

Jogging, nordic walking and going for a walk—interdisciplinary recommendations to keep people physically active in times of the covid-19 lockdown in Tyrol, Austria

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All over the world, the coronavirus disease (COVID-19) caused by SARS-CoV-2 is pushing health systems to their limits. Almost every country affected has imposed massive restrictions on public and also private life. Especially in times of uncertainty, research institutions have a societal responsibility to inform the public about scientific findings. At present, the health of the population is not only dependent on the pathogen, but also on the behaviour and behavioural possibilities of every single person. Among other areas of life, the population's opportunities for physical activity have been severely restricted by country-specific regulations; hence, we wrote this joint contribution of sports science and sports medicine to provide scientifically based recommendations for exercise in times of COVID-19 lockdown.

ABSTRACT

Physical activity has a strong impact on physical and mental health. It prevents diseases, strengthens the immune system, and helps to reduce stress. Moreover, physical activity increases the psychological well-being, with outdoor exercise showing even more positive effects. In times when national regulations also restrict the possibilities for exercise, the authors—referring to scientifically sound findings and adhering to the current social distancing rules—recommend allowing moderate outdoor sports activities (jogging, Nordic walking, going for a walk) and the use of park trails, hiking trails, and forest roads in easy terrains.

Keywords:

SARS-CoV-2 – physical activity – outdoor – walking – health – guidelines

Facing a high number of infections mainly in the alpine regions, the Austrian province of Tyrol may have introduced more drastic regulations than other regions to prevent further spread of infection. The current guidelines of the Tyrolean provincial government stipulate that people should not leave their homes unless covering basic needs. These include shopping for necessities, (essential) visits to the doctor, etc. (Platter & Forster, 2020). Currently, going for a walk as well as walking the dog—and thus spending time outdoors—should be limited to a necessary minimum. Jogging is not permitted, nor is cycling (with some exceptions) and hiking (incl. ski touring and mountaineering).

However, particularly the Tyrolean population seems to be very active. A recent study commissioned by the organisation Leb-

ensraum Tirol Holding and coordinated by the Department of Sport Science of the University of Innsbruck showed that 64% of Tyroleans exercise at least once a week. Furthermore, 76% of respondents stated that they engage in a physical activity at least once a week. Around two thirds of Tyroleans practice their sport or exercise in nature, naming health promotion as the main motive for physical activity. Half of the interviewees stated to go hiking or walking, and almost 20% of the respondents named running/jogging as their preferred type of sport (Lebensraum Tirol Holding, 2020). The study results show how important sport and physical activity is to Tyroleans. Especially, outdoor sport and exercise in nature is central to Tyroleans, and refraining from it must be viewed very critically, particularly in times of crisis.

Physical inactivity is a worldwide problem, and thus not everybody will be bothered about the movement restrictions. It is a major concern of sports science and sports medicine to increase physical activity worldwide. There is clear evidence that physical inactivity increases the risk of many so-called non-communicable diseases, such as coronary heart disease and metabolic disorders (Lee et al., 2012), while regular exercise has positive effects on blood pressure, metabolism, and body weight. Projections showed that in 2008, 5.8 million deaths worldwide were directly related to lack of physical activity (Lee et al., 2012). Although it is unlikely that several weeks of inactivity will result in the onset of severe diseases, the consequences of inactivity should not be ignored. A 30-year study showed that three weeks of bed rest corresponds to a 30-year aging process regarding cardiovascular performance (McGuire et al., 2001). In addition, especially in persons who have been increasingly physically active only for a short period of time the restrictions may lead to negative changes in exercise behaviour in the sense of a relapse to previous behaviour patterns (Marcus & Simkin, 1994; Teixeira et al., 2012).

In older people physical activity is particularly important for fall prevention in order to reduce the risk of falling and prevent the injuries associated with it (Bowden Davies et al., 2019; Ganz & Latham, 2020; Gillespie et al., 2012). Moreover, physical activity strengthens the immune system (Nieman & Wentz, 2019). It was shown that moderate physical exercise reduces the severity of and complications in viral infections, such as influenza (Wong et al., 2008). Physical activity also has protective and therapeutic effects on mental health. Numerous studies have shown the positive impact of exercise on current mood, mental well-being, and the prevention of mental health conditions (Blumenthal et al., 2007; Cooney et al., 2013; McPhie & Rawana, 2015).

Regardless of their fitness level, people who are physically active have better mental health and are more resistant to stress (Deuster & Silverman, 2013; Lindwall et al., 2012); finally, exercise and relaxation techniques can relieve stress (van der Zwan et al., 2015). This is also important when bearing in mind that anxiety and stress weaken the immune system (Morey et al., 2015). Outdoor exercise can trigger additional positive effects on mental health, both in mentally ill and healthy persons

(Frühauf et al., 2016; Niedermeier et al., 2017). Due to the multifaceted visual impressions nature provides, it can serve as a distraction for the brain and positively affect mood and mental health (Berto, 2014). Other factors that are unique to outdoor settings are daylight and sunlight: Both have a strong influence on mental as well as physical health (Beute & Kort, 2014; Lambert et al., 2003).

Globally, physical inactivity has become one of the major problems of health care systems—considering the indirect consequences maybe even the biggest health problem of our time (Trost et al., 2014). Although these data naturally do not take into account the current circumstances associated with the COVID-19 pandemic, the question of exercising in this time is more than justified. The World Health Organization (WHO) recommends at least 150 minutes of moderate-intensity physical activity per week to maintain physical and mental health in adults. For children and adolescents, these recommendations are as high as 60 minutes per day (World Health Organization, 2010). In addition to a strong need for movement, these age groups show correlations between motor development and cognitive abilities (Sibley & Etnier, 2003; World Health Organization, 2010). Satisfying children's need for movement and development is currently not possible in many apartments.

The current regulations and measures aim to slow down the spread of the virus to avoid overloading the health care system. Of course, this includes preventing sports accidents. The accident statistics of European countries show that 7% of accident-related hospital in-patient admissions are related to sports accidents; in contrast, home and leisure accidents account for 69% of injury admissions. The other accident-related in-patient admissions are linked to road accidents (12%), school/workplace accidents (5%) as well as assault and self-harm (8%) (Bauer et al., 2014). In this context, the question that arises is whether the increased time spent at home will have an impact on the already high number of domestic accidents. Moreover, potential social tensions might be easier to trigger due to often cramped living situations coupled with fears and worries in the current situation.

In Tyrol, more than half of all sports accidents occur in winter sports on ski slopes or in team ball sports (soccer, handball, volleyball, etc.) (Schöppl et al., 2019). Jogging and Nordic walking are popular forms of exercise and are practiced by both healthy people and people with physical and mental health problems. 80% of jogging injuries are due to overstrain and cannot be associated with acute accidents (van der Worp et al., 2015). Compared to walking, no higher injury incidence was reported for jogging (Suter et al., 1994). These forms of exercise are outdoor sports that are mainly practiced in open air and especially in nature. Concerning the main risk factors in hiking, we see primarily cardiovascular diseases and sudden cardiac death (in non-traumatic accidents) as well as walking downwards on rock and scree, which can lead to accidents (Burtscher & Ponzia, 2010; Faulhaber et al., 2017). Both main risk factors show an overrepresentation of the older, male population. By contrast, hiking on forest roads and road ways accounts for only

3.6% of all hiking accidents and can therefore be considered safe and not accident-prone (Faulhaber et al., 2017).

Current data allow us to assume that jogging and hiking practiced by non-risk groups on wide forest roads and easy forest trails, where keeping adequate safe distance is possible, poses a low risk of injury as well as contagion and spread of disease. On the contrary, there are numerous positive effects on physical and mental health, which far outweigh the low risks associated with injuries. In a recently published recommendation, the science council of the German Society for Sports Medicine and Prevention (DGSP) emphasised the general possibility of practicing individual sports, provided that a minimum distance to other athletes is given. They recommend carrying out ergometer and strength training at home or in outdoor settings (Steinacker et al., 2020).

The Department of Sport Science of the University of Innsbruck, the Institute of Sports Medicine, Alpine Medicine and Health Tourism (ISAG) of the UMIT Hall and Tirol Kliniken GmbH, and the Department of Internal Medicine II of the Medical University of Innsbruck, supported by the results of scientific analyses, state that moderate forms of outdoor exercise are a necessity for physical and mental health and should therefore be regarded as essential elements of the basic human needs. For this reason, we recommend that the Tyrolean provincial government allows moderate physical activity outdoors and in nature, provided that the following points are considered.

Recommendations

- We recommend moderate forms of exercise, such as endurance sports with low to moderate intensity. These include jogging, Nordic walking, and (brisk) walking in parks as well as on hiking trails and forest roads in low altitude and easy terrains.
- We recommend strengthening activities involving all major muscle groups and other types of physical activity that can be done at home or outdoors with a safe distance from others.
- Of course, these types of physical activity must be done in accordance with the existing regulations (exercise alone or with members of your own household, keep a safe distance of 1 m or more from other people).

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Data Availability Statement

All relevant data are within the paper.

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