



# BASKETBALL INJURIES

## FACTS:

- Developed in 1891 by Canadian James Naismith, basketball is now one of the most popular sports for young people in Canada and around the world
- However, it is also the highest contributor to sport and recreation-related injuries
- National and provincial statistics show that more 10-19 year-old youths are injured playing basketball than any other sport or recreational activity
- One in seven of all sport and recreation-related injuries to this age group occurs while playing basketball

The basic treatment for many simple injuries is often R.I.C.E. – rest, ice, elevation, and compression.

*What is the ACL?*  
The ACL (anterior cruciate ligament) is located inside the knee joint and stabilizes the joint by preventing the shinbone (tibia) from sliding forwards beneath the thighbone (femur). A hard twist or excessive pressure on the ACL can tear it, so that the knee gives out and can no longer support the body.

During the early years of play, skill acquisition and overall conditioning should be emphasized rather than sport-specific conditioning.

## WHO GETS INJURED?

- Each year, more than 1.6 million basketball-related injuries are treated in hospitals, doctor's offices and emergency rooms in North America. Of those injuries, 574,000 involve children age 5-14 years
- All players in all positions are at risk of suffering injuries
- For elementary children in Physical Education (PE) class, 20% of injuries occurred while playing basketball
- 1 out of every 4 basketball players, both male and female, at the high school level have been reported to suffer at least one injury per year that results in time lost from play or practice
- Males 15-19 have the highest injury rate while females 10-14 are the most frequently injured
- The overall injury rate is slightly higher for females than for males, with females having more severe injuries and more injuries requiring surgery



## WHAT TYPES OF INJURIES OCCUR?

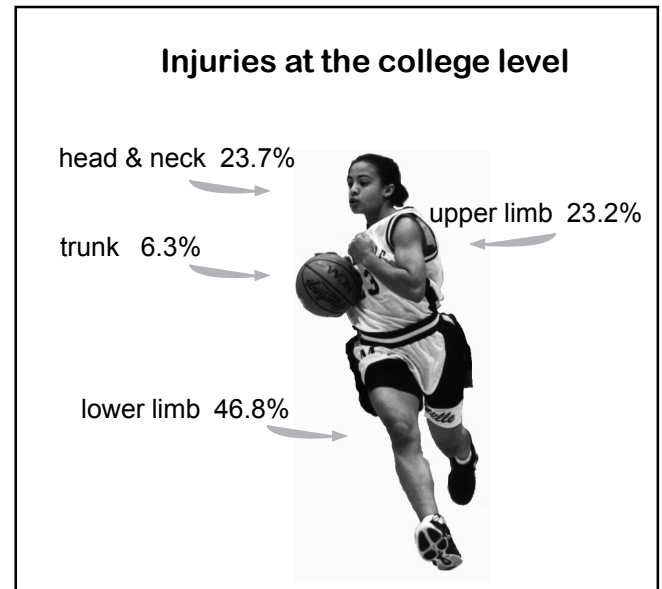
- Overall, the majority of basketball injuries are sprains and strains.

### At the elementary level:

- For elementary school children, injuries that occur most often during physical education class affect the upper extremities (over 55%), because of underdeveloped motor skills and limited technique for catching a ball
- With increasing age and improving ball technique, injuries to the lower extremities are more frequent

### At the high school level:

- The majority of injuries in basketball are to the lower extremity. The most frequent injury is an ankle sprain (over 40% of all injuries), followed by knee injuries and wrist/hand injuries
- Ankle and knee injuries, along with calf injuries, rank highest for injury severity and lost playing time
- Proportionately, females incur more lower limb injuries while males incur more facial injuries
- Females have a higher rate of serious knee injuries, and are three times more likely to sustain an ACL injury when compared to males
- Anatomical, hormonal, and biomechanical differences between females and males have been suggested as possible reasons as to why female athletes are more predisposed to sustain knee ligament injuries than their male counterparts



- Knee ligament injury statistics for females are consistent across high school, college, and Olympic levels

## WHEN DO INJURIES OCCUR?

- Approximately half of all injuries result from body contact
- At the high school and recreation levels, the majority of injuries are sustained during practice, specifically during rebounding (30%)
- At college and professional levels, the majority of injuries occur during competition rather than during practice

|                              | Men                           | Women                         |
|------------------------------|-------------------------------|-------------------------------|
| Injuries per game            | 1 in 10                       | 1 in 11                       |
| Practice injuries            | ~50% ankle + knee + upper leg | ~50% ankle + knee + upper leg |
| Game injuries                | ~50% ankle + knee + head      | ~50% ankle + knee + head      |
| Top game injuries            | sprains, contusions, strains  | sprains & strains             |
| Injuries from player contact | 54%                           | 40%                           |

*(NCAA, Injury Surveillance System (ISS), 2000-2001)*

# PREVENTION OF INJURIES

## Player Specific:

- Pre-season conditioning that includes cardiovascular, strength, agility and endurance training, and gradually increases in intensity and duration, prepares an athlete for competition and reduces the possibility of injury
- Conditioning should be maintained throughout the course of a season
- Cross-training exercise can help to reduce the risk of developing overuse injuries while increasing endurance
- A thorough warm-up and stretch is beneficial before practice or play and following half-time breaks

## Equipment Specific:

- In randomized testing, the lowest incidence of ankle sprains is for basketball players with prophylactic taping of the ankles AND high-top shoes\*
- In randomized testing, the use of ankle stabilizers (braces) significantly reduced the frequency of contact ankle injuries across all player positions
- For high school basketball players, those wearing mouthguards had 10 times less dental injuries than those without

## Facility Specific:

- Playing surfaces must be well maintained and kept clear of debris or obstructions
- Facilities should meet recognized safety standards and conditions should be monitored

## Coach Specific:

- Certification and continuing education should be essential for all coaches and officials to inform them of new injury prevention information
- Coaches and officials should stress healthy training tactics and advise athletes against the use of performance enhancing substances to decrease player injuries
- One should also stress the importance of good sportsmanship to decrease injury to others



\* Supported by extensive review of research on sports injury prevention strategies (BCIRPU, CHEO, 2000)



Sports injuries, including those in basketball, will never be totally eliminated. However, sports injury research has already resulted in rule changes, equipment standards, improved coaching techniques and better conditioning for athletes.



Although basketball is predominantly considered a limited contact sport, athletes are at risk for acute injuries as a result of trauma from collisions and falls; and the tremendous stress placed on the body from the sudden acceleration, deceleration, pivoting, and explosive movements involved place athletes at significant risk for acute injuries.

Basketball is a popular sport for all ages. By **following injury prevention tips**, basketball can be safer and more fun for everyone! Stopping injuries before they occur is your responsibility!

For further information on how you can prevent injuries, contact your local health unit or the BC Injury Research and Prevention Unit.

#### REFERENCES:

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4. Powell, J.W., Barber-Foss, K.D. Sex-related injury patterns among selected high school sports. *Am J Sports Med*. 28(3):385-391;2000.

## B.C. *Injury* Research

A N D · P R E V E N T I O N · U N I T

The British Columbia Injury Research and Prevention Unit (BCIRPU) is committed to meeting the challenge of making BC a safe place to live and work by coordinating efforts that will prevent or reduce injuries, their consequences, and costs.

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For more information on basketball injuries, check out the American Academy of Orthopaedic Surgeons website for Play it Safe Sports at [www.aaos.org/wordhtml/prevspor.htm](http://www.aaos.org/wordhtml/prevspor.htm)

For more basketball injury statistics, please visit the NCAA website at [www.ncaa.org](http://www.ncaa.org) and look under ISS – Injury Surveillance System (in the site index)

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