Epidemiology and Impact on Performance of Lower Extremity Stress Injuries in Professional Basketball Players

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BACKGROUND

Professional basketball players are at risk of injury given the fast-paced and high-contact nature of the sport. The physical demands predispose them not only to injuries of ligaments and joints, but also to bony injuries from repetitive stresses during game play. Stress fractures are common overuse injuries frequently seen in athlete.

The purpose of this study is to report on the epidemiology of stress fractures and stress injuries in the NBA and the impact of these injuries on player performance. The authors hypothesized that players with lower extremity stress injuries would have a decrease in their game performance upon return to play in comparison to pre-injury performance.

METHODS

Using the player injury database maintained by the National Basketball Players Association, all bony stress injuries from 2005 to 2015 were identified. Number of games missed due to injury and player statistics were collected from 2 years prior to the injury to 2 years after the injury. Player efficiency rating (PER) as an overall measure of player performance was utilized. A linear regression analysis was performed to determine the impact of injury on PER 1 year and 2 years post-injury for players who returned to sport.

RESULTS

Seventy-six lower extremity bony stress injuries were identified involving 75 NBA players with an average age of 25.4 ± 4.1 years. Fifty-five percent (42/76) of injuries involved the foot, 21.1% (16/76) involved the ankle or fibula, 17.1% (13/76) involved the tibia, and 6.6% (5/76) involved either the knee or patella. The most commonly reported injury was a stress fracture to the 5th metatarsal (18.4%, 14/76) followed by other stress fractures to the foot (14.5%, 11/76).

The majority of injuries (82.9%, 63/76) occurred in season, with half of the injuries occurring within the first 6 weeks of the season. The most frequently surgically managed injury was 5th metatarsal fractures, with 100% (14/14) treated with open reduction internal fixation.

Players who sustained stress injuries had reduced play performance, specifically number of games played (P = .014) and number of steals per game (P = .004).

Among players who sustained a fifth metatarsal stress fracture 42.9% (6/14) were unable to return to professional play. Players who sustained a fracture as opposed to a stress reaction performed significantly worse after 2 years (β: -4.063; 95% CI: -7.151 to -0.975). However, players who had surgery had significantly better performance at 2 years than those who had conservative management, independent of the type of injury (β: 4.561; 95% CI: 1.255 to 7.868).

CONCLUSION

Lower extremity bony stress injuries may significantly impact both short-term and long-term player performance and career length. Stress injuries result in decreased player performance, and surgical intervention results in improved performance metrics in comparison to those treated by conservative methods.