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Journal of Orthopaedics

journal homepage: www.elsevier.com/locate/jor

Editorial

Exploring current understanding and philosophies of orthopaedic surgery in the sports person



Acute fractures and soft tissue injuries in sport are a major clinical problem for athletes, as they can require prolonged rehabilitation, and require a long time to return to sport. David Beckham, Michael Owen and Henrik Larsson, to name a few, have two things in common: they are all high-profile athletes, and they all suffered a fracture or ligamentous injuries whilst playing their sport, and they were never quite the same even after they had 'healed'. At least 8000 sports and another 8000 indigenous sports and sporting games¹ are practised, and it is easy to overlook the anguish of the athlete at being unable to continue playing, the anxiety about whether and when they can return, and the onus on the treating physician to provide the optimal treatment possible to facilitate this. Those of us privileged in dealing with such patients do not necessarily have the luxury of keeping such patients in plaster on crutches for several weeks, as they gradually settle back into sedentary jobs, with only minor sporting endeavours.

Optimal clinical management of sports injuries relies on a robust understanding of the basic science principles associated with these pathologies, and their rehabilitation strategies. When athletes do experience an injury, we enter a completely different 'ball game', with major differences in mechanism of injury, locations and patterns. Also, the physiological status of the patient, their pre-injury functional level, the physiological response and the functional expectation all differ from what we encounter in everyday life. As such, while certain key factors from generic care can be translated into the management of athletes, the principles and practice of sports trauma management require specific defining, to provide optimal treatment and outcomes for these patients.^{2,3}

The foundations of sports medicine were first established in Ancient Greece and Rome, where an emphasis was made on physical conditioning, diet and hygiene.² Within the Indian subcontinent, sports medicine has been practised from 1000 B.C, when the uses of therapeutic exercises were described in the Arthava-Veda, and in 600 BCE, the founding father of medical science and surgery in India, Susruta, has left important information on the relationship between health and activity.⁴⁻⁶

The first modern school in sports medicine was established in Milan in 1958, by Professor Rodolfo Margaria.⁷ Italy is one of the few countries with a solid, long established, state funded public system of pre-participation medical examinations for sports activities.⁸ People playing sport are organised by national federations, and have to compulsorily undertake an annual medical visit to obtain a certification of eligibility to play. Since 1950, it has been mandatory for all professional and amateur athletes to obtain such medical certification for eligibility to play a sport.⁹ More recently, screening tests and physical examinations are also sport-specific being based on regulations from the

Ministry of Health, for competitive sport activity for disabled people (1993) and professional sport activity (1995).⁹ All athletes must undergo an annual preventive screening protocol including a past medical history, clinical evaluation, urinalysis, electrocardiogram at rest, and pulmonary function tests.¹⁰⁻¹² This evaluation can only be performed by a board-certified Sports Medicine Physician, who is legally responsible for the accuracy of the assessment, and makes the final judgement on eligibility to participate in sport.¹⁰

Today, with the ever increasing worldwide popularity of athletic endeavours, the chances of sustaining a limb-injury is greater. Therefore, a holistic/multi-disciplinary approach to providing diagnostic, preventive, curative, and rehabilitative care and guidelines has become accepted and well established. A number of professions, including surgeons, physician, nutritionist, psychologist, physiotherapists and rehabilitation specialist, work together with athletes, trainer and/or coach.¹³ This applies not only to professional but also to recreational athletes, and active individuals demand expertise and sport-specific knowledge. In addition to the aforementioned mentioned issues, there are the moral, legal and health-related challenges, such as, for example, the thorny issue of performance enhancement, surrounding professional athletes, which further contribute to the unique and complex picture presented to the health care professionals who treat them. Furthermore, it must be appreciated that the management of such injuries should be developed to facilitate the earliest return to sport with the lowest morbidity possible. As such, several adaptations to 'traditional' management may be advocated in athletes. A sound understanding of the biomechanical principles of fracture management allows the clinicians to appropriately select the optimal management technique for rapid return.¹⁴

Thus, many well organised societies, associations, committees, federations and groups, inspect the limb injuries that affect this populace, combining their efforts to deliver optimal care and preventive measures in an area of increasingly specialised interest, knowledge and expertise. It is also important to encourage and support scientific research in this area to develop safe and more productive fitness programs to increase sports participation. Many of these groups promote the study and development of sports medicine throughout the world and make significant contributions in the area of prevention. Injury prevention forms a key component in reducing the incidence and morbidity of acute sport-related injuries. The key basic principles that allow a comprehensive understanding and subsequent application of this topic include injury surveillance, the development of injury prevention equipment and techniques, and the integration of such practices to assess if they are safe and effective. All of these enhance the quality of health care for those engaged in physical activity, through education and research in prevention, assessment, treatment and rehabilitation of injuries.¹⁵

<https://doi.org/10.1016/j.jor.2022.07.010>

Available online 14 July 2022

0972-978X/© 2022 Published by Elsevier B.V. on behalf of Professor P K Surendran Memorial Education Foundation.

This issue provides an array of informative articles by specialists and those actively involved in orthopaedics and sports medicine/surgery, investigating various aspects including variation in models of injury and biomechanics e.g., heel pain.¹⁶ Articles focus on the variation of field and off field treatment,¹⁷ discuss injuries in sports such football.¹⁸ Other articles will tackle difficult topics e.g., *Partial tear of the distal biceps tendon*¹⁹ and *the best treatment modalities, and patella instability*²⁰ and *new techniques in ankle ligament reconstruction*.

This allows you to explore the limits and the other control mechanism to restore athletes to health and offer greater depth towards this ‘accelerated’ care model for athletic patients, addressing the key basic principle and extend the envelope in injury treatment. The editors wish the reader every success in translating the knowledge from this issue, to provide optimal care for the injured athletes who will come under their care.

References

1. en. [Wikipedia.org/wiki/List_of_sports](https://en.wikipedia.org/wiki/List_of_sports).
2. Tucker AM. Conflicts of interest in sports medicine. *Clin Sports Med*. 2016;35(2): 217–226. Epub 2016/02/03.
3. McCrory P. What is sports and exercise medicine? *Br J Sports Med*. 2006;40(12): 955–957. Epub 2006/11/25.
4. Tipton CM. Historical perspective: the antiquity of exercise, exercise physiology and the exercise prescription for health. *World Rev Nutr Diet*. 2008;98:198–245. Epub 2008/09/23.
5. Johnston-Saint P. An outline of the history of medicine in India. *J Roy Soc Arts*. 1929;77(3999):843–870.
6. Suhas BR. *Sushruta*. first ed. Bangalore: Sapna Book House (P) Ltd.; 2011.
7. Tipton CM. Susruta of India, an unrecognised contributor to the history of exercise physiology. *J Appl Physiol*. 2008;104(6):1553–1556, 1985, Epub 2008/03/22.
8. Tipton CM. The history of "Exercise Is Medicine" in ancient civilisations. *Adv Physiol Educ*. 2014;38(2):109–117. Epub 2014/07/22.
9. Ergen E. The origins of sports medicine. *ASPETAR Sports Med J*. 2016;5(2):342–348.
10. Pigozzi F, Spataro A, Alabiso A, et al. Role of exercise stress test in master athletes. *Br J Sports Med*. 2005 Aug;39(8):527–531. <https://doi.org/10.1136/bjism.2004.014340>. PMID: 16046336; PMCID: PMC1725270.
11. Alattar A, Maffulli N. The validity of adding ECG to the preparticipation screening of athletes an evidence based literature review. *Transl Med UniSa*. 2014 Dec 19;11: 2–13. PMID: 25674543; PMCID: PMC4309649.
12. Novotny V. 50 years' of the institute of sports medicine at the charles university medical school on the 650th anniversary of its founding. *Sb Lek*. 1999;100:139–154.
13. Hollmann W, Prinz JP. Ergospirometry and its history. *Sports Med*. 1997;23:93–105.
14. Maffulli N, Robertson G. *Fractures in Sport*. Springer; 2021. <https://doi.org/10.1007/978-3-030-72036-0>.
15. Sharma HB, et al. Sports and exercise medicine in India: the past and the challenges. *J Clin Diagn Res*. 2022 Feb;16(2).
16. Harvey DH, Game C, Walsh TP, Wearing SC, Platt SR. Are models of plantar heel pain suitable for competitive runners? A narrative review. *J Orthop*. 2022;33:9–14. <https://doi.org/10.1016/j.jor.2022.06.011>. ISSN 0972-978X.
17. Joshi A, Basukala B, Singh N, Panta S, Sharma S, Pradhan I. Variations in common operations in athletes and non-Athletes. *J Orthop*. 2022;32:160–165. <https://doi.org/10.1016/j.jor.2022.06.006>. ISSN 0972-978X.
18. Robertson GAJ, Ang KK, Jamal B. Fractures in soccer: the current evidence, and how this can guide practice. *J Orthop*. 2022. <https://doi.org/10.1016/j.jor.2022.05.002>, 0972-978X.
19. Hamoodi Z, Winton J, Bhalaiik V. Partial tear of the distal biceps tendon: current concepts. *J Orthop*. 2022;32:18–24. <https://doi.org/10.1016/j.jor.2022.05.002>, 0972978X.
20. Giovannetti de Sanctis E, Dejour DH. Patellar medial closing-wedge osteotomy in patello-femoral instability: indications and outcomes. *J Orthop*. 2022;32:156–159. <https://doi.org/10.1016/j.jor.2022.06.005>. ISSN 0972-978X.

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