Peertechz

MEDICAL GROUP

ARCHIVES OF
Sports Medicine and Physiotherapy OPEN ACCESS JOURNAL

ISSN: 2641-3108 DOI: https://dx.doi.org/10.17352/asmp

Editorial

Sports and Exercise Medicine: Present and Future

Shyamal Koley*

Professor and Dean, University School of Allied Health Sciences, Lamrin Tech Skills University, Punjab, India

Received: 07 October, 2024
Accepted: 17 October, 2024
Published: 18 October, 2024

***Corresponding author:** Shyamal Koley, Professor and Dean, University School of Allied Health Sciences, Lamrin Tech Skills University, Punjab, India, E-mail: drkoley@yahoo.co.uk; dean.usahs@ltsu.ac.in

Keywords: Sports and exercise medicine; Sports medicine; Exercise medicine; Injury management; Promotion of health

https://www.medsciencegroup.us

Check for updates

Abstract

Sports and exercise medicine is a newly emerging medical speciality in association with sports and physical education. As the lifestyle of the average population has changed drastically with sedentary type and lack of physical exercise, thus, inviting various lifestyle-related diseases in society, this speciality has been gaining tremendous popularity in medical practices. This discipline is a combination of sports medicine and exercise medicine (therapy). Clinical and interventional physiology which is the resultant of these two components, plays an important role in injury management and for the promotion of health and wellbeing, devoid of any side effects. In the present editorial, with the objectives, an attempt has been made to discuss the present scenario of the discipline of sports and exercise medicine along with its future prospects, as in spite of its numerous benefits, not enough attention has been given to the holistic improvement of the healthcare system.

Introduction

Sports and Exercise Medicine (SEM) has been gaining tremendous popularity being considered a separate medical speciality in several countries in the recent past [1.2]. "Exercise is medicine"- this motto has become widely accepted nowadays. The speciality of SEM focuses on the treatment of sports injuries rehabilitation, health promotion, and prevention, by promoting regular physical activity and therapeutic use of exercise [2-5]. On the other hand, it incorporates knowledge of physiology, sports and exercise sciences, kinesiology, and biomechanics for maximum performance enhancement [3]. In a nutshell, sports and exercise medicine is the application of sports and exercise as medicine for the treatment of various complications and the well-being of total health, both physical and mental. Exercise is already being used as "therapeutic exercise" in physiotherapy for treatment purposes. Yoga and Aasanas are now a very popular form of treatment for various diseases and complications. Thus, it is fully justified to draw attention to its present status and future strategies.

Present important domains of sports and exercise medicine

Sports performance: There are two extreme ends of human physical status. On one hand, sports have become extremely competitive, with high-performance athletes, increasing sports-specific injuries many folds. Sports medicine is helpful in treating them. On the other hand, physical inactivity in a sedentary population invites various diseases, like hypertension, diabetes mellitus, etc. thus requiring regular physical exercise to keep the diseases at bay. Therefore sports and exercise medicine are beneficial in both these diverse conditions [6,7-9] In between there is another third category of people – the recreational athletes whose physical and psycho-physiological loads and stress are different from the high-performance athletes [9]. The experts of SEM are well-trained to handle all these adaptations [6,7,10,11].

Identification of sports talents

Another important role of the experts of SEM is to hunt sports talent for optimal performance in various international

Citation: Koley S. Sports and Exercise Medicine: Present and Future. Arch Sports Med Physiother. 2024; 9(1):008-010.
Available from: http://dx.doi.org/10.17352/asmp.000020

competitions. For these, they use the knowledge of exercise physiology, kinanthropometry, biomechanics, nutrition, and other related discipline. Queen's College Step Test (QCST) is widely used to estimate the VO_2 max (maximum oxygen carrying capacity), and various kinanthropometric and body composition measurements, and the application of biomechanical knowledge are used to search the sports talents for specific sports events.

Doping menace

Doping menace has become a significant challenge to the SEM personnel. In spite of widespread information on the negative impact of doping on the health of athletes, this unlawful menace is still being practiced [12]. The experts of SEM can educate the athletes about its ill effects on physiology, health, and well-being. In this regard, the World Anti-Doping Agency (WADA) Code has become mandatory [12]. Ethical considerations should strictly be followed to effectively control the doping menace.

The SEM physicians have a major role in spreading awareness about the detrimental effects of doping to athletes and other athlete support personnel (ASP), especially to coaches, trainers, family or parents, relatives, and friends as these are the groups of people from whom the athletes usually take advice on supplements, who themselves are not quite knowledgeable too [9,13-16].

Travelling physician and working in altered physiological conditions

Every sports team should have SEM specialists working as team physicians and should travel with the team for competition or training, and acting as medical and scientific guardians [4,10,11]

Future prospects of SEM

The development of SEM facilities would ensure the huge promotion of sports and exercise and overall physical activity among athletes as well as the general public, better human performance and health, reduction in injuries and illness, and prevention of disabilities. Adequate funding of research in sports and human performance is an equally important aspect to concern. Medical physiologists also have a major and active role in SEM and related fields such as functional and lifestyle medicine [17]. Sports physiotherapists have also a crucial role in the development of SEM. Taking health resources into account might be a more effective way to promote a healthy lifestyle. In this respect, the American Heart Association is performing a promising role in identifying health resources [18]. Various cross-sectional and prospective studies showed plausible associations between an individual's lifestyle, and cardiovascular imaging biomarkers [19] and events [20]. In addition to physical activity, Life's Essential 8 health resources include a healthy diet, sufficient and good sleep, normalizing body weight and not smoking as behavioral components.

Very recently ChatGPT, a generative Artificial Intelligence (AI), has made significant changes in exercise and medicine [21,22]. AI-based interactive exercise has proven more effective in improving cardiopulmonary fitness than conventional exercise, especially in the case of obese persons [23]. In addition, Virtual Reality (VR) technology has made a remarkable contribution to cardiac rehabilitation using VR enhances exercise capacity, reduces stress and anxiety, and improves the quality of life [24]. It has also been shown to positively impact cognitive function in older adults [25]. VR-based exercise has been reported to improve upper extremity motor function in patients undergoing rehabilitation after a stroke [26,27]. VR technologies are expected to play a pivotal role in future rehabilitation research.

Conclusion

SEM, being the combination of sports medicine and exercise medicine, is essential not only for the fight against physical inactivity, and non-communicable diseases and for maintaining or enhancing health and fitness; but also for overall medical care of active and exercising individuals. It has a very bright future prospect with the application of AI and VR in sports as well as sedentary populations.

References

1. Carrard J, Pandya T, Niederhauser L, Infanger D, Schmidt-Trucksaess A, Kriemler S. Should sports and exercise medicine be taught in the Swiss undergraduate medical curricula? A survey among 1764 Swiss medical students. BMJ Open Sport Exerc Med. 2019;5. Available from: https://bmjopensem.bmj.com/content/5/1/e000575

2. Tucker AM. Conflicts of interest in sports medicine. Clin Sports Med. 2016;35:217-226. Available from: https://doi.org/10.1016/j.csm.2015.10.010

3. McCrory P. What is sports and exercise medicine? Br J Sports Med. 2006;40:955-957. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC2577455/

4. Humphries D, Jaques R, Dijkstra HP, International Syllabus in S, Exercise Medicine G. A Delphi developed syllabus for the medical specialty of sport and exercise medicine. Br J Sports Med. 2018;52:490-492. Available from: https://doi.org/10.1136/bjsports-2017-098477

5. Schwellnus MP. The Olympic Textbook of Medicine in Sport. Oxford, UK: Wiley-Blackwell; 2008. Available from: https://stillmed.olympics.com/media/Document%20Library/OlympicOrg/IOC/Who-We-Are/Commissions/Medical-and-Scientific-Commission/Encyclopaedia/2008_Schwellnus.pdf

6. Cullen M. Developing a new specialty—sport and exercise medicine in the UK. Open Access J Sports Med. 2010;1:11-14. Available from: https://doi.org/10.2147/oajsm.s7627

7. Heggie V. Specialization without the hospital: The case of British sports medicine. Med Hist. 2010;54:457-474. Available from: https://doi.org/10.1017/s0025727300006360

8. Kordi R, Moghadam N, Rostami M. Sports and exercise medicine in undergraduate medical curricula in developing countries: A long path ahead. Med Educ Online. 2011;16:5962. Available from: https://doi.org/10.3402/meo.v16i0.5962

9. Speed C, Jaques R. High-performance sports medicine: An ancient but evolving field. Br J Sports Med. 2011;45:81-83. https://doi.org/10.1136/bjsm.2010.075325

10. Devitt BM. Fundamental ethical principles in sports medicine. Clin Sports Med. 2016;35:195-204. Available from: https://doi.org/10.1016/j.csm.2015.10.004

Citation: Koley S. Sports and Exercise Medicine: Present and Future. Arch Sports Med Physiother. 2024; 9(1):008-010.
Available from: http://dx.doi.org/10.17352/asmp.000020

11. Bernstein J, Perlis C, Bartolozzi AR. Ethics in sports medicine. Clin Orthop Rel Res. 2000;378:50-60. Available from: https://doi.org/10.1097/00003086-200009000-00009

12. Speed C. High-performance sports medicine. Clin Med (Lond). 2013;13:47-9. Available from: https://doi.org/10.7861/clinmedicine.13-1-47

13. Mazanov J, Backhouse S, Connor J, Hemphill D, Quirk F. Athlete support personnel and anti-doping: Knowledge, attitudes, and ethical stance. Scand J Med Sci Sports. 2014;24:846-856. Available from: https://doi.org/10.1111/sms.12084

14. Kim J, Lee N, Lee J, Jung SS, Kang SK, Yoon JD. Dietary supplementation of high-performance Korean and Japanese judoists. Int J Sport Nutr Exerc Metab. 2013;23:119-127. Available from: https://doi.org/10.1123/ijsnem.23.2.119

15. Chan DKC, Tang TC, Yung PS, Gucciardi DF, Hagger MS. Is unintentional doping real, or just an excuse? Br J Sports Med. 2019;53:978-979. Available from: https://doi.org/10.1136/bjsports-2017-097614

16. Martinez-Sanz JM, Sospedra I, Ortiz CM, Baladia E, Gil-Izquierdo A, Ortiz-Moncada R. Intended or unintended doping? A review of the presence of doping substances in dietary supplements used in sports. Nutrients. 2017;9:1093. Available from: https://doi.org/10.3390/nu9101093

17. Sharma HB. Sports and exercise medicine in India: The past and the challenges. J Clin Diagn Res. 2022;16. Available from: https://www.jcdr.net/articles/PDF/15953/53390_CE[Ra1]_F[SH]_PF1(AG_SS)_PFA(SS_AG_KM))_PN(KM).pdf

18. Lloyd-Jones DM, Allen NB, Anderson CAM, Black T, Brewer LC, Foraker RE. Life's Essential 8: Updating and Enhancing the American Heart Association's Construct of Cardiovascular Health: A Presidential Advisory From the American Heart Association. Circulation. 2022;146(5). Available from: https://doi.org/10.1161/CIR.0000000000001078

19. Neve G, Komulainen P, Savonen K, Hassinen M, Mannikko R, Infanger D. Adherence to Life's Simple 7 is associated with better carotid properties. Atherosclerosis. 2022;360:21-6. Available from: https://doi.org/10.1016/j.atherosclerosis.2022.09.010

20. Commodore-Mensah Y, Mok Y, Gottesman RF, Kucharska-Newton A, Matsushita K, Palta P. Life's Simple 7 at Midlife and Risk of Recurrent Cardiovascular Disease and Mortality after Stroke: The ARIC study. J Stroke Cerebrovasc Dis. 2022;31(7):106486. Available from: https://doi.org/10.1016/j.jstrokecerebrovasdis.2022.106486

21. Eysenbach G. The role of ChatGPT, generative language models, and artificial intelligence in medical education: A conversation with ChatGPT and a call for papers. JMIR Med Educ. 2023;e46885. Available from: https://mededu.jmir.org/2023/1/e46885/

22. Oh YJ, Zhang J, Fang ML, Fukuoka Y. A systemic review of artificial intelligence chatbots for promoting physical activity, healthy diet, and weight loss. Int J Behav Nutr Phys Act. 2021;18(1):160. Available from: https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-021-01224-6

23. Oh W, An Y, Min S, Park C. Comparative effectiveness of artificial intelligence-based interactive home exercise applications in adolescents with obesity. Sensors (Basel). 2022;22(19):7352. Available from: https://doi.org/10.3390/s22197352

24. Chen Y, Cao L, Xu Y, Zhu M, Guan B, Ming WK. Effectiveness of virtual reality in cardiac rehabilitation: A systemic review and meta-analysis of randomized controlled trials. Int J Nurs Stud. 2022;133:104323. Available from: https://doi.org/10.1016/j.ijnurstu.2022.104323

25. Yen HY, Chiu HL. Virtual reality exergames for improving older adults' cognition and depression: A systemic review and meta-analysis of randomized control trials. J Am Med Dir Assoc. 2021;22(5):995-1002. Available from: https://doi.org/10.1016/j.jamda.2021.03.009

26. Chen J, Or CK, Chen T. Effectiveness of using virtual reality-supported exercise therapy for upper extremity motor rehabilitation in patients with stroke: Systematic review and meta-analysis of randomized controlled trials. J Med Internet Res. 2022;24(6). Available from: https://doi.org/10.2196/24111

27. Hamasaki H. Introductory Chapter: Exercise Medicine – Past, Present, and Future. In: New Horizons of Exercise Medicine. IntechOpen; 2021. Available from: https://www.intechopen.com/chapters/1175626

Citation: Koley S. Sports and Exercise Medicine: Present and Future. Arch Sports Med Physiother. 2024; 9(1):008-010.
Available from: http://dx.doi.org/10.17352/asmp.000020