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Pre-Season Conditioning Helps Prevent Hamstring Injuries

By David Geier, MD

Hamstring injuries are some of the most common injuries in football, baseball, track and field, rugby, and soccer. In fact, an acute hamstring strain is believed to be the most common injury in adult male soccer players, makes up between 12 percent and 16 percent of all injuries.

Acute hamstring strains usually require a 2- to 6-week absence from sports, and they have a fairly high recurrence rate, especially in the first few weeks after return to play. Knowing how an injury occurs, risk factors and prevention efforts can help keep athletes healthy.

How does a hamstring injury happen?

Acute hamstring strains are generally noncontact injuries. Sprinting, such as in passing plays in football and running from home plate to first base in baseball, is a common activity leading to injury.

What are the risk factors?

The risk for acute hamstring strain increases with age and levels of competition. Other risk factors include imbalances in hamstring strength, decreased flexibility of the hip flexors, and higher body weight.

Multiple studies of injuries of American football show predominance of these injuries in preseason. Hamstring muscle weakness and deconditioning of the athletes in the off-season could be factors in the timing of the injuries.

By far, the biggest risk factor for a hamstring strain is a history of prior injury. A soccer player who previously suffered a hamstring strain is more than twice as likely to suffer another injury. Inadequate recovery and rehabilitation from the original injury and return to play too quickly could play a role. It is believed that even with a comprehensive rehabilitation program, an athlete's chance of recurrent injury is still high.

Prevention

Injury prevention efforts have increased due to the long absences from sports and high recurrence rates. Identifying athletes with hamstring strength imbalances and correcting them and having athletes perform agility and trunk stabilization programs may be beneficial. Given the amount of hamstring strains occurring in preseason, athletes should enhance their sport-specific conditioning prior to the early training sessions. Focusing on sprinting, interval running, acceleration drills, and eccentric hamstring strengthening may prevent some hamstring injuries.





SOCCER INJURY FACT OR FICTION

Does Heading Cause Concussions?

By Robert Brophy, MD

Fact or Fiction: Most concussions in soccer occur from contact with another player, often while heading

Fact. Contact with another player, often when going for a header, is the most common cause of concussions in soccer players.

Fact or Fiction: Male soccer players are at greater risk for concussions than female soccer players

Fiction. Females are at a greater risk of concussion during soccer than males.

Fact or Fiction: Heading the soccer ball has a negative long-term effect on brain health

Fiction. The general consensus is that heading does not have a negative long-term effect on brain health.¹ Concussions, however, may be a risk factor for long-term neurocognitive issues.

Fact or Fiction: Protective head gear reduces the risk of concussion in soccer players

Fiction. Headgear has not been shown to reduce the risk of concussion in soccer players. Headgear does not alter the impact of ball contact during heading but may reduce the risk of injury from player to player contact. However, use of headgear could give soccer players a false sense of security and make them more likely to risk collisions, potentially offsetting any beneficial effect.

Fact or Fiction: Concussions are common in soccer

Fiction. Concussions are not common in soccer. All head injuries, including concussions and face and eye injuries, make up less than 25 percent and perhaps as few as 4 percent of all soccer injuries.¹

Fact or Fiction: Heading the soccer ball causes concussions

Fiction. In older players, heading does not cause concussions.² In younger players, heading is a very rare cause of concussion, usually associated with improper technique.¹

References

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2. Boden BP, Kirkendall DT, Garrett WEJ. Concussion incidence in elite college soccer players. *Am J Sports Med.* 1998; 26:238-41.

Proper Equipment Helps Prevent Injuries for Equestrians Too

By Kevin Farmer, MD

Equestrian activities are extremely popular in the United States, with more than 30 million participants, according to CDC estimates.¹ Due to the speeds, height, and weight of the horses, injuries are relatively frequent, and can be severe. Estimates from the National Electronic Injury Surveillance System (NEISS) indicate that 76,000 individuals were treated in U.S. Emergency Departments in 2004, with 23,000 under the age of 18.²

Injury rates exceed that of motorcycle racing, skiing, and American football, with a large percentage of injuries leading to long-term disability.¹ Fatality rates are also among the highest of all sporting events, with numbers as high as 1 in 10,000 riders, mostly due to head injury.³ Given the high incidence of injuries and volume of participants, sports medicine physicians and equestrian athletes should be aware of the injuries associated with this sport.

Experience also appears to be closely associated with injury risk. In a study of 679 equestrians, authors found 1 in 5 athletes experienced an injury during their riding career. Novice riders experienced a five-fold increase in injury rates compared to advanced riders, and an eight-fold increase

compared to professional riders. This information suggests that special attention should be paid to novice riders in regards to teaching and preventable measures given their increased risk of injury.²

The majority of serious injuries are related to head trauma. Helmets have been shown to decrease the injury risk and severity during equestrian activities, but widespread use is lacking. Seventy-four percent of novice riders report wearing helmets when riding, but that number decreases to 58 percent of advanced riders.² Helmets are often required at sanctioned riding events, but limited use outside of events is a concern. Protective vests are also required by the majority of riding organizations, but regular use outside of events is uncommon. Chest, rib, collar bone fractures, collapsed lung, etc. are very common in this group.

Equestrian riders have one of the highest injury and fatality rates of all sporting participants. Novice riders should take extra precautions to minimize risks. The regular use of helmets and chest protection is highly recommended. Riders and physicians should work closely together to help minimize injury risk in this unique group of athletes.



1 in 5 athletes experience an injury during their riding career

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2. Mayberry JC, Pearson TE, Wiger KJ, Diggs BS, Mullins RJ. Equestrian injury prevention efforts need more attention to novice riders. *J Trauma.* 2007 Mar;62(3):735-9.
3. Smartt P, Chalmers D. A new look at horse-related sport and recreational injury in New Zealand. *J Sci Med Sport.* 2009 May;12(3):376-82.



About AOSSM and *In Motion*

As a world leader in sports medicine education, the American Orthopaedic Society for Sports Medicine (AOSSM), we have designed the publication to highlight relevant information for multiple age groups from exercise and rehabilitation to nutrition and psychology.

This important educational tool is published quarterly and distributed electronically.

AOSSM members can add their practice name and logo to *In Motion*. Personalizing *In Motion* is an easy way to get pertinent, patient-friendly sports medicine information to your patients with just a click of a mouse. For more information, please e-mail Lisa Weisenberger at lisa@aossm.org or contact the Society at 847/292-4900.

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Proper Treatment for Ankle Sprains Minimizes Long-Term Issues

By Michael J. Smith, MD

Probably the most common athletic injury is an ankle sprain. This usually is an injury where the ankle rolls inward following landing from a jump, as in basketball or volleyball, or stepping on another player's foot. This stretches the ligaments on the outside of the ankle, and immediate pain and swelling can occur. This is such a common type of athletic injury that it is often undertreated and the athlete can end with a chronic problem. It is important to adequately assess the injury and form immediate treatment plan that will ensure a prompt and safe return to sports and also ensure that an athlete will have no long-term problems.

The immediate treatment after an ankle injury is RICE therapy.

 **Rest**

Ice packs for 15–20 minutes several times a day



Compress with an elastic wrap to help control swelling



 **Elevate** the ankle above the heart to minimize swelling

Evaluation by a sports medicine physician is recommended to assess whether X-rays, stress radiographs, and/or MRI scans are

needed. It is important to evaluate not only bony injuries that may be present, but also the extent of any ligament damage that may produce instability.

After being evaluated for any bone or excessive ligament damage, the treatment plan should be initiated. The first stage is to continue the ice, compression, and elevation to minimize the swelling. Sometimes taping or an ankle splint may be used to relieve the pain and reduce further swelling. As the athlete can gradually bear weight to tolerance, it is also important to start range-of-motion and strengthening exercises. Home exercises can be performed with stretch-bands for strength and alphabet writing with the toes for motion, or the patient can be sent to physical therapy for one-on-one instruction and treatment. The athlete will be taken through range-of-motion exercises for flexibility, strengthening, and balance. It is imperative to restore the strength and balance following these injuries so the ankle is not prone to repeated injuries.

Ankle sprains are very common and a lot of them are classified as simple. The appropriate initial treatment, evaluation, and treatment protocols must be followed to ensure that an ankle sprain is fully recovered. If not, this simple sprain may turn into a chronic problem with recurring pain, swelling, repeat injuries, and even the development of arthritis.

