

# *Grab the Chance & Cushion the Fall: Preventing Sports Injuries*

**Ean Parsons, MD, CCFP, FCFP Dip. Sports Medicine**

## *Are sports injuries common?*

If the definition of a sports injury is time lost from the activity, the US has approximately three million injuries annually among children and adolescents. Currently, there is an increasing effort to do more research in this area. As exercise becomes a greater part of an individual's or community's health, there is potential to reduce the number of injuries that occur. We must do so through preventative sports medicine. Just like seatbelts are accepted in the medical community as an excellent preventive manoeuvre, so too can preventive sports medicine become equally accepted. Progress is slow but we must be persistent.

Several groups have done extensive work in the prevention of injuries in sports medicine. This includes a number of position papers by the Canadian Academy of Sports Medicine,<sup>1</sup> reports from the Accident Research Center at Monash University in Australia,<sup>2</sup> ongoing research at the Center for Disease Control in the United States<sup>3</sup> and at the British Columbia Injury Research and Prevention Unit.<sup>4</sup>

## *What is preventive medicine?*

Preventive medicine looks at the big picture in health care but does not have the immediacy of acute-care medicine. Often, awareness of preventive medicine comes through advertising campaigns or through the one-on-one encounter with the family. When a patient presents with any problem, a physician must seize the opportunity to discuss a patient's

## About Adam

- Adam, 12, presents with an upper respiratory tract infection.
- He has a mild cold, but you take the opportunity to inquire regarding preventive health measures.
- You inquire about vaccinations, encourage smoking avoidance and safety issues, such as using a seatbelt.
- You also decide to ask about his exercise activities and whether he wears protective equipment.



**For more on Adam, go to page 88.**

## *FAQ 1.*

### **How many people are blinded by a hockey injury?**

No one has been blinded by a hockey injury while wearing a full face mask visor. Furthermore, injuries are reduced in players who wear a partial face mask. However, in 1973 and 1974 (before it became the norm to wear preventive injury gear), there were 258 eye injuries in Canada with 43 cases resulting in blindness. In 1999 (once it became the norm to wear preventive injury gear), the numbers reduced to 11 eye injuries with one case resulting in blindness.

safety while playing sports. This can help prevent potential injuries. To reduce sport-related injuries, there are various activities that an individual can partake in. Patients can:

- Partake in specific training and conditioning for their sport
- Change the sport environment to make it safer
- Change how sports are conducted- work through sporting organizations and help rule changes

### FAQ 2

#### What recreational activity has a high incidence of injury causing death?

Drowning associated with multiple water activities is the second leading cause of death from injuries among children aged one to 14 and kills 4,000 people in the US every year. Boating safety, using personal flotation devices, childhood supervision and fencing home pools all have a role in reducing drowning deaths.

## How to prevent sport injuries?

### Equipment

Helmets help prevent and reduce the severity of injuries. Case control studies done with cyclists have shown that the incidence of brain injuries reduce by 70% to 85% when the cyclist is wearing a helmet. Head injuries can be the most serious injury in people who cycle, skateboard (12% of all injuries), snowboard (7% of injuries), use a scooter (3% of injuries) or ski (approximately 10% to



**Dr. Parsons** is an Associate Professor, Family Medicine, Memorial University of Newfoundland, St. John's Newfoundland

### FAQ 3

#### How do I prevent recurrent ankle sprains in volleyball and basketball players?

A Cochrane review showed a significant reduction in the frequency of recurrent ankle sprains using ankle stabilisers (braces). Other studies have not shown any protective difference between high cut and low cut shoes.

15% of all injuries). In Canada, helmets should be approved by the Canadian Standards Association (CSA) and often have Snell or ANSI ratings as well. Helmets known as “brain buckets” must be snug-fitting, have a chinstrap and a two-finger gap between the eyebrows and brim.

According to a study conducted in the US on recreational softball, 71% of injuries were sustained when sliding into a base. Prospective studies done by Dr. David Janda showed a reduction in injuries by 98% when break-away bases were used as opposed to regular fixed bases.<sup>1</sup> These studies showed a reduction from one injury every 14 games with fixed bases to one injury every 316 games with breakaway bases. The Center for Disease Control in the US, estimated that the change to breakaway bases would prevent 1.7 million injuries at an estimated saving of \$2 billion in health-care costs.

### Specific training

Overuse injuries of the elbow can damage the growth plates above the elbow, including injuries known as “little league elbow”. Lyman did a prospective, cohort study in the nine- to 14-year-old baseball pitchers.<sup>2</sup> If the total number of pitches per child was limited to 50 to 75 per game, 100 to 125 per week and 1,000 per season, the incidence of elbow pain and shoulder pain would be markedly reduced. If put in place with a proper

training program focused on the mechanics of pitching and limiting pitches to change up or fast-balls (avoiding curveballs and sliders at this age) will help young pitchers avoid injury and allow them to safely continue pitching for longer.

Although some studies have suggested that training regimes reduce overall overuse and strains in youth soccer, much more research is needed to develop the specifics and to prove the benefits.

### *Rules*

In 1976 American high school and college football rules that outlawed head first spearing tackling were enforced. This reduced the incidence of catastrophic neck injuries resulting in quadriplegia from 34 people in 1976, to three in 1992.

Involvement by physicians gets the prevention message in exercise activities out to a wider audience. Community involvement, either through local sports groups advising about dangerous activity or helping with medical care, such as hydration stations at fun runs, helps put prevention in sports medicine at a higher profile. It's only through activities such as these that physicians will help make a difference.

*Dr. Parsons is a member of the Canadian Academy of Sports Medicine. He has no relationship with any of the other aforementioned organizations.*

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## *FAQ 4*

### **Is dehydration a potential problem when I run in a five km fun run?**

Fluid replacement is always necessary; however, individual requirements depend on personal conditioning and the weather conditions on each day. It is important to plan for fluid stations and look out for signs of heat stroke and heat exhaustion.<sup>3</sup>

## More on Adam

You find out Adam is an avid bicyclist and snowboarder. Adam tells you that he always uses his helmet when on his bike but does not have a helmet to use while snowboarding. You discuss with his parents the protective benefits of a helmet and ask him to watch Snowboarding World Cup, as all the top athletes wear helmets. The modern designs and colours are cool and the new insulated ones, make it easier to stay warm and keep goggles in place.

#### References

1. Janda D.H.: A three-phase analysis of the prevention of recreational soft-ball injuries. *AMJ Sports Med.* 1990; 18(6):632-635.
2. Lyman Stephen: Effect of Pitch Type, Pitch Count, and Pitching Mechanics on Risk of Elbow and Shoulder Pain in Youth Baseball Pitchers. *AMJ Sports Med.* 2002; 30:463-468.
3. Cochrane Reviews: [www.cochrane.org/reviews/en/ab000018.html](http://www.cochrane.org/reviews/en/ab000018.html). (Accessed December 1st, 2005)

#### Resources

1. [www.casm-acms.org](http://www.casm-acms.org)
2. [www.monash.edu.au/muarc](http://www.monash.edu.au/muarc)
3. [www.injuryresearch.bc.ca](http://www.injuryresearch.bc.ca)