Special Issue on Articular Cartilage Injury in the Football (Soccer) Player

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Football (soccer) is played by more than 300 million people globally. It is the most popular sport in the world, and participation in this dynamic sport continues to grow. Football (soccer) brings joy, health, recreation, and entertainment to billions, but as a high-impact contact sport, it is associated with significant acute and chronic joint contact forces with potential detrimental effects to the joint surface.^{1,2} This is where the Fédération Internationale de Football Association (FIFA) and International Cartilage Repair Society (ICRS) have found a common goal, and this special issue presents one important result of this active collaboration. Articular cartilage injury is observed with increasing frequency in football (soccer) players and increases with the competitive level.^{3,4} Due to the limited spontaneous regeneration of articular cartilage, injuries often lead to significant symptoms under the continued high demands of football (soccer), ultimately resulting in the inability to play.⁵ Besides loss of playing time, progressive articular cartilage degeneration and osteoarthritis have been found in up to 32% and present a major cause for disability and retirement from the sport.⁵⁻⁷ The FIFA Medical Assessment and Research Center (F-MARC) and ICRS recognize the enormous impact of articular cartilage injury for the football (soccer) player. This special issue presents a unique collaboration between FIFA and ICRS in an effort to help advance the science and the understanding of articular cartilage injury and degeneration in the football (soccer) player as well as the options for its treatment and prevention.⁷ The approach to the athlete always uses the spectrum of care concepts that highlights the importance of prevention. Prevention of injury, subsequent reinjury, and the onset of osteoarthritis and its progression are the hallmark principles that illuminate the importance of these collaborative relationships. Using the successful FIFA 11+ concept to prevent football (soccer)-related injuries, this special issue provides 11 articles that provide a comprehensive overview of the current knowledge of cartilage injury pathophysiology, epidemiology, and etiology and offers an up-to-date look at existing management algorithms, developing treatment options, and prevention strategies for the football (soccer) population.⁸⁻¹⁰ Although current treatment approaches offer encouraging results with an average return to sports rate of 73% after cartilage repair, much work remains to be done.^{11,12} This issue provides a compact reference for players, coaches, medical staff, and researchers

working with football (soccer) players. Furthermore, it intends to act as a catalyst for the advancement of science and education of cartilage injury in football (soccer) such as the establishment of the "Cartilage Engeneering Professorship" at the Swiss Federal Institute (ETH Zurich), sponsored by FIFA, and the development of innovative treatment concepts and prevention strategies that help to further reduce the incidence of cartilage injury and risk of osteoarthritis in football (soccer) players of all ages and skill levels.

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References

- Roos H, Dahlberg L, Hoerrner LA, Lark MW, Thonar EJ, Shinmei M, *et al.* Markers of cartilage matrix metabolism in human joint fluid and serum: the effect of exercise. Osteoarthritis Cartilage. 1995;3(1):7-14.
- 2. McAdams T, Mithoefer K, Scopp J, Mandelbaum B. Articular cartilage injury in athletes. Cartilage. 2010;1(3):165-79.
- Levy AS, Lohnes J, Sculley S, LeCroy M, Garrett W. Chondral delamination of the knee in soccer players. Am J Sports Med. 1996;24:634-39.
- Peterson L, Junge A, Chomiak J, Graf-Baumann T, Dvorak J. Incidence of football injuries and complaints in different age groups and skill-level groups. Am J Sports Med. 2000; 28(5 Suppl):S51-7.

- Drawer S, Fuller CW. Propensity for osteoarthritis and lower limb joint pain in retired professional soccer players. Br J Sports Med. 2001;35:402-8.
- Kujala UM, Kettunen J, Paananen H, Aalto T, Battié MC, Impivaara O, *et al*. Knee osteoarthritis in former runners, soccer players, weight lifters, and shooters. Arthritis Rheum. 1995;38:539-46.
- 7. Dvorak J. Osteoarthritis in football: FIFA/F-MARC approach. Br J Sports Med. 2011;45:673-6.
- Zaslav K, McAdams T, Scopp JM, Theodosakis J, Mahajan V, Gobbi A. New frontiers for cartilage repair and protection. Cartilage. 2012;3(Suppl 1):77S-86S.
- 9. Bekkers JEJ, de Windt TS, Brittberg M, Saris DBF. Cartilage repair in football (soccer) athletes: what evidence leads to

which treatment? A critical review of the literature. Cartilage. 2012;3(Suppl 1):43S-49S.

- Hambly K, Silvers HJ, Steinwachs M. Rehabilitation after articular cartilage repair of the knee in the football player. Cartilage. 2012;3(Suppl 1):50S-56S.
- Mithöfer K, Peterson L, Mandelbaum B, Minas T. Articular cartilage repair in soccer players with autologous chondrocyte transplantation: functional outcome and return to competition. Am J Sports Med. 2005;33: 1639-46.
- Mithoefer K, Hambly K, Della Villa S, Silvers H, Mandelbaum BR. Return to sports participation after articular cartilage repair in the knee: scientific evidence. Am J Sports Med. 2009;37(Suppl 1):167S-76S.