context the taskforce believes coaches need greater encouragement and support to help implement this objective (Section 6.1.3).



6.4 Focus Area 3: Address injury in the high participation (team) sports

Sports with the highest number of participants tend to have the highest frequency of injury.

Although a certain level of injury risk is inherent to every sports activity, many risks can be significantly lowered by appropriate prevention measures. (Section 6.2)

Most activities designed and funded to increase physical activity, including boosting participation in sport, do not overtly require injury prevention messages and strategies to be embedded – or specifically seek injury prevention related risk management standards to be in evidence – as a feature of the funding requirements and project assessments. Actions will not be truly successful in meeting or maximising participation based health outcome objectives unless they embed safety principles (Section 5.1).

While the larger participation sports may have some sports injury prevention policies and programs in place the systematic implementation of these, across all levels of sport, is not undertaken. There is also inconsistent adoption and implementation of the injury risk management related policies of sports.⁷⁹ This inconsistency in approach and application exists within clubs of the same sports, at different levels of competition and between training and competition/match days.^{80,81}

In Victoria, Australian football, soccer and basketball alone account for more than one-third of all sports-related injury hospital presentations. Combined with netball and cricket these activities make up the five high participation and injury frequency sports.

Using limited hospital-based records from 2009, the direct medical costs resulting from sports-related injury in Victoria are calculated at \$52 million per year (Section 5.3). Nearly 50% of these medical costs are attributable to the injury of participants under the age of 25 years. The high participation sports of Australian football, football (soccer) and basketball contribute to about one-third of all sports injury related medical costs.⁸²

Table 4: Direct medical costs – Victorian adult hospital admissions 2009

AFL:	\$11.2m
Soccer:	\$3.6m
Basketball:	\$2.7m

Source: Victorian Admitted Episodes Dataset (VAED) 2009

Some sports have tried to introduce excellence or club development programs which link club success to a wide range of risk management activity including injury prevention. Examples of excellence programs introduced by sports include:

- FIFA's 'The 11' training program⁸³
- FFV's Football ACE Program
- Gymnastics Club 10⁸⁴
- AFL Quality Club Program.

Unfortunately, the level of compliance with such systems is unclear and the existing capacity of governing sports organisations to monitor and audit compliance appears limited. One of the above examples, FFV's ACE program, was recently superseded by the Football Federation of Australia's 'National Club Accreditation Scheme'.⁸⁵

A mandatory type of approach is already being used in the context of supporting the objectives of the Victorian Code of Code of Conduct for Community Sport.

For example - SRV grant eligibility guidelines explicitly require that applicants must adhere to the Victorian Code of Conduct for Community Sport and LGAs seeking facility funding from SRV are expected to have club tenants complete a form to help ensure club compliance with the code.



The five sports identified by the taskforce have the potential, based on their organisational capacity and structures, to successfully start the process of implementing and demonstrating the participation and performance benefits of injury prevention initiatives.

Further information and suggested actions related to the potential use of club excellence programs are outlined in Appendix 2. To improve compliance, future project funding guidelines could require evidence of the implementation of club excellence programs that clearly embed sports injury prevention and management principals and targets.





6.5 Focus Area 4: Improve sport medical emergency response and injury prevention planning and practice

According to SMA, sport first aid (sports trainer) requirements in community sport are neither mandated nor prescribed for the majority of sports. As a result, the provision and quality of sports first aid, and the preparedness for medical emergencies varies greatly across sports and may also vary greatly across communities and regions.

There is a lack of consistent first aid provision and injury management awareness at both training and competition. Medical emergency planning is also poor and there is a lack of medical emergency plans in place – at all levels of sport. These findings are based on SMA's observations and discussions with sport during the development of the medical emergency guidelines.⁸⁶

The AFL recently completed a study into the provision and quality of sports trainers across the code. A number of inconsistencies were identified such as some clubs have no trained personnel; some require only a generic first aid qualification while others mandate a SMA Level One Sports Trainer qualification. The review resulted in the AFL issuing the Australian Football Sports Trainers Policy.⁸⁷

The AFL's policy and its content could be assessed for broader applicability across all sports.

Prompt medical attention, in particular CPR/defibrillation, is considered the only identifiable factor associated with a favourable outcome from a life-threatening cardiac related medical emergency in sport.⁸⁸ In August 2011, the Victorian Coroner recommended the Victorian Government introduce laws requiring fitness centres to have a staff member qualified in first aid on duty at all times (after finding the industry lacked mandatory regulations).⁸⁹

"The evidence is that people with a range of age, health status and fitness levels utilise fitness centres. Whilst attendees make declarations as to their health and capacity to undertake exercise, this does not negate an obligation upon an operator to ensure that in an emergency, first aid trained staff with current qualifications, are available and have the resources to support them in their response."

Findings of Coroner K M W Parkinson, 17 August 2011.

The prevalence of cardiovascular disease in the young athletic population is considered to be low and the precise risk of sudden cardiac death in athletes with underlying disease is not yet clear but is also considered low.⁹⁰ Despite the low level of risk, sudden cardiac death (SCD) in sport has a high profile due to the tragic nature of such events.

In the USA, approximately 80% of SCD cases in sport involve blunt chest impact by a firm projectile such as a baseball, softball, (ice) hockey puck or lacrosse ball and SCD in young athletes occurs at a rate of 1:200,000.⁹¹ The SCD rate is thought to be less common in Australia due to the differences in participation in the most implicated sports. Cases of SCD involving cricket and Australian football have been mentioned in the published literature and a recent case in Australian football was extensively reported.^{92,93}

The sudden deaths of athletes continue to be highlighted by the campaigns for the installation of automatic external defibrillators (AEDs) in public places. These campaigns, such as the 'Defib your Club for Life' and the St John Ambulance 'Heart Start', are driving strong community demand for the provision of AEDs to local sports clubs.

Early defibrillation is an important factor in cardiac arrest survival outcomes. It is also important that CPR be commenced immediately following a suspected sudden cardiac arrest, pending the delivery of the defibrillation (Table 5).



Table 5: The four critical steps in a ‘Chain of Survival’ to save lives in the event of a cardiovascular emergency:

1. Early recognition of the emergency and activation of the local emergency response
2. Early CPR
3. Early AED
4. Early advanced life support and cardiovascular care (hospital).

Source: American Heart Association⁹⁴

Poor planning and the lack of ability to recognise and be confident in a medical emergency, in particular sudden cardiac arrest, can lead to critical delays or even a failure to activate an emergency medical plan, assuming one exists and is well understood.⁹⁵

There is considerable enthusiasm around the need for sports clubs to have AEDs, for the purposes of ensuring the safety and survival of their members (and spectators).

This enthusiasm for AEDs should be supported by more consistent and comprehensive efforts to safeguard and improve the health and wellbeing outcomes from sports participation.



Sports organisations could maximise their response to medical emergencies by:

- improving CPR knowledge and skills
- having trained personnel on site during both training and competition
- developing and practicing a sports medical emergency plan
- encouraging greater awareness and better management of more common sports injury issues, such as head injuries.



7 Recommendations

The key strategies and actions listed below outline the recommended approach required to gain traction with each of the five sports injury prevention and management focus areas identified by the taskforce.

The recommendations in the first instance relate to the five priority sports, with children and adolescent participants a primary focus.

Strategies	Actions 2013-15
1 Build public and sector awareness and increase acceptance of how injury prevention and management positively impact performance and participation	<ul style="list-style-type: none"> Based on the findings of the taskforce, develop common messaging for government and non-government agencies involved in the sector. <i>(Key agencies involved: SRV, SMA and Sports – SSAs)</i> Seek commitment from state and local governments to incorporate the key injury prevention and management messages as part of public health and wellbeing planning. <i>(Key agencies involved: VicHealth, DH, SRV, MAV, and vicsport)</i> Provide and promote information to actively counter the myths and misconceptions around sports injury. <i>(Key agencies involved: Tertiary education/research bodies, SMA and SRV)</i> Publish simple check lists to determine if a person is 'fit to play', and if injured, when 'ready to return'. <i>(Key agencies involved: SMA)</i>
2 Support coaches by implementing a more systemic approach to injury prevention and management	<ul style="list-style-type: none"> In conjunction with the five priority sports identified by the taskforce, develop systems to ensure the latest injury prevention information is effectively transferred to community clubs, coaches and, where appropriate, parents. <i>(Key agencies involved: Sports – SSAs, SMA, Tertiary education/research bodies, vicsport and SRV)</i> Engage with relevant tertiary accrediting bodies to create an injury prevention module that can be included in tertiary sport and recreation curricula. <i>(Key agency involved: SMA and sports injury researchers)</i> Support the creation of an injury prevention module that can be delivered to administrators, volunteers and trainers. <i>(Key agencies involved: SRV, vicsport and SMA)</i>



Strategies	Actions 2013-15
3 Utilise the role and influence of coaches to build a positive culture around sports injury prevention and the management of injuries to increase participation and improve performance	<ul style="list-style-type: none"> • Have sports injury prevention and the knowledge of responsible management of injury embedded into coaching courses. <i>(Key agencies involved: SRV, vicsport and SMA)</i> • Work nationally with sports to have sports injury prevention and knowledge of the responsible management of injury into the National Coaching Accreditation Scheme (NCAS). <i>(Key agencies involved: SRV)</i>
4 Ensure sports injury prevention is actively supported by policies, practices and reward and recognition systems	<ul style="list-style-type: none"> • Work nationally with sport towards a review of the 'Coach's Code of Behaviour' to strengthen injury prevention and management, in particular compliance with return to play rules for injured players and new rules designed to reduce injury. <i>(Key agencies involved: Sports – SSAs and SRV)</i> • Strengthen injury prevention and management, including the adoption of Sports Injury Tracker, as a part of club development initiatives/excellence programs. <i>(Key agencies involved: SMA, VicHealth, SRV and vicsport)</i> • Encourage government and community awards to include recognition of sports injury prevention. <i>(Key agencies involved: SRV, vicsport, VicHealth and DH)</i> • Use grant and funding processes to encourage State Sporting Association/governing body to demonstrate a commitment to continuous improvement in reducing sports injuries (e.g. injury prevention promotion, appointment of safety officers, development of an injury prevention plan, the recording of all sports injuries and participation in sports injury prevention research projects). <i>(Key agencies involved: SRV, VicHealth and vicsport)</i>



Strategies	Actions 2013-15
5 Use facility lease agreements and future funding guidelines to influence improvements in medical emergency preparedness and sports injury prevention planning and practice.	<ul style="list-style-type: none">• Develop a sports medical emergency template for use by facility managers and clubs. <i>(Key agencies involved: SMA, MAV and SRV)</i>• Work towards all council and government funded sports facilities having a sports medical emergency plan in place with key information posted in prominent and accessible locations within the facility (e.g. next to the AED). <i>(Key agencies involved: SMA, MAV and SRV)</i>• Use future grant funding guidelines to encourage councils and government to have sporting clubs, as part of any sporting facilities lease agreement, demonstrate sports injury prevention readiness (some examples would be evidence of sports medical emergency plan, policies, pre-match inspections, responsible match/training day safety officers and first aid accreditations). <i>(Key agencies involved: SRV, DH and MAV)</i>



8 Matters for further consideration

The sports sector is very complex, multi-layered and diverse. The taskforce has restricted its focus and identified actions that are manageable, have the greatest chance of being accepted, adopted and implemented and which will help build the broader profile and importance of sports injury prevention.

The taskforce also considered a number of actions and initiatives for consideration over the longer term. Additional background information on some of these considerations may be found in the report appendices.

8.1 Data needs, research and evaluation tools

In addition to improving local data collection, through the use of Sports Injury Tracker by sports clubs, further work in conjunction with the Department of Health to review how sports injuries are recorded, to improve the quality and scope of data (Section 5.3), would be of significant benefit to future evaluation, planning and decision making around sports injury prevention. Considerations include:

- seeking to code data for recreation/informal sports participation versus organised competitive sport
- breaking down the 5-29 year old data category into smaller age categories
- adding relevant safety behaviour questions to the periodic statewide health survey.

The issue of how to capture private hospital and clinical data, especially given a number of new specialist sports medical clinics are being established, may need to be further considered.

The taskforce noted there is a potential for future data to indicate a short term spike in reported incidents and increasing costs as people are more vigilant with reporting injuries and more participants seek advice and treatment.

Victoria has a strong sports injury prevention research history and government agencies have invested in research, health promotion information (and sports safety equipment) for over 20 years. In 2009, Victoria's leading sports injury and sports medicine researchers were awarded Australia's only International Olympic Committee (IOC) supported sports injury and disease prevention research centre.

Sports injury prevention will be improved if research efforts are directed at understanding the implementation context for prevention initiatives, continue to build the evidence base for effective interventions and are used to make more informed decisions.⁹⁶ Engagement with the sector and relevant research groups such as ACRISP will be critical to the success of this approach.

8.2 The use of facility design and standards to reduce injury risks

The use of facility design and the role of standards to reduce injury risks was noted but is considered outside of the scope and of this report and the remit of the taskforce.

Improvements in the design, quality and maintenance of facilities, including playing surfaces, would benefit injury prevention. Future opportunities to identify and cost-effectively improve facility safety, as part of the government's ongoing investment in all types of sports infrastructure, should be considered.

The practical limitations on improving facility safety highlight the imperative of improving the use of injury risk management strategies and medical emergency planning in sport.



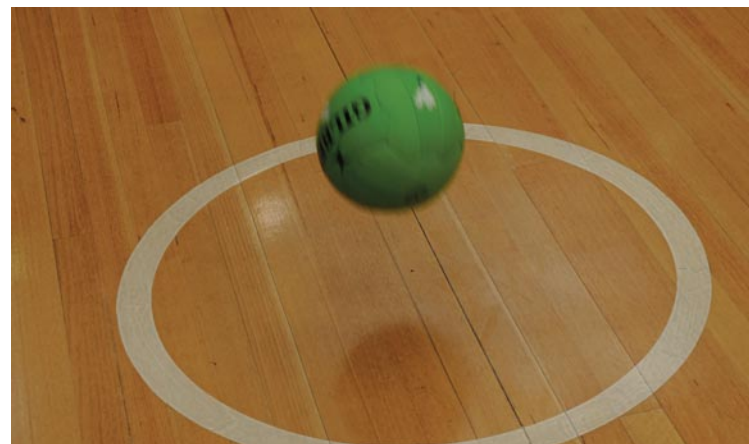
8.3 A case for incorporating sports injury prevention modules in all tertiary sport and health and wellbeing courses

An opportunity exists to improve performance of athletes at all levels by improving knowledge and skills in injury prevention techniques and strategies.

The taskforce noted the Victorian Government's Plan for Sport and Recreation 2010 acknowledges that *'there is a role for government to assist with the dissemination and application of this knowledge to the wider Victorian sporting community'*.

The focus of this report is to improve the skills of coaches. Providing injury prevention training to a broader audience would also benefit sport and physical activity in general.

The taskforce believes incorporating sports injury prevention modules in all tertiary sport and health and wellbeing courses would be one practical and effective way to help begin to transfer the sports injury prevention related knowledge, which is often available at the high performance end of sport, to community level sport (Appendix 3).





9 Conclusion

Sports make a vital contribution to the development of healthy and active communities. If the objective of increased and sustainable participation in sport is to be achieved, injury prevention and management will need to be supported and promoted as an indispensable component of sports participation programs and strategies.

This will require a strong and collaborative sports injury prevention culture at all levels of sport and within government agencies that invest in sport and community health and wellbeing.





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11 Appendices

Appendix 1

List of consultation forums and participants

Session 1 - Establish standards and incentives for injury risk management in clubs (Date Changed to Wed 1 August 2012)

Invited	Organisation/Sport	RSVP
Matthew Nicholson	La Trobe	Attended
Jamie Taylor	JLT Sport Insurance	Apology
Fiona Young	Squash	Richard Cagliarini (High Performance Manager) - Attended
Rob McHenry	Leisure Network	Apology
Cam McLeod	VicHealth	Shelley Salter - Attended
Mark Rendell	Soccer	Anthony Grima - Apology
Jane Farrance	Gymnastics	Attended

Session 2 -Address high injury sports (Tues 24th July 2012)

Invited	Organisation/Sport	RSVP
Grant Williams	AFL Vic	Peter McDougall - Attended
Tony Dodemaide	Cricket Victoria	Shaun Graf - Attended
Wayne Bird	Basketball	Apology
Mark Rendell	Soccer	Apology
Russell James	Netball	Michael Crooks (VIS) - Attended



*Session 3 - Keep sport safe for children and adolescents
(Thurs 26th July 2012)*

Invited	Organisation/Sport	RSVP
Alex Donaldson	Monash Injury Research Institute	Attended
Shayne Ward	AFL Victoria	Attended
Nello Marino	SMA-National	Attended
Jude Maguire	School Sport Victoria	Kirsteen Farrance - Attended
Warren Cann	Parenting Research Centre	Apology
Mel Waters	Kidsafe	Attended - with Jason Chambers
Barbara Minuzzo	VSCN	Attended

*Session 4 - Improve the management of sport medical emergencies
(Thurs 2nd August 2012)*

Invited	Organisation/Sport	RSVP
Ruby Chu	St John Ambulance Australia	Attended
Jodie Porter	Sports Physio, Head Trainer Amateur FC	Attended
Dr David Bolzonello	Sports Physician, AFL-VIC Academy, Calder Cannons Medico	Attended
Tony Walker	Ambulance Victoria	Jerome Peyton, Senior Paramedic Team Manager Attended
Graeme Cocking	EFL Sports Trainers	Attended - with Tanya Cruckshank



Appendix 2

Using Club Excellence Programs (CEPs) to improve athlete wellbeing and minimise injury risks

The majority of Victorians participate in sport at a community based club. For most community sports clubs there are no mandated and audited, or regulated, injury risk management practices. With assistance from the Victorian Smartplay program, a few sports have attempted to introduce some standards and incentives to improve athlete wellbeing and minimise risk. This process has reportedly had a positive impact on both safety and participation outcomes.¹

A Case Example: The Football ACE Program

The Football Federation of Victoria (FFV) developed a CEP known as the Football ACE (Achieving Club Excellence) Program and it was compulsory for all clubs to have completed Level 1 of the Football ACE Program to be eligible for FFV competition.

FFV promoted its CEP as offering benefits for the clubs that complete Level 1 by suggesting they are more likely to attract sponsors, volunteers and gain members and players.

The program was aimed at:

- achieving club excellence
- fostering best practise in club management and development
- ensuring existing and new club members receive a quality experience when they join a club
- providing an environment attractive to sponsors as well as developing a sense of community with all key stakeholders.

SMA, through the Smartplay program, worked with the FFV in 2008 in an attempt to assist with the uptake and integration of sports injury prevention modules within the ACE program.

The ACE program has apparently now been discontinued by the FFV, and is superseded by the Football Federation of Australia's (FFA) National Club Accreditation Scheme (NCAS). The NCAS was introduced by the FFA 'to raise standards and to recognise and reward quality clubs, which ultimately contributes to quality football experiences for players, volunteers and parents'.²

CEP schemes may present the best opportunity to integrate sports injury prevention policy and practice within sports clubs. The elements required for the successful implementation of injury prevention standards at the community level of sport are:

- strong support from parents for injury prevention measures
- strong support from national and state sports organisations
- having a designated and committed person/committee to coordinate such measures
- practical and easy to access resources regarding injury risk management that are designed for club use
- clear compliance requirements, including monitoring and review processes, and incentives/rewards
- insurance imperatives.

¹ Oakleigh Cannons and Axemen's Council case studies:
http://vic.smartplay.com.au/ImageLibraryAssets/general/vic/oakleigh_cannons_case_study_for_web.pdf
<http://www.smartplay.com.au/ImageLibraryAssets/resources/vic/2011-axeman-case-study.pdf>

² <http://www.myfootballclub.com.au/index.php?id=52>



Appendix 3

Incorporating injury prevention modules in all tertiary sport and health and wellbeing courses

Improving the understanding of the value of injury prevention and the transferral of knowledge to community sport requires that sports professionals are suitably informed and skilled.

The Victorian Government's Plan For Sport and Recreation 2010 identified recent advances in sports science and exercise physiology knowledge is used extensively by top level athletes.

The plan also recognised opportunity *'to apply the same techniques to improve performance of athletes at all levels'* and *'there is a role for government to assist with the dissemination and application of this knowledge to the wider Victorian sporting community'*.

The sports injury prevention-related knowledge often available at the high performance end is not being transferred to community level sport. Injury prevention packages are not promoted nationally or systematically, although some useful tools have existed for several years (e.g. Sports Safe Club/Smartplay safe sport package).

Sports science courses continue to focus primarily on injury management in relation to performance not prevention. The Exercise and Sports Science Association (ESSA) accreditation gives a priority to injury management over prevention. With a focus more on performance, it appears to discount both the impact of the risk of injury and the importance of effectively managing injury.

Some courses have specific units while others may have the principles embedded in a number of areas of the course. Injury prevention units appear only in higher level National Coaching Accreditation Scheme (NCAS) training courses, not at the club coach level for most sports. As injury prevention units do not appear consistently within NCAS courses this appears to result in an inconsistent understanding of roles and responsibilities, and the importance of sports injury prevention.

The responsibility for the delivery of the principles of injury prevention may rest with more than one person in an organisation. Injury prevention principles used by sport remain largely focussed on the health management of the individual and the elite athlete, and do not consider the broader environmental setting. The range of injury prevention considerations, including environmental factors, can be demonstrated using the Haddon intervention principles (Figure 1).



Figure 1: The Haddon Intervention Matrix (with examples of sports injury prevention measures)

		FACTORS		
Phase		Human	Equipment	Environment
Pre-accident	Accident prevention	Risk Awareness Pre-season conditioning Strength training Warm-up	Braces Proper footwear Playing field surface	Fair play rules Playing field management Safety rules and regulations
Injury-event	Injury-prevention	Fall techniques Impact coping techniques	Shin guards Mouth protection Face guards	Padded goal posts Shock absorbing surfaces
Post-accident event	Injury treatment and rehabilitation	First aid training Compliance with 'return-to-play' rules	First aid equipment Emergency equipment	Emergency and rescue services Medical care and rehabilitation services

Some of the key factors frequently not considered in athlete focussed injury management principles include:

- coach, player and community education
- facility design, management, checking
- playing field/ground checks
- local policies and practices
- protective equipment
- provision of adequate first aid/referral to health services
- modification of rules, especially for children, etc
- enforcement of game rules.

Many sports participants do not understand the potential consequences of prioritising performance outcomes over prevention, particularly in competitive but non-elite settings. This becomes more balanced toward the elite end and for athletes on high performance pathways, as this is when the knowledge, resources and experienced medical professionals become increasingly available to participants.

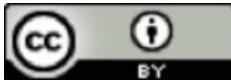
The end result means there is currently no consistency in the delivery and application of sports injury prevention knowledge by sports professionals.



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