1

EPIDEMIOLOGY OF STRESS FRACTURES IN FOOTBALL

Hallén A, Ekstrand J

Football Research Group, Linköping University, Linköping, Sweden

Introduction

Football injuries are commonly divided into traumatic injuries with an acute onset and overuse injuries with a gradual onset (1).
Traumatic injuries are caused by an external force on one specific occasion (e.g., during a tackle or a burst of speed) exceeding the maximum durability of a tissue such as a ligament, a bone or a muscle tendon.
Overuse injuries are caused by repetitive low-grade forces exceeding the tolerance of the tissues (Bahr R. No injuries, but plenty of pain? On the methodology for recording overuse symptoms in sports. Br J Sports Med 2009; 43: 966-972).
Stress fractures result from repeated submaximal loads causing fatigue of the bone structure (2, 3).

Methods

Fifty-four football teams, comprising 2,379 players, were followed prospectively for 189 team seasons during the years 2001-2009. Team medical staff recorded individual player exposure and time-loss injuries.
The first team squads of 24 clubs selected by UEFA as belonging to the 50 best European teams, 15 teams of the Swedish Super League and 15 teams playing their home matches on artificial turf pitches were included.

Results

In total, 51 stress fractures occurred during 1,180,000 h of exposure, giving an injury incidence of 0.04 injuries/1,000 h.
A team of 25 players can therefore expect one stress fracture every third season.
All fractures affected the lower extremities and 78% the fifth metatarsal bone.
Stress fractures to the fifth metatarsal bone, tibia or pelvis caused absences of 3-5 months.
Twenty-nine percent of the stress fractures were re-injuries.
Players that sustained stress fractures were significantly younger than those that did not.
Stress fractures are rare in men's professional football but cause long absences.
Younger age and intensive pre-season training appear to be risk factors.

Conclusion

There is limited research assessing stress fractures and other overuse injuries in football. We have shown that stress fractures are rare in professional men's football but when they occur, they cause long absences (Ekstrand J, Torstveit MK. Stress fractures in elite male football players. Scand J Med Sci Sports 2012; 22: 341-346). Younger age and intensive pre-season training appear to be risk factors. Our hypothesis is that a change of load is the most probable explanation of stress fractures in male footballers.

References

1. Ekstrand J,Gillquist J. Soccer injuries and their mechanisms: A prospective study. Med Sci Sports Exerc 1983; 15: 267-270
2. Orava S. Excertion injuries due to sports and physical exercise. A clinical and statistical study of nontraumatic overuse injuries of the musculoskeletal system of athletes and keep-fit athletes. University of Oulu, Finland; 1980
3. Warden SJ, Creaby MW, Bryant AL, Crossley KM. Stress fracture risk factors in female football players and their clinical implications. Br J Sports Med 2007; 41 Suppl 1: i38-43.