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Winning Gold for India: The Role of Health and Health Care Providers

AZADI KA AMRIT MAHOTSAV

The last 75 years have seen the evolution of independent India as a global power house. Thanks to contributions from our health care ecosystem, we have improved our life expectancy and other health parameters.[1,2] A welcome spin-off is that Indian athletes and sports persons are now climbing the winner's podium with ever-increasing regularity, and making their presence felt in the global arena. The government is trying its best, working both at grassroots and elite levels with various initiatives and programs, like Khelo India,[3] Target Olympic Podium Scheme (TOPS),[4] formation of task force for 2020 to 2028 Olympic Games[5] and Scheme of Human Resource Development in Sports, etc.[6]

Critics, of course, may find a lot to criticize, and pessimists, a lot to be upset about. In this editorial, however, we focus on optimism, on action and on celebration. We celebrate our Azadi ka Amrit Mahotsav, we suggest actions that all of us should undertake, and we conclude with optimism that India will claim its rightful place among the nations of the world. Specifically, we focus on how we, as health care professionals, can ensure that India becomes a global sports power.

HEALTH AND FITNESS

Physical fitness has always been considered an integral part of health. Physical activity, games, exercise and sports are encouraged as a preventive as well as therapeutic intervention in medicine. India has a long history of physical activity and exercise or vyayama. Both Charaka, the "Indian Father of Medicine" and Sushruta, the "founding Father of Surgery", advocated regular daily exercise or vyayama.[7] Infact, Charaka Samhita contains one of the oldest definitions of exercise. The concept of use of exercise as medicine can also be traced back to ancient Indian Indus valley civilization.[7] While yoga is an ancient Indian philosophy,[8] the upcoming fields of sports and exercise medicine or sports medicine,[7] reinforce the importance of these activities. This specialty of medicine deals with health promotion and fitness, and therapeutic use of exercise and physical activity, in addition to the comprehensive medical care of exercising and active individuals to elite sports players.[7]

However, somewhere in our development, perhaps, physical fitness has lost the attention and respect that it deserves. The changes in our macro-environment, coupled with the stresses and demands of fast-paced life, have reduced the amount of physical activity performed by the average individual.[9] Lack of incentivization for manual labor, and a misplaced sense of prestige associated with use of labor-saving mechanical gadgets, have contributed to this as well. Physical inactivity is increasing at such a high rate that it can now be considered as a pandemic[10] and one of the leading cause of noncommunicable diseases (NCDs).[11] Lack of physical fitness like low cardiorespiratory fitness has been associated with all-cause mortality and morbidity.[12] With very high prevalence of diabetes, metabolic syndrome, hypertension and other NCDs in India,[13-15] it is high time for immediate and effective pro-active action to be taken.

The sporting performance of India relative to her population size also needs much improvement. This is especially true as India is also one of the youngest nations, with 64% to 66% of the population under the age of 35 years.[3] What can we do, as doctors and

health care providers to change this? What can we do to ensure that India achieves its full potential in the sporting stadia?

PRIMORDIAL AND PRIMARY ACTION

The first action is to begin with ourselves. Follow a physically active lifestyle, and lead by example. Do spare at least half an hour for games, sports or the gymnasium every day. Avoid sitting for prolonged periods in your clinic: stand or walk whenever and wherever possible.

The second step is to promote physical activity in all patients, and the public at large. Discuss and demonstrate the benefits of exercise on metabolic health, and encourage patients to take professional support from qualified exercise medicine specialists, if needed. Along with this, it is equally important to address the misconceptions and misinformation related to exercise. Following the wrong type, duration, intensity or timing of exercise can be as harmful as not exercising. The use of exercise as medicine, and exercise in medicine is the need of the present time.[7]

As clinicians, we should also use various physiological interventions including exercise, sleep, nutrition and psychology, etc. in addition to the usual pharmacological and surgical treatments. Besides the usual pathology- or sickness-based models, we should, thus focus on the physiology- or wellness-based approach.[7] A proper prescription of exercise for health promotion and fitness, as well for treatment of various NCDs including diabesity, and rehabilitation of various injuries[7] should be incorporated as a part of routine clinical practice. We should encourage more movement and less sedentary activity. A clear and loud message of movement as medicine and exercise as medicine should be given. A minimum of 150-300 min/week of moderate-intensity, or 75-150 min/week of vigorous-intensity, or an appropriate combination of moderate- and vigorous-intensity of aerobic activity should be targeted, for 18 to 64 years old adults.[16] Higher intensity may be needed for additional health benefits. Similarly, moderate- to vigorous-intensity resistance exercise targeting all major muscle groups of the body, should be done for at least 2 days/week.[16] This is particularly important for body composition and muscle strength optimization, and to fight against sarcopenia or sarcopenic obesity.

Apart from the recommendation of minimum physical activity for health, one should also aim to reduce sedentary activity time as much as possible, to less than 8 hours/day, with less than 3 hours of recreational screen time, for an 18 to 64 years old adult. We should encourage at least 7 to 9 hours of good quality night sleep for adults, which may be more for sports players as per requirements.[16]

Good nutrition goes hand in hand with physical activity and sleep for health and fitness. Healthy nutrition is a must for optimal exercise and sports performance. We must follow, and propagate, a balanced diet and not fall prey to the allures of fads or restricted diets.[17] Healthy nutrition should be promoted at every phase of life, including pregnancy, infancy, childhood, adolescence, adulthood and later. India being a protein-deficient consuming community, emphasis should be laid on adequate and high quality protein intake. Micronutrient sufficiency, including calcium, iron and vitamin D, must also be ensured. Attention to these, in conjunction with physical activity will lead to an increase in sports prowess.

SECONDARY AND TERTIARY ACTION

As the pool of physically active Indians grows, a pyramid will automatically start to form. At the peak of this pyramid will be our elite sportspersons, who will compete for the country, and bring us glory. The role of qualified sports medicine specialists and sports nutrition professionals in developing this team cannot be overemphasized. Along with other specialists such as sports psychologists and endocrinologists, they are an important part of the team that wins gold.

Each athlete is unique, and has specific nutritional, medical, coaching and mentoring needs. A team of specialists is required to provide this, under the leadership of a sports medicine specialist. Sports and exercise medicine is developing as a distinct specialty in India.[7] However, there is minimal emphasis on this, in medical curricula and in public discourse. This needs to be addressed. Although sports medicine is a distinct and separate medical specialty, this specialty is highly multidisciplinary and interdisciplinary in nature, with sports medicine physicians trained in sports-exercise and performance sciences, in addition to the medical-clinical and allied health sciences.[7]

The need for dedicated, individualized interventions for different sportspersons must be explained to policymakers and administrators. This will facilitate earmarking of funds and resources for specialized sports medicine consultations. As physicians, we should also support sports and exercise medicine as a distinct specialty. We can contribute to its growth by informing all stakeholders about its relevance, and putting them in touch with qualified sports medicine specialists.

Attention should also be paid to sports endocrinology, to encourage management of subclinical hormone deficiency in a rational manner, and to prevent misuse of anabolic steroids.[18]

SUMMARY

As we celebrate our Azadi ka Amrit Mahotsav, we should not lose sight of the need for action. Focusing on sports and exercise medicine will improve our health, not only as individuals, but as a society as well. Concerted action at various levels, beginning with healthy health care providers, can assist the country in achieving greater heights of success. Each clinician should incorporate the principle and practice of "exercise is medicine", as well as other physiological interventions, adopting the physiology- or wellness-based approach, in addition to the sickness or pathology based model, and use of pharmacological and surgical treatments. This is especially important for combating NCDs and diseases of lifestyle.

Engaging oneself in some form of sports activity and becoming physically active, as well as prescribing the minimum recommendation physical activity, limiting sedentary time and advising good nutrition to general public is a must for every clinician. By supporting and promoting the growth and development of the recently introduced medical specialty of sports and exercise medicine, as well as becoming part of its multidisciplinary and interdisciplinary team, we, as clinicians and health care providers, can have an important role in keeping our nation not only fit and healthy, but also optimization of dope- and injury-illness free sports performance.

REFERENCES

1. GBD 2019 Demographics Collaborators. Global age-sex-specific fertility, mortality, healthy life expectancy (HALE), and population estimates in 204 countries and territories, 1950-2019: a comprehensive demographic analysis for the Global Burden of Disease Study 2019. Lancet. 2020;396(10258):1160-203.
2. Akansha S, Laishram L. Increasing life expectancy and convergence of age at death in India. Genus. 2013;69(1):83-99.
3. Department of Sports. Khelo India-National Programme for Development of Sports New Delhi, India: Ministry of Youth Affairs and Sports, Government of India; 2018 [cited 2019 3rd December]. Available from: https://yas.nic.in/sports/khelo-india-national-programme-development-sports-0.
4. Sports Authority of India. Target Olympics Podium Scheme. New Delhi, India: Ministry of Youth Affairs and Sports, Government of India; 2019 [cited 2019 16th December]. Available from: https://sportsauthorityofindia.nic.in/index1.asp?ls_id=3812.
5. Press Information Bureau. Ministry of Youth Affairs and Sports: National Centre of Sports Sciences and Research for High Performance of Elite Athletes. New Delhi, India: Press Information Bureau, Ministry of Youth Affairs and Sports, Government of India; 2017. Available from: https://pib.gov.in/newsite/PrintRelease.aspx?relid=157775.
6. Department of Sports. Scheme of Human Resources Development in Sports. New Delhi, India: Ministry of Youth Affairs and Sports, Government of India; 2019 [cited 2019 6th December]. Available from: https://yas.nic.in/sports/scheme-human-resources-development-sports-0.
7. Sharma HB. Sports and exercise medicine in India: the past and the challenges. J Clin Diagn Res. 2022;16(2):CE01-6.
8. Saraswati SS, Hiti JK. Asana pranayama mudra bandha: Yoga Publications Trust Bihar, India; 1996.
9. Hallal PC, Andersen LB, Bull FC, Guthold R, Haskell W, Ekelund U; Lancet Physical Activity Series Working Group. Global physical activity levels: surveillance progress, pitfalls, and prospects. Lancet. 2012;380(9838):247-57.
10. Haseler T, Haseler C. Lack of physical activity is a global problem. BMJ. 2022;376:o348.
11. Forberger S, Wichmann F, Comito CN. Nudges used to promote physical activity and to reduce sedentary behaviour in the workplace: results of a scoping review. Prev Med. 2022;155:106922.
12. Steell L, Ho FK, Sillars A, Petermann-Rocha F, Li H, Lyall DM, et al. Dose-response associations of cardiorespiratory fitness with all-cause mortality and incidence and mortality of cancer and cardiovascular and respiratory diseases: the UK Biobank cohort study. Br J Sports Med. 2019;53(21):1371-8.
13. Federation ID. IDF Diabetes Atlas. 9th Edition. Brussels, Belgium: International Diabetes Federation; 2019.
14. Sinha N, Bhattacharya A, Deshmukh PR, Panja TK, Yasmin S, Arlappa N. Metabolic syndrome among elderly care-home residents in southern India: a cross-sectional study. WHO South East Asia J Public Health. 2016;5(1):62-9.
15. Ramakrishnan S, Zachariah G, Gupta K, Rao JS, Mohanan P, Venugopal K, et al. Prevalence of hypertension among Indian adults: results from the great India blood pressure survey. Indian Heart J. 2019;71(4):309-13.
16. Singh TD, Sharma HB. How much time to spend in physical activity, sleep and be sedentary in 24 h to achieve good health? Sleep Vigilance. 2022. Available from: https://doi.org/10.1007/s41782-022-00213-4.
17. Tahreem A, Rakha A, Rabail R, Nazir A, Socol CT, Maerescu CM, et al. Fad diets: facts and fiction. Front Nutr. 2022;9:960922.
18. Kalra S, Sahoo A, Das S, Kumar KVSH, Baliarsinha AK, Mohanty B, et al. The Bhubaneswar declaration on sports endocrinology, 2018. Indian J Endocrinol Metabol. 2018;22(Suppl 1):S14-6.