

Injuries in College Basketball

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Preventing injury is a key component to any successful team . Injuries cannot be avoided due to the high-intensity level that college basketball is being played. However, the severity of injury can be reduced if athletes prepare physically leading up to the season. Prophylactic devices can also be used to limit the severity, such as bracing or taping.

College basketball is considered a contact sport. Therefore, injuries will occur on a regular basis. Most research will confirm that 60%-70% of all injuries will involve the lower extremity of the body. At the same time, the overall rate of injury is approximately ten per 1000 athletic-exposure during games and four per 1000 exposure during practice. There has been an increasing trend of injuries to the face and head, which may be due to the overall physical contact. Injuries that oft occur are as follows:

Acute Ankle Sprains

Cause or mechanism of injury

Ankle sprains are the most common injury that is seen in basketball players. Approximately 85-90% of ankle sprains are inversion, meaning that the foot and ankle are forced inward with the toes slightly pointed (Fig. 1). This usually occurs from a player stepping on another person's foot or landing awkwardly when jumping. The result is spraining the lateral or outside ligaments of the ankle.



(Fig. 1)

Signs and symptoms

Ankle sprains are categorized into three grades. Grade 1 is the most common type of sprain. A mild stretch without disruption to the lateral ligaments is present. Mild pain and disability occur. There is point tenderness to the touch with minimal swelling over the ligament. Comparing bilaterally will assist in determining what is normal.

Grade 2 ankle sprains are more symptomatic. There is an actual disruption to the lateral ligament or ligaments. The athletic will usually complain that a pop or snap was felt to the lateral side of the ankle. There is still pain, but more swelling will be present. This is important to note when evaluating the severity of the injury. Ecchymosis (discoloration) will likely occur within a few hours. It will also be more uncomfortable to bear weight. The ankle is also unstable upon evaluation.

Grade 3 ankle sprains are not as common. This is a total disruption to one of the lateral ligaments. There may be partial damage to other ligaments. Weight bearing is not possible. There is a great deal of swelling and ecchymosis with or without pain. Joint laxity is also present.

Management

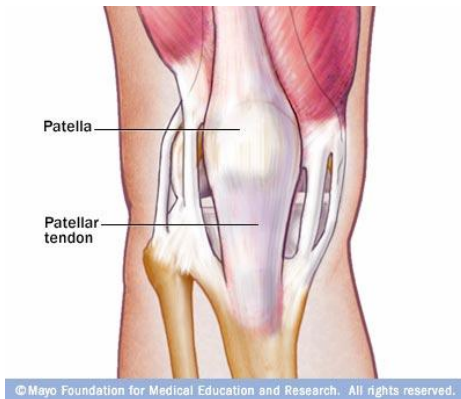
When any acute musculoskeletal injury occurs, the proper management should include rest, elevation, compression and elevation (RICE). This holds true for all grades of ankle sprains. RICE should be applied to any grade 1 sprain for twenty minutes every few hours for at least 24-48 hours. In conjunction, a compression wrap should be applied. Always elevate the leg above the heart with sitting or lying down. In many cases, grade 1 ankle sprains don't warrant rest unless symptoms persist. Taping or bracing will provide support during recovery or participation. Grade 2 ankle sprains need to be handled more conservatively. The first thing needed is an x ray to rule out a fracture. The athlete should be placed on crutches for 5-10 days gradually increasing weight bearing to tolerance. Rehabilitation should consist of RICE and early pain-free range of motion. Progression should include isometrics and proprioceptive exercises. The return to play with a grade 2 sprain is 2-4 weeks with constant rehabilitation. Grade 3 sprains may require surgery to repair the ruptured ligament. In most cases, the athletic is placed in a cast or weight-bearing brace for 3-6 weeks with crutches. Once the cast or boot is removed, range of motion and proprioception can begin. Progression of rehabilitation is performed as tolerated. Due to the laxity of a grade 3 ankle sprain, a major concern is degenerative changes to the ankle, which can lead to chronic problems.

Common goals following ankle sprains are restoring range of motion, normal strength and proprioception. Incorporating basketball-related activities is most beneficial. Early stage activities that are performed once the athlete is able to function include ankle pumps, heel cord stretching, single-leg standing and isometric strengthening. This can be advanced to Theraband training, single-leg basketball toss, and mini-squats. Prior to returning to the court, it's vital that the athlete can perform activities that pertain to basketball, such as single and double-leg hopping, direction changes and full speed forward and retro-sprinting. Taping or bracing will prevent further damage or support the injured ankle once returning to activity.

Patellar Tendonitis (Jumper's Knee)

Cause or mechanism of injury

In most cases, this is considered an overuse injury. It's a result of repetitive tension placed on the patellar or quadriceps tendon (Fig. 2), usually at the patellar tendon. Too much deep squatting or plyometrics can attribute to this condition.



(Fig. 2)



(Fig.3)

Signs and symptoms

The athlete will complain of pain and tenderness at either the superior (top) or inferior (bottom) poles of the patellar tendon. In minor cases, pain will only occur following activity. If proper care does not take place, pain is present during and after activity. This can lead to pain during activity and will prolong after activity. Not only will symptoms be present, but performance will be hampered. If the athlete continues to play through symptoms without proper care, constant pain and complete rupture of the tendon could take place.

Management

The first step to recovery is to rest or limit activities that require heavy loading or explosive movements of the quadriceps. Treatment will begin with some sort of cryotherapy, .ie cold whirlpool, ice massage or ice bag. A combination of cold and warm whirlpools can also be beneficial. It has also been proven that deep cross friction massage can provide relief of symptoms. Over the counter anti-inflammatory medications with ibuprofen are also beneficial. Special patellar tendon braces or straps are also available that can counteract the forces of the quadriceps group (fig. 3). Make sure that the quadriceps are strengthened with a variety of open and closed kinetic chain exercises as well as stretching the hamstrings daily.

Quadriceps contusions

Cause or mechanism of injury

A blunt trauma to any of the quadriceps when the muscle is relaxed. In most cases, the athlete is struck by another player's knee when attempting to screen off an opponent.

Signs and symptoms

Quadriceps contusions are measured in grades 1-4. Grade 1 are more superficial with only hemorrhage, little pain or point tenderness and no swelling. No playing time should be missed. A grade 2 is deeper into the tissue with mild pain and swelling. The athlete will be unable to flex the knee beyond 90 degrees. Grade 3 symptoms are more moderate with the knee only flexing to 45-90 degrees. A severe, or grade 4 contusion is a major disability. There is actually a muscle tear or herniation with a great deal of bleeding. Severe pain is present with movement greater than 45 degrees.

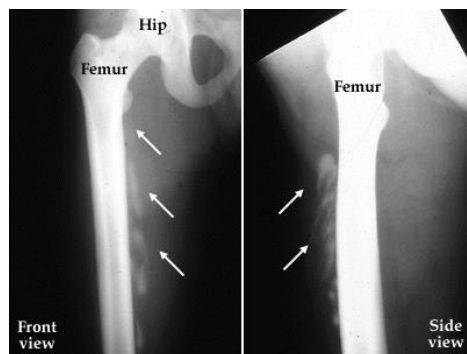
Management

With any grade of contusion, the leg should be placed on ice in a flexed position to avoid muscle shortening. RICE should be administered for the first 24-48 hours. For grade 2 and 3 contusions, crutches may be necessary to prevent further bleeding into the tissue. Once the athlete has progress past the inflammatory stage, strengthening and advanced stretching to the quadriceps should begin. Make sure that the hamstrings are not neglected. Heat, massage, or ultrasound should be avoided to prevent a condition called myositis ossificans traumatica.

Myositis Ossificans Traumatica

Cause or mechanism of injury

This condition involves a calcification or ectopic bone formation within the quadriceps. Often quadriceps contusions are not treated properly, completely avoided or repeated blows are present which lead to this condition. Particles of bone are noted in an x-ray at two to six weeks post injury (Fig. 4).



(Fig.4)

Signs and symptoms

The same symptoms are present as a quadriceps contusion. The symptoms increase within a few days without proper care.

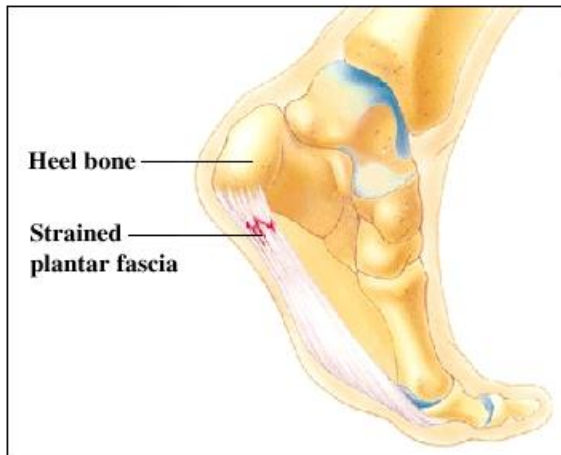
Management

Once myositis ossificans has been established, treatment must be conservative. If motion remains restricted or pain does not decrease with rest, surgery is likely to remove the bone formation. This should take place approximately one year later. Surgery too early may cause it to return.

Plantar Fasciitis

Cause or mechanism of injury

This is another common basketball condition that also affects many running sports. It's a catchall term used to describe overuse heel or arch pain. The plantar fascia is a broad, dense band of tissue that runs from the calcaneus to the distal end of the foot (fig. 5)



(Fig.5)

Signs and symptoms

Pain is most present in the morning or following prolonged sitting. The pain will occur mostly during the push off phase of walking or running. If pain persists and goes without proper care, a heel spur can develop over time.

Management

Symptoms will usually last for several weeks. Therefore, treatment is vital and must be consistent. Heel cord and toe stretching are very important to improve dorsiflexion.

Stretching out the plantar fascia can be performed by rolling a can underneath the foot from the heel to the toes. It is recommended that these stretches are performed three times per day. Other options to manage plantar fasciitis are custom-fit orthotics or arch taping prior to activity. The orthotics should be worn at all times. Night splints or short leg walking casts are also beneficial for extreme cases.

Other common injuries

As mentioned previously, the majority of basketball-related conditions are to the lower extremity. However, facial injuries such as lacerations, dental injuries, and abrasions are also common. These conditions need to be handled specifically on an individual basis. All injuries need not to be handled with the “cookbook” approach.

If you have further questions relating to basketball-related conditions, I can be contacted at drewshea@gmail.com