Submission to the consultation to develop a

National Sports Plan

Introduction

Thank you for the opportunity to make a submission in relation to the development of a National Sports Plan. This submission has been prepared by Arthritis Australia on behalf of a number of sporting, clinical and academic organisations and individuals that support the Youth Sports Injury Prevention Initiative co-ordinated by the Australian Orthopaedic Association**.** A full list of these organisations and individuals is attached.

This submission will focus primarily on the importance of embedding sports injury prevention as a priority in the National Sports Plan and will specifically address the prevention of lower limb injuries. Prevention of other sports injuries such as concussion will be addressed in submissions from other organisations and individuals. We acknowledge and support these submissions.

Summary and recommendations

- Sports injury prevention needs to be embedded as a key priority of the National Sports Plan
- Up to 60% of sports-related knee and lower limb injuries can be prevented with simple, inexpensive agility training programs which can be implemented at minimal cost
- Since 2000, the incidence of knee reconstructions for injury has increased by 74% for those under 25 years of age, with the greatest increase occurring in those aged less than 14 years
- Targeting injury prevention programs at 12-25 year olds playing high risk sports would save the health system more than $277 million a year in direct medical costs secondary to anterior cruciate ligament (ACL) injury alone over the cohort's lifetime
- Around 5.2 million Australians suffer sports-related injuries each year, at an estimated cost of $2 billion annually and the incidence of injury is increasing
- Up to 70% of people who experience knee injuries will develop knee osteoarthritis within 10-15 years, increasing their risk of disability and joint replacement at an early age
- Sports injuries are a major reason for non-participation in sport and moreover, can limit general physical activity levels, undermining the potential health benefits of increased sports participation.
- All organisations that conduct sports training (for children, communities and elite athletes) have a duty of care to incorporate injury prevention training into their programs, given the proven effectiveness of these simple techniques
- The Australian Sports Commission is ideally placed to assume a leadership role in sports injury prevention by supporting and promoting evidence-based sports injury prevention programs across community and elite sports. This could be done at minimal cost.

Introduction

Sports and exercise participation is an important strategy to help keep people active, reduce obesity levels and prevent and manage many chronic conditions, including arthritis, cardiovascular disease and Type 2 diabetes.

Unfortunately, sports and exercise injuries are common and costly and can significantly reduce the health outcomes sought through increased sports participation. In addition to their short-term impact and costs, sports injuries can lead to debilitating chronic conditions in later years such as osteoarthritis.

Making sports injury prevention a priority in the National Sports Plan will help to ensure sport is safer for participants and will assist in boosting and sustaining sports participation. It will also reduce the cost of sports injuries to the health system and to individuals, and reduce the community burden of osteoarthritis.

1. The burden of sports injuries

Around 5.2 million Australians suffer sports-related injuries each year, at an estimated annual cost of $2 billion.[1] The rate of sports injuries requiring hospital treatment in Australia is increasing, with data from Victoria showing a 24% increase over the seven years to 2010.[2]

Sport injuries are most common in those aged between 18 and 24 years, with the most common injuries being injuries to the knee, including damage to the anterior cruciate ligament (ACL), a major supporting ligament in the knee.[1] Rupture of the ACL can have life-long repercussions.

Australia has one of the highest ACL injury rates in the world and 72% are sports related.[3] Since 2000, the rate of knee reconstruction in Australia has increased by 43% for individuals of all ages and 73% for those aged less than 25 years. Moreover, the greatest increase has occurred in those aged less than 14 years.[4]

Sports that involve pivoting are especially high risk for ACL and lower-limb injury, including Australian rules football, rugby, soccer and netball.[5] [6] Young women are at three to five times greater risk of ACL injury than men[7] although, as men tend to play sports with higher ACL injury risk, overall incidence of ACL injury is higher in men.[8]

2. The link between sports injury and osteoarthritis

Joint injuries are a leading cause of osteoarthritis, which affects over 2 million Australians. Knee injuries account for around 20% of osteoarthritis of the knee. In particular, rupture of the ACL leads to knee osteoarthritis within 10 to 15 years in 50 to 70% of cases, particularly if meniscal injury also occurs.[9]

Most ACL injuries occur in adolescents and young adults[5] with the result that they can develop osteoarthritis of the knee at a relatively young age, substantially increasing their risk of disability and joint replacement compared to their peers.

Without agility training, 9.4% of high-risk Australian sports participants will rupture their ACL and 16.8% will develop knee osteoarthritis.[10]

In 2001, more than half a million Australian aged 15 years and over had a current long term condition that was a result of sporting or exercise injury.[11]

Knee replacements for osteoarthritis cost around $1.4 billion a year[12] of which 20% (around $280 million) is attributable to knee injury.

3. Sports injury limits participation

Sports injuries and fear of injury are major barriers to increasing and maintaining sports participation. Thirty to 40% of people experiencing a major sports-related injury will stop playing sport and will significantly reduce their physical activity levels with major implications for their future health and wellbeing.[13]

In the absence of effective injury prevention strategies, the net rate of reduction in participation in all organised sport, due to injury related drop out, is expected to reach nearly 20,000 people per year by 2020.[8]

4. Sports injuries are preventable

There is over 20 years of strong evidence from multiple clinical trials in Australia and overseas confirming that neuromuscular conditioning programs are effective in significantly reducing knee and ankle injuries.[14] These programs have been shown to reduce the risk of ACL injury by up to 60 per cent, of ankle sprains by 50% and of lower limb injuries by 39%.[9 15 16] Conditioning programs can protect against both acute and overuse or gradual onset injuries and reduce the severity of injuries that are sustained.

In addition to injury prevention, these programs can improve performance by increasing strength, balance, agility and running speed.[17]

Neuromuscular training programs typically consist of a structured warm-up, and balance, stretching, strength and agility training. They replace traditional warm-ups, usually take 15- 20 minutes, and are designed to be undertaken 2-3 times per week.

Sports injury prevention programs based on neuromuscular conditioning have been implemented successfully in a number of countries, showing sustained reductions in injury rates.[18] Many different programs exist, mainly due to a large number of different sports played around the world. Examples include the FIFA 11 + Program, for soccer players, the Powerstep program for rugby players and Footy First for community Australian Football League (AFL) players.

In Australia, the FootyFirst program was developed specifically to reduce common leg injuries in community Australian football. It is based on evidence from a clinical trial showing that community Australian football players undertaking the program had a 50% reduction in knee injuries and a 22% reduction in lower limb injuries. [19]

However, Australia currently lacks a national or state-based coordinated injury prevention program to drive uptake at the grassroots sporting level where it is urgently required.

5. Sports injury prevention programs will reduce health costs.

Modelling suggests that a national sports injury prevention program targeting high risk participants aged 12-25 years would reduce ACL injuries by 40 per cent, saving the health system over $277 million in direct medical costs over the lifetime of the individuals affected. [20]

An Australian agility training program would prevent 3,764 lifetime ACL ruptures, 842 lifetime cases of osteoarthritis and 584 total knee replacements per 100 000 individuals. For every 27 high-risk sports participants involved in an injury prevention program, one individual would avoid an ACL injury.[16]

6. Implementing sports injury prevention is simple and inexpensive

The benefits of implementing neuromuscular training programs to prevent lower limb sports injuries far outweigh the costs. The training itself is simple and can be implemented by trainers and coaches at minimal cost as part of a traditional warm-up program for high-risk participants.

The Australian Orthopaedic Association's Youth Sports Injury Prevention Initiative has proposed that the Australian Sports Commission take a leadership role in sports injury prevention, implementing programs similar to FootyFirst to be delivered by trainers and coaches. Program implementation, updates and monitoring would be part of trainer and coach accreditation and could occur using smart phone apps.

Delivery of the program over four years has been estimated to cost just $1 million per year.

7. Uptake of sports injury prevention in Australia needs to be boosted

Much more needs to be done at both elite and community sports levels to reduce the incidence and burden of joint injuries. This is especially important as increased physical activity and participation in sports are promoted as population health and obesity control strategies.

Beyond the FootyFirst program, implementation of sports injury prevention programs in Australia has been limited. Yet, given the proven efficacy of neuromuscular training programs, there should be a duty of care for all organisations that conduct sports training (for children, communities and elite athletes) to incorporate injury prevention training.

The Australian Sports Commission (ASC), as the agency for delivering Australian sporting success, is well placed to take the lead in injury prevention for the Australian community. However, the $160 million Sporting Schools program delivered under the auspices of the ASC, does not specifically incorporate injury prevention in its programs or online resources, although this could easily be done.

8. Sports injury prevention should be embedded as a key priority of the National Sports Plan

The National Sports Plan provides an excellent opportunity to promote and embed sports injury prevention as a fundamental component of any sports program.

Sports injury prevention will support two of the four pillars set out for the National Sports Plan: maximising, and reducing barriers to, sports participation; and preventive health through physical activity.

Making sports injury prevention a priority will optimise the capacity to achieve important health benefits from sports participation.

9. Recommendations

1) Embed sports injury prevention as a key priority of the National Sports Plan
2) Promote and assist all organisations that conduct sports training (for children, communities and elite athletes) to incorporate injury prevention training into their programs
3) Task the ASC to lead a program to implement monitored evidence-based sports injury prevention programs across high-risk community and elite sports.

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31 July 2017

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Attachment 1

Supporting organisations and individuals

This submission has the support of a number of clinical, sporting, consumer and academic organisations and individuals, most of whom are signatories to the Youth Sports Injury Prevention Group coordinated by the Australian Orthopaedic Association.

Australian Orthopaedic Association (AOA)

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Arthritis Australia

The Australian Rheumatology Association

The Australian and New Zealand Musculoskeletal Clinical Trials Network

Griffith University

Sports Medicine Australia

Sports Medicine Australia

AFL Doctors Association

Australian Physiotherapy Association

Australian College of Sports Physicians

Netball Australia