Sports Injuries

Ravinder Kumar

Abstract— **Sports injuries are injuries that occur in athletic activities. They can result from acute trauma, or from overuse of a particular body part. Injury severity has traditionally been measured in total time loss. Overuse injuries require a measure that accounts for participation and pain levels.**

I. INTRODUCTION

After a sedentary work week, end-zone catches and 66-hole weekends can take their toll in common sports injuries. The seven most common sports injuries are:

1. Ankle sprain
2. Groin pull
3. Hamstring strain
4. Shin splints
5. Knee injury: ACL tear
6. Knee injury: Patellofemoral syndrome — injury resulting from the repetitive movement of your kneecap against your thigh bone
7. Tennis elbow (epicondylitis)

II. STRAINS AND SPRAINS

Sprains are injuries to ligaments, the tough bands connecting bones in a joint. Suddenly stretching ligaments past their limits deforms or tears them. Strains are injuries to muscle fibers or tendons, which anchor muscles to bones. Strains are called “pulled muscles” for a reason: Over-stretching or overusing a muscle causes tears in the muscle fibers or tendons.

“Think of ligaments and muscle-tendon units like springs,” says William Roberts, MD, sports medicine physician at the University of Minnesota and spokesman for the American College of Sports Medicine. “The tissue lengthens with stress and returns to its normal length — unless it is pulled too far out of its normal range.

III HAMSTRINGS

The hamstrings are the tendons that attach the large muscles at the back of the thigh to bone. The hamstring muscles are the large muscles that pull on these tendons. It has become common in layman's terminology (and by some medical personnel) to refer to the long muscles at the back of the thigh as the "hamstrings" or "hamstring muscles." Academic anatomists refer to them as the posterior thigh muscles, and more specifically as the semimembranosis, the semitendinosis, and the biceps femoris muscles. These muscles span the thigh, crossing both the hip and the knee. They originate or begin at just below the buttocks, arising from the bone on which we sit (the ischium). They connect by means of their tendons onto the upper parts of the lower leg bones (the tibia and the fibula).

The origin of the word hamstring comes from the old English hamm, meaning thigh. String refers to the characteristic appearance and feel of the tendons just above the back of the knee. Although the tendons are sometimes involved in injuries, this article will refer to the "hamstrings" as the large muscle group at the back of the thigh because the most frequent problems involve this muscle group. The second web site listed below has a diagram of the hamstrings attached to the lower leg.

The hamstring muscles actively bend (flex) the knee. They also act to straighten or (extend) the hip (as in the motion of moving the thigh backward). Surprisingly, these large muscles are not very active with normal walking or standing. However, they are extremely important in power activities such as running, jumping, and climbing. Thus, sedentary individuals can get by with quite weak or deconditioned hamstrings, whereas athletes and very physically active individuals absolutely depend on healthy, well-conditioned hamstrings.

The power advantages of strong hamstrings have been known for a long time. In times past, a sword-wielding knight would disable an opponent by a slice across the back of the thigh. Cruel masters were known to have severed the hamstrings of domestic slaves or prisoners in order to make escape less likely. The origin of the term hamstrung, meaning to have been crippled or held back, is derived from these practices.

The hamstrings undergo a complex dynamic process during gait, making it unsurprising that they are frequently injured. They must first contract concentrically during the end of the stance phase in order to bend the knee and allow the foot (along with dorsiflexion at the ankle) to clear the ground. At the end of the swing phase the hamstrings must eccentrically contract while applying a braking moment to knee extension, and the immediately change functions to again concentrically contract and produce hip extension. Studies have shown that “the hamstring group reaches peak elongation and acts eccentrically at the hip and knee during the late swing phases of running”[6] and that “the hamstrings are most active and develop the greatest torques at the hip and knee during the late swing through midstance phase of running.”[6] Thus, the hamstrings reach their maximum length while attempting to forcefully contract eccentrically and switch functions to immediately produce a

concentric contraction, which makes the terminal part of swing phase the most vulnerable for injury.

There have been many other proposed predisposing factors to injury. These include muscle weakness, muscle imbalance, poor flexibility, fatigue, inadequate warm up, poor neuromuscular control, and poor running technique.[6] One of the few predisposing factors that most researchers agree upon however is previous hamstring injury. Brokett et al (2004) [4] stated that "the athletes most at risk of a hamstring strain are those with a previous history of such injury" and noted that 64% of the hamstring injuries were recurrences." Cameron et al also found that 64% of injuries recur in the same season. Arnason et al [1] generalized these numbers, saying that previous injury was in itself an independent risk factor for re-injury.

IV PREVENTION

A warm-up program has been founded to decrease injuries in association football. Many athletes will partake in HGH Treatment for Athletic Enhancement as a way to prevent injuries. Risk of injury can be reduced by completing an effective warm up consisting of a heart raiser to get your pulse up, followed by sport specific dynamic stretches (stretches whilst moving).

V. Sports-Related Emotional Stress

The pressure to win can cause significant emotional stress for a child. Sadly, many coaches and parents consider winning the most important aspect of sports. Young athletes should be judged on effort, sportsmanship and hard work. They should be rewarded for trying hard and for improving their skills rather than punished or criticized for losing a game or competition. Using proper equipment is key in preventing injury The NFL is conducting tests with new helmet designs that could reduce the number of head injuries in the league.

Doctors believe fatigue can be a contributing factor in sports injuries because it is more difficult for the body to protect itself when fatigued. Stopping an activity at the first sign of fatigue can prevent sports related injuries. planned as a one stop luxury location with multiple 5 star facilities, is under construction in Sector 25Metropolis Mall is also being made.

Stretching the muscles that extend the wrist (extensor muscles): Straighten the arm out fully and push the palm of the hand down so you feel a stretch across the top of the forearm.

REFERENCES

[1]. en.wikipedia.org/wiki/Sports_injury
[2]. orthoinfo.aaos.org/menus/sports.cfm
[3]. webmd.com/men/features/seven-most-common-sports-injuries
[4]. Cameron, M., Adams, R., & Maher, C. (2006). Motor control and strength as predictors of hamstring injury in elite players of Australian football. Physical Therapy in Sport, 4(4), 159-166."
[5]. Brockett, C. L., Morgan, D. L., & Proske, U. (2004). Predicting hamstring strain injury in elite athletes. Medicine & Science in Sports & Exercise, 66(6), 679-687"
[6]. hughston.com/hha/a.seven.html