



Management of Ankle Sprains in Athletes Including the Importance of Correct Rehabilitation

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Abstract

Ankle injuries are one of the most common injuries among athletes, but due to the complexity of the ankle and surrounding structures, the severity and extent of these injuries vary widely. Compared to lateral ankle sprains, arthropathic or high ankle sprains are less common in the general and sports population and usually experience longer recovery periods, further complicating the assessment and treatment of this type of injury. Symptomatic lesions showing radiographic extension as evidence of disability are relatively straightforward with regard to diagnostic and therapeutic directions. However, as is more commonly seen in sports, under normal joint and bone radiographic conditions, such sprains are much more difficult to assess in terms of severity. Is dependent on subjective clinical findings. As a result, they present a significant diagnostic and therapeutic dilemma for sports medicine physicians.

Keywords: Ankle; injuries; athletes; disability

Introduction

Without proper care, acute ankle trauma can lead to chronic joint instability. Using a standardized protocol will improve the management of ankle sprains. Accurate diagnosis, early use of RICE (rest, ice, compression, elevation), maintenance of range of motion, and use of ankle braces should be emphasized in patients with grade I or II sprains. Total ligament tear (Grade III) sprains may require surgical intervention. Early exercise and mobility are encouraged, but ligament strength does not recover until months after an ankle sprain. The ankle is one of the most common sites of acute musculoskeletal injuries, with sprains accounting for 75% of ankle injuries. Acute ankle injuries are responsible for 10-30% of sports-related injuries in young athletes [1]. An estimated 1 million people seek medical attention each year for acute ankle injuries. More than 40% of his ankle sprains can lead to chronic problems.

Classification of Ankle Sprains

Ankle sprains vary in severity from Grade I to Grade III. Ankle sprains come in three grades, depending on the amount of force. Grade 1 includes stretching or slight tearing of the ligament with mild tenderness, swelling and stiffness. The ankle feels stable and you can usually walk with minimal pain. Grade 2 includes a more severe sprain, but an incomplete laceration with moderate pain, swelling, and bruising. There is a moderate sense of stability, but the damaged parts are uncomfortable to the touch and difficult to walk on. Grade 3 includes a complete tear of the affected ligament with lots of swelling and bruising [2]. A wobbly ankle and severe pain can make it unstable and incapable of walking. A simpler approach is that he divides these injuries into two groups. A complex one and a simple one. Uncomplicated ankle sprains are treated without surgery. This includes injuries with no associated problems that preclude early exercise or rehabilitation. Complex ankle sprains usually require surgical treatment. In particular, late instability is as common after surgical treatment as it is after non-surgical treatment of severe ankle ligament injuries. In addition, late reconstruction is beneficial in patients initially treated non-surgically [3].

Pathoanatomy and Mechanisms of Injury

The most common injury mechanism in ankle sprains is a combination of plantarflexion and varus. The lateral stabilizing

ligaments, including the anterior talofibular ligament, calcaneofibular ligament, and posterior talofibular ligament, are the most commonly injured [4]. The anterior talofibular ligament is the most commonly injured ligament. Simultaneous injury to this ligament and the calcaneofibular ligament can result in significant instability. The posterior talofibular ligament is the strongest of the lateral complexes and is rarely injured in inversion sprains [5]. The anterior drawer test can be used to assess the integrity of the anterior talofibular ligament and the inversion stress test can be used to assess the integrity of the guaranteed ligament. Medial ankle sprains are less common than lateral ankle sprains because of the bony connection between the medial malleolus and the talus. In medial ankle sprains, the injury mechanism is excessive valgus and dorsiflexion [6].

Diagnosis

Ankle trauma assessment is based on a careful medical history (context and mechanism of injury, previous injury to the joint, etc.) and a careful physical examination (examination, palpation, load status, special examination, etc.). Severe swelling can give the appearance of deformity, but ankle sprains should not cause significant deformity. I have. This may be related to syndesmotom damage [7]. Tenderness along the base of the fifth metatarsal may indicate a ruptured peroneus brevis tendon. Palpable pain and effusion along the talofemoral joint line should raise suspicion of an osteochondral talar dome lesion. This lesion results from direct trauma between the talus and fibula (anterolateral lesion) or between the posteromedial talus and tibia (postomedial lesion) [8-10]. Talar dome damage may not be visible on x-rays until 2-4 weeks after injury. Absence of swelling with valgus or hyperdorsiflexion injury mechanism and tenderness of the distal tibiofibular joint may suggest a symptomatic sprain. Special tests can help further confirm the presence of adhesion sprains. The "squeeze

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test" performed by mid-calf compression of the fibula and tibia is considered positive if pain is induced distally beyond the tibial-fibular fusion. An external rotation test is also recommended for detecting sciatica [11]. This test is performed with the patient's knee resting on the edge of the table. Doctors grasp the plantar aspect of the foot and stabilize the leg proximal to the ankle joint while rotating the foot outward against the shin. If pain occurs during this operation, the test is positive [12].

Radiology

The Ottawa ankle rules can be used to determine when ankle trauma patients should be x-rayed. According to these rules, if the patient (within 10 days after injury) has bone tenderness in the lower half of the fibula or tibia, 6 cm (2.5 inches) below, or is otherwise disabled, to rule out a fracture should have her x-rayed. Carry current weight immediately after injury and in the emergency room (or clinic). Tenderness of the scaphoid, or bone at the base of the fifth metatarsal, is a radiographic indicator to rule out a fracture of the foot. Implementation of the Ottawa Rule has resulted in fewer unnecessary her radiographs, shorter patient wait times, and lower diagnostic costs. These rules are 100% sensitive (95% confidence interval [CI], range: 82% to 100%) for detecting ankle fractures and 100% sensitive (95% AI, range: 95%) for detecting metatarsal fractures ~ 100%) [13-15]. Anterior-posterior, lateral and tuck-in radiographs should be obtained after the initial physical if so directed under the Ottawa Ankle Regulations. A slit projection is an anterior-posterior view obtained by internally rotating the leg 15 to 20 degrees so that the x-ray beam is approximately perpendicular to the ankle line. Radiographs of uncomplicated ankle sprains may appear normal or show lateral tilt of the talus in anterior-posterior or plug-in projections. X-rays may show ankle fractures, talar dome fractures, or synovial disruption of the ankle. Any of these findings should lead to a referral to an orthopedic surgeon [16-18]. Talar dome lesions occur in 6.8-22.0% of ankle sprains and may be missed on initial evaluation. It can take several weeks for these transchondral fractures to reveal osteonecrotic bone changes (shown below the injury site).

Stress fractures of the tarsus also pose diagnostic challenges. Instead of localized pain, patients with these fractures experience diffuse vague pain along the medial longitudinal arch or dorsum of the foot. This stress response can be misdiagnosed as medial longitudinal arch pain or plantar fasciitis. If he remains symptomatic for more than 6 weeks with an ankle sprain, computed tomography (CT) or magnetic resonance imaging (MRI) should be considered to rule out lesions of the talar dome. A CT or MRI scan should also be considered for ankle injuries with twisting, trapping, or locking. Because these symptoms may be associated with displaced osteochondral fragments. An MRI scan can help identify sciatica and fibular tendon involvement. Injury to the tibiofibular synesthesia ligament, which connects the distal ends of the tibia and fibula, is commonly referred to as a high ankle sprain [19]. Although this injury accounts for only about 10% of ankle sprains, it is a more disabling problem because it requires a different treatment than regular ankle sprains. The injury mechanism is excessive dorsiflexion and valgus of the ankle with internal rotation of the tibia. Radiologically, sprain synostosis presents as an enlargement of the tibiofibular "free space" of 6 mm or more. Syndesmosis is frankly interrupted and the damage is rarely apparent.

Functional Rehabilitation

The importance of proper rehabilitation after an ankle sprain cannot be overstated, especially given the debilitating effects of limited range of motion, persistent pain and swelling, and chronic joint

instability. After acute treatment, rehabilitation therapy is important to promote return to activity and prevent chronic instability. A recent military series revealed that the lack of rehabilitation from ankle sprains delayed his return to duty by several months. It's a medical mistake [20]. Functional stress stimulates the uptake of more potent alternative collagens. Functional rehabilitation begins on the day of injury and continues until pain-free walking and activity are achieved. Her four components of rehabilitation are motor rehabilitation, progressive strength training, proprioceptive training, and activity-specific training. Ankle stability is a fundamental requirement for establishing functional rehabilitation. Grade I and II ankle sprains are considered stable, so functional rehabilitation can begin immediately.

Range of Motion

Range of motion should be restored before starting functional rehabilitation. Achilles tendon stretching should be started within 48 to 72 hours of his ankle injury, regardless of ability. This is because tissues tend to shrink with various types of trauma.

Muscle-Strengthening Exercises

Once range of motion is achieved and swelling and pain controlled, the patient is ready to move on to the intensive phase of rehabilitation. Strengthening weakened muscles is essential for rapid recovery and important to prevent reinjury. You should concentrate on conditioning. Strengthening begins with isometric exercises performed against a stationary object in her four directions of ankle movement. Patients then move on to dynamic resistance exercises using ankle weights, resistance bands, or elastic tubing. Resistance exercises should be performed with an emphasis on eccentric contractions. The patient is instructed to rest her 1 second between the concentric and eccentric phases of the exercise and perform the eccentric component for her 4 seconds. A 'concentric' contraction refers to active shortening of the muscle with lengthening of the resistance band, and an 'eccentric' contraction involves passive lengthening of the muscle due to the elastic tension of the band.

Proprioceptive Training

Once the patient can comfortably bear weight without pain, begin proprioceptive training to restore balance and postural control. Various devices have been developed specifically for this stage of rehabilitation. Using these devices with a series of progressive her drills can effectively return the patient to a high level of function. The simplest device for proprioceptive training is the wobble board, a small disk-shaped platform attached to a hemispherical base. Patients were instructed to stand on one foot on a wobble board and shift their weight so that the edge of the wobble board moved in a continuous circular path. Training can be enhanced by having the patient perform this maneuver with their eyes closed at different heights.

Training For Return to Activity

Once walking a certain distance is no longer limited by pain, the patient can transition to a regimen of 50% walking and 50% jogging. Eventually, if you can do this without pain, jogging will transition into running forward, backward, and pattern her. A circle and the number 8 are commonly used for pattern runs. Although these routines are time consuming, they are the final stage of ankle rehabilitation and completion of the program is essential to restore ankle stability.

Conclusion

Patients resuming sports may require additional sports therapy.

This part of the rehabilitation process should be supervised by a certified athletic trainer or sports physiotherapist who is familiar with the physical demands of the patient's sport. Use of a stabilizing brace or band followed by weaning may be recommended during the early stages of activity-specific training.

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