



Opinion

## **Olympic Games, the pandemic of physical inactivity and exercise as medicine**

Klaus W. Lange

Faculty of Human Sciences, University of Regensburg, Regensburg, Bavaria, Germany

**Correspondence:** Klaus W. Lange, University of Regensburg, 93040 Regensburg, Germany. Email: klaus.lange@ur.de

**Received:** 26 July 2022; **Accepted:** 13 September 2022; **Published:** 27 September 2022

**Citation:** Lange, K.W. (2022). Olympic Games, the pandemic of physical inactivity and sport as medicine. *J. Dis. Prev. Health Promot.* 6, 4–6.

**DOI:** 10.5283/jdphp.36

---

### **Abstract**

The current pandemic of a sedentary lifestyle and physical inactivity is closely related to the global increase in obesity and other chronic diseases. More than five million deaths per year have been estimated to be due to inactive lifestyles. Tackling the threat of the physical inactivity pandemic is fundamental for the future of effective, affordable and sustainable health systems. Global public health action is therefore urgently needed. The staging of Olympic Games has often been justified by the promise of a physical activity and health legacy. However, the claim that the Olympics result in beneficial lifestyle changes is not supported by studies conducted following major multi-sport events. Nevertheless, the Beijing Winter Olympics 2022 may become an exception to the rule of a failed Olympic health legacy. A policy of the Chinese government has set the target of attracting more than 300 million people to winter sport activities. The policy entails the construction of a new winter sport infrastructure as well as attempts to support the existing national fitness programme and to bring healthier lifestyles to the general population. In consequence, China has seen a substantial growth in participation in ice and snow activities. However, this promising development will not be self-propelling, and the government-led top-down implementation of winter sport needs to be supplemented by long-term policy interventions. Changing the complex behaviour of physical activity requires an effective population strategy as well long-term commitment, coordinated policy and integrated investment. Chinese sports experts have called for a greater emphasis on promoting sports participation to boost national health initiatives. Thus, China has shifted its sports focus from winning medals to improving mass fitness. The current Chinese health agenda, emphasising the prevention of chronic disease, may generate innovative solutions, including harnessing Olympic effects, and may set an example for public health systems worldwide.

**Keywords:** Olympic Games; Physical inactivity; Chronic disease; Prevention; Sport; Health in China.

---

Over more than two years, the COVID-19 pandemic has absorbed the attention of politicians, policy makers and the public alike. We should undoubtedly take the challenges presented by the coronavirus very seriously (Lange, 2020; Lange, 2021a); but we must put this new pandemic into perspective and remember the significant long-term threat posed by other pandemics. We should be especially mindful of the pandemic of physical inactivity and sedentary behaviour, which we have lived with for many years (Kohl 3rd et al., 2012). This pandemic is closely related to the global increase in obesity and other non-communicable diseases, such as cardiovascular conditions, diabetes and cancer. Lack of exercise is a primary cause of most chronic diseases and a major cause of death (Anderson and Durstine, 2019; Booth et al., 2012). Up to 10% of all deaths from

non-communicable diseases globally can be attributed to physical inactivity (Lee et al., 2012), with an even higher proportion, of around 30%, from ischaemic heart disease (World Health Organisation, 2009). In total, 5.3 million deaths per year have been estimated to be due to inactive lifestyles (Lee et al., 2012). In addition to morbidity and premature mortality, physical inactivity is responsible for a substantial economic burden (Ding et al., 2016). We are approaching a crisis in chronic disease worldwide, with the sedentary lifestyle as a leading cause. The impact of the physical inactivity pandemic in terms of impaired health, disability and economic cost will persist for many years to come and is likely to be more severe than that of COVID-19. Global public health action is therefore urgently needed (Kohl 3rd et al., 2012).

A plethora of scientific studies involving millions of participants have provided overwhelming evidence that physical activity and exercise produce clear health benefits (Warburton and Bredin, 2016). Virtually everybody can benefit from an increase in physical activity. Regular exercise that meets or exceeds current international recommendations has been found to be associated with 20–30% risk reductions for a wide range of chronic medical conditions and premature death (Warburton and Bredin, 2016).

Time and again, the staging of Olympic Games has been justified by the promise of a physical activity and health legacy (Bauman et al., 2021). People watching sporting events may be inspired to incorporate changes into their lifestyle, take up sports and become more physically active. However, the claim that sporting events result in such beneficial lifestyle changes is not supported by studies conducted following Olympic Games and other major multi-sport events (Bauman et al., 2015; Mahtani et al., 2013; Perks, 2015; Veal et al., 2012). No evidence has ever shown that the Olympics impact physical activity in the host country or elsewhere. For example, the sedentary culture in America has changed little since the Summer Olympics of 1996 in Atlanta (Smolianov et al., 2016). The 2010 Winter Olympic Games in Vancouver had no impact on physical activity or sports participation among Canadian children (Craig and Bauman, 2014). Similarly, differences in average levels of sports participation in England before and after the London Olympics in 2012 were negligible. The number of those keeping active for at least 30 minutes once a week even plunged in the year after London 2012 (Rumsby, 2013). Thus, the legacy of Britain's Olympics is a sedentary nation. Worse still, frequent watching of sport on television is associated with a significantly higher risk of overweight and obesity (Hamer et al., 2014). Watching elite athletes does not, therefore, appear to play a role in the promotion of physical activity, and the Olympic Games have proved to be another sedentary spectacle for most people worldwide.

Available research appears to question the use of health legacy pledges as a means to justify staging Olympic Games. An increase in mass participation in sports is built on a myth, since there is insufficient evidence that a major multisport event can influence health and the socioeconomic determinants of health in the host city (McCartney et al., 2010). Nevertheless, in the years leading up to the Beijing Olympic and Paralympic Winter Games in 2022, the Chinese government devised a plan to utilise the Games to achieve a participation legacy. A policy was formulated setting the ambitious target of attracting more than 300 million people to a wide range of winter sport activities, many of which are new to the majority of Chinese people (Ainsworth and Sallis, 2022). The policy entails the construction of new ski resorts, ice rinks and other winter sport facilities and aims to boost economic growth and tourism both nationally and locally in less developed areas of the country. A series of regulations have been introduced to motivate people to participate in sport, to promote winter sports education, to support the existing national fitness programme and to bring

healthier lifestyles to the general population. In consequence, China, a country with no tradition of winter sports, has seen a substantial growth in participation in snow and ice activities. Thus, the Beijing Olympics 2022 may become an exception to the rule of a failed Olympic health legacy. The newly built winter sport infrastructure has created more opportunities for physical activity, and the recent Olympic success of Chinese ice skaters and ski and snowboard freestylers, for example, may influence the leisure lifestyles of the young generation in China towards increasing physical activity and exercise. However, this promising development will not be self-propelling, and the government-led top-down implementation of winter sport needs to be supplemented by long-term policy interventions, including the prioritisation of funding decisions in an era of increasingly tight budgets. Changing the complex behaviour of physical activity requires an effective population strategy as well as years of commitment, coordinated policy and integrated investment. Chinese sports experts have called for a greater emphasis on promoting sports participation to boost national health initiatives. In consequence, China has been shifting its sports focus from winning medals to improving mass fitness.

Lasting effects of great sporting events will require strong and continued support of those in government. While most countries have a physical activity policy or action plan, the implementation of these policies leaves much to be desired (Kohl 3rd et al., 2012). It is important that politicians look beyond the immediate electoral or financial consequences of a policy. However, politics frequently operates on a timescale governed by elections and media attention and fails to consider the greater timescale at which population health and its determinants can be expected to change. Many politicians focus on re-election in the short term rather than on the long-term welfare of their voters. While they tirelessly pay lip-service to the demands of their electorate and the proposals of health scientists, the combination of a failure to fulfil governmental responsibilities to society, political procrastination and bureaucratic inertia stymies all impetus for action.

During the current COVID-19 crisis, many Western democracies have floundered, showing vacillation, obfuscation and incompetence, appearing to be unable to take the decisive action required to control the pandemic and mitigate its effects. The coronavirus pandemic has taught us how aggressively societal norms can be changed to reduce the spread of infection. We should realise that a similar aggressiveness is needed when tackling the pandemic of physical inactivity. Governments, ably advised by scientists and health advocates, should use their capacity to effect lasting and meaningful changes at population level (Lange, 2021b). However, many seem unwilling to tackle the increasing prevalence of potentially preventable non-communicable diseases and to make much-needed policy decisions regarding physical inactivity (as well as smoking and sugar consumption). The implementation of health-for-all policies requires top-level government leadership (Lange, 2021c). In China, this has been demonstrated through the launching of the government-led Healthy China 2030 initiative

(Tan et al., 2017) and the combining of comprehensive efforts of the Chinese Ministries of Education, Health and Sports as well as other departments, with the key target of increasing the number of people engaging in regular physical exercise (General Office of the State Council, 2019).

Most doctors lack sufficient knowledge of the relationship between exercise and health. Therefore, curricula integrating the expertise of medicine, exercise science and sports should guide the training of medical students and physicians, encouraging them to incorporate physical exercise into their daily practice (“exercise as medicine”) (Guo et al., 2018). Future research needs to evaluate in more detail the acute and long-term effects of exercise and to select the appropriate type of therapeutic exercise for certain medical conditions. Furthermore, large-scale campaigns are needed to make public places and facilities available for physical activities, increasing the level of exercise taking place in multiple settings, such as neighbourhoods, schools and workplaces. The current Chinese health agenda, emphasising the role of preventive medicine, may generate innovative solutions, including harnessing Olympic effects, and may set an example for public health systems worldwide.

Tackling the threat of the physical inactivity pandemic is fundamental for the future of effective, affordable and sustainable health systems. Policies to promote physical activity might largely pay for themselves through their reduction of health-care costs in the future (Cecchini et al., 2010). Pierre de Coubertin, who proposed a revival of the Olympic Games in the 19th century, described their spirit as a concept of mass participation to increase physical fitness rather than focusing on elite athletes competing for medals (Guttman, 2002). In combination with sustained social marketing campaigns to raise population awareness about physical activity, the original Olympic idea may provide a key leverage point for public health measures attempting to improve mass fitness by fostering future widespread community participation in sports. The introduction of novel winter sport-based leisure lifestyles in China and continued comprehensive efforts associated with the Beijing Winter Olympics are likely to boost population levels of physical activity across China and may therefore contribute to the goal of a healthy nation. The current Chinese health-in-all-policies reforms may also advance the global evidence base for the prevention of chronic diseases.

### Conflict of interest

The author declared no conflict of interest.

### References

Ainsworth, B.E., and Sallis, J.F. (2022). The Beijing 2022 Winter Olympics: An opportunity to promote physical activity and winter sports in Chinese youth. *J. Sport Health. Sci.* 11, 3–5.

Anderson, E., and Durstine, J.L. (2019). Physical activity, exercise, and chronic diseases: A brief review. *Sports Med. Health Sci.* 1, 3–10.

Bauman, A., Bellew, B., and Craig, C.L. (2015). Did the 2000 Sydney Olympics increase physical activity among adult Australians? *Br. J. Sports Med.* 49, 243–247.

Bauman, A.E., Kamada, M., Reis, R.S., Troiano, R.P., Ding, D., Milton, K., Murphy, N., and Hallal, P.C. (2021). An evidence-based assessment of the impact of the Olympic Games on population levels of physical activity. *Lancet* 398, 456–464.

Booth, F.W., Roberts, C.K., and Laye, M.J. (2012). Lack of exercise is a major cause of chronic diseases. *Compr. Physiol.* 2, 1143–1211.

Cecchini, M., Sassi, F., Lauer, J.A., Lee, Y.Y., Guajardo-Barron, V., and Chisholm, D. (2010). Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. *Lancet* 376, 1775–1784.

Craig, C.L., and Bauman, A.E. (2014). The impact of the Vancouver Winter Olympics on population level physical activity and sport participation among Canadian children and adolescents: population based study. *Int. J. Behav. Nutr. Phys. Act.* 11, 107.

Ding, D., Lawson, K.D., Kolbe-Alexander, T.L., Finkelstein, E.A., Katzmarzyk, P.T., van Mechelen, W., and Pratt, M. (2016). The economic burden of physical inactivity: a global analysis of major non-communicable diseases. *Lancet* 388, 1311–1324.

General Office of the State Council on healthy China action, 2019. Available: [http://www.gov.cn/zhengce/content/2019-07/15/content\\_5409499.htm](http://www.gov.cn/zhengce/content/2019-07/15/content_5409499.htm). Accessed July 20, 2022.

Guo, J., Sun, X., Wu, J., Chang, Q., Higuchi, M., Li, W., Zhou, S., and Wang, Y. (2018). The current practice and future promise of integration of exercise science and medicine in China. *Glob. Health J.* 2, 31–35.

Guttman, A. (2002). *The Olympics: A history of the modern games* (2nd ed.). Champaign: University of Illinois Press.

Hamer, M., Weiler, R., and Stamatakis, E. (2014). Watching sport on television, physical activity, and risk of obesity in older adults. *BMC Public Health* 14, 10.

Kohl 3rd, H.W., Craig, C.L., Lambert, E.V., Inoue, S., Alkandari, J.R., Leetongin, G., and Kahlmeier, S. (2012). The pandemic of physical inactivity: Global action for public health. *Lancet* 380, 294–305.

Lange, K.W. (2020). Lifestyle factors in the prevention of COVID-19. *Glob. Health J.* 4, 146–152.

Lange, K.W. (2021a). Food science and COVID-19. *Food Sci. Hum. Wellness* 10, 1–5.

Lange, K.W. (2021b). Rudolf Virchow and disease prevention and health promotion in the 21st century. *J. Dis. Prev. Health Promot.* 5, 1–9.

Lange, K.W. (2021c). Rudolf Virchow, poverty and global health: from “politics as medicine on a grand scale” to “health in all policies”. *Glob. Health J.* 5, 149–154.

Lee, I.-M., Shiroma, E.J., Lobelo, F., Puska, P., Blair, S.N., and Katzmarzyk, P.T. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy. *Lancet* 380, 219–229.

Mahtani, K.R., Protheroe, J., Slight, S.P., Demarzo, M.M.P., Blakeman, T., Barton, C.A., Brijnath, B., and Roberts, N. (2013). Can the London 2012 Olympics ‘inspire a generation’ to do more physical or sporting activities? An overview of systematic reviews. *BMJ Open* 3, e002058.

McCartney, G., Thomas, S., Thomson, H., Scott, J., Hamilton, V., Hanlon, P., Morrison, D.S., and Bond, L. (2010). The health and socioeconomic impacts of major multi-sport events: Systematic review (1978–2008). *BMJ* 340, c2369.

Perks, T. (2015). Exploring an Olympic “legacy”: sport participation in Canada before and after the 2010 Vancouver Winter Olympics. *Can. Rev. Sociol.* 52, 462–474.

Rumsby, B. (2013). Fewer adults play sport since London 2012. Available: <https://www.pressreader.com/uk/the-daily-telegraph-sport/20130614/281801396521558>. Accessed July 20, 2022.

Smolianov, P., Dion, S., and Harris, S. (2016). Sport participation and Olympic legacies: 1996 Atlanta games. Available: <https://www.westeastinstitute.com/wp-content/uploads/2016/09/P.-Smolianov-S.-Dion-S.-Harris.pdf>. Accessed July 20, 2022.

Tan, X., Liu, X., and Shao, H. (2017). Healthy China 2030: a vision for health care. *Value Health Reg. Issues* 12, 112–114.

Veal, A.J., Toohey, K., and Frawley, S. (2012). The sport participation legacy of the Sydney 2000 Olympic Games and other international sporting events hosted in Australia. *J. Policy Res. Tour. Leis. Events* 4, 155–184.

Warburton, D.E., and Bredin S.S. (2016). Reflections on physical activity and health: What should we recommend? *Can. J. Cardiol.* 32, 495–504.

World Health Organisation (2009). Global health risks: Mortality and burden of disease attributable to selected major risks. Available: <https://apps.who.int/iris/handle/10665/44203>. Accessed July 20, 2022.