

## ANKLE INJURIES IN FOOTBALLERS

**Freschi M**

AC Milan, Youth Football League, and Isokinetic Medical Group, FIFA Medical Centre of Excellence, Milan, Italy



A recent review of 227 studies from 70 sports and 38 countries shows that ankle is the most common injured body site in 25 of 70 included sports, and the incidence in soccer is at 21 place in this particular weighted percentage classification. In the UEFA Elite Club 11 study (1, 3) the ankle injury represent the second most common injury after muscular problems (hamstrings and adductor lesions), with 3-4 injuries per team per season and an absence in days of  $15 \pm 19$  (mean  $\pm$  SD) and 8 (median).

The ankle is the most commonly injured joint in football and represents a significant cost to the healthcare system due to time lost from play. The goal of rehabilitation is to return an athlete to the same or higher level of competition as before the injury.

Acute sprains are generally treated conservatively, with emphasis placed on secondary prevention to reduce the risk of future sprains (re-injury) and progression to chronic ankle instability, which include both mechanical and functional changes.

Chronic Ankle Instability (CAI) is thought to be the result of neural (proprioception, reflexes, muscular reaction time), muscular (strength, power, and endurance), neuromuscular control and mechanical mechanisms (ligamentous laxity). Chronic ankle instability or pathology due to overuse or overstressed joint often requires surgery during or after footballers career, to repair ligamentous damage and remove soft tissue or osseous-osteophytes impingement.

Rehabilitation must take into consideration normal tissue size, flexibility, muscular strength, power, neuromuscular control and endurance. The effectiveness of the rehabilitation program after injury or surgery often determines the success of future function and athletic performance, or even the future of the athlete's career (2).

Injury results in bleeding and damage to tissue, which produces pain. After the initial insult, the inflammatory response is initiated, followed by the proliferative phase and the maturation phase. Stress to collagen fibres results in fibres orientation along these specific lines of stress. Specifically, rehabilitation during days 1 through 5 should focus on protection of the injured tissue, then supervised and protected stress may be applied from days 6 to 42, proceeding not through time-based but functional target-based programs. The goal of athletic rehabilitation is to return the athlete to participation as quickly as possible, while allowing the injured tissue to heal without compromising it by further injury.

The following goals are important for any rehabilitation program: decreased swelling, pain, and initial inflammatory response and protection of the joint so that a secondary inflammatory response does not develop from overly aggressive rehabilitation. Similarly, Range Of Motion (ROM), neuromuscular control, balance, muscular strength, power, and endurance must be returned to pre-injury levels so that full, asymptomatic functional activities may be performed to the pre-injury level and beyond (maximum possible functional recovery).

The application of specific functional exercises is important to stress the healing tissue. The Specific Adaptation to Imposed Demand (SAID) principle is helpful when designing functional progression. The activities and stresses placed on the tissue must be specific to those of the activities of the athlete. Nonetheless, development of the higher levels of the rehabilitation spectrum must incorporate a working knowledge of the specific activity, even in the early phases of rehabilitation (i.e. hydrotherapy). Many attentions must be placed on the neuromuscular control of the joint, that starts also from hip, pelvis and knee joints.

Work must be done also far from the ankle, i.e. in the core and pelvis strength and postural control to maximize the perfect use of distal joint when it contacts the ground.

Also investigate other mechanism of postural control (vestibular, eyes-motion, temporo-mandibular joint and its neck relation, stabilometric examination) will be important especially in case of pre-injury.

### References

1. Ekstrand J, Hägglund M, Waldén M. Injury incidence and patterns in professional football: the UEFA injury study. *Br J Sports Med* 2009; 43: 1036-1040
2. Fong DT, Hong Y, Chan LK, Yung PS, Chan KM. A systematic review on ankle injury and ankle sprain in sports. *Sports Med* 2007; 37: 73-94
3. Hägglund M, Waldén M, Magnusson H, Kristenson K, Bengtsson H, Ekstrand J. Injuries affect team performance negatively in professional football: an 11-year follow-up of the UEFA Champions League injury study. *Br J Sports Med* 2013; 47: 738-742