

E-ISSN: 2709-9369
P-ISSN: 2709-9350
www.multisubjectjournal.com
IJMT 2023; 5(6): 01-02
Received: 01-04-2023
Accepted: 07-05-2023

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The impact of physical fitness on COVID-19: A comprehensive review

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Abstract

The COVID-19 pandemic has highlighted the importance of maintaining optimal health and fitness levels to combat the virus. The purpose of this research paper is to provide a thorough examination of the relationship between physical fitness and COVID-19. It investigates how physical fitness affects COVID-19 susceptibility, severity, and recovery. The paper investigates the physiological and immunological mechanisms underlying physical fitness's beneficial effects on the immune system and its ability to reduce the risks associated with COVID-19. It also discusses how physical activity and exercise can help reduce sedentary behaviour during lockdowns and quarantine periods. The findings emphasise the importance of promoting physical fitness as an important component of public health strategies for COVID-19 prevention and management.

Keywords: Physical Fitness, COVID-19

Introduction

The coronavirus disease 2019 (COVID-19) has an impact on physical activity (PA) behaviours worldwide. People around the world stayed at home and self-isolated due to the lockdown policy [1]. Although the lockdown is essential and is the best recommendation for preventing the spread of the disease, it may create a new challenge. Staying at home for a prolonged period can lead to disturbing consequences such as weight gain, social isolation [2] and may also cause a reduction in PA levels [2, 3]. The decrease in PA level may be especially apparent among active individuals habitually practising sports. Diminished PA resulting from home isolation may worsen a wide range of health conditions, including chronic ones, such as cardiac and metabolic diseases [2, 3, 4, 5] as well as infectious diseases, due to negative immune modulation [6, 7, 8, 9, 10, 11] even without substantial weight gain [12, 13]. Therefore, maintaining an active lifestyle at home including mainly PA, is extremely important for the general population's health, especially for people with additional risk factors including old adults during the quarantine [14, 15, 16]. Physical activity (PA) could provide physical and psychological benefits and contribute to the prevention and treatment of various diseases, such as cardiovascular disease, diabetes, cancer, hypertension, obesity, depression, and osteoporosis [17, 18, 19]. There are four types of PA, including aerobic activity, muscle-strengthening activity, bone-strengthening activity, and multi-component physical activity, with different benefits [19]. Children, adolescents, adults, older adults, pregnant/postpartum women, and patients with chronic conditions or disabilities can refer to the guidelines for appropriate exercise to improve their health [19, 20]. COVID-19 has brought a new layer of challenges to our health and healthy behaviours. People worldwide are reporting challenges in engaging in a healthy dose of physical activity amid the pandemic, with up to a 50% decrease in physical activity in some areas. This decline is in part due to the limited and inequitable availability of safe outdoor community resources (eg, parks, trails, sports facilities, sidewalks) that support physical activity [21]. Despite the growing recognition of the negative impacts of COVID-19 on people's health, only a small amount of literature has explored the roles of environmental factors such as neighbourhood infrastructure and recreational resources that can help promote or hinder physical activity. Recent reviews showed that the personal, behavioural, and social changes during the pandemic have led to mental distress and illness [22, 23]. Reviews of work on children and older adults emphasized the environmental associations of anxiety, depression, and other psychological outcomes (eg, worry, grief) during the COVID-19 pandemic [14, 16]. The World Health Organization recommends that children and adolescents aged 5-17 should engage in at least 60 minutes of moderate to vigorous-intensity physical activity a day. Physical activity is defined as bodily movement performed by skeletal muscles that demand energy expenditure.

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The physical benefits of this include musculoskeletal and cardiovascular health, a healthy body weight and neuromuscular awareness, for coordination and controlling movement. The psychological benefits include managing anxiety and building self-esteem, which are both important for children's psycho-social development [24]. However, people of all ages have been forced to limit their physical activity because of the COVID-19 pandemic. Gyms, public swimming pools, and playgrounds are examples of indoor and outdoor sports and recreation facilities that are frequently closed. Children are using the Internet for schoolwork and social contact, and online communication for business, entertainment, and shopping is now a regular part of family routines. But it is crucial that kids engage in and appreciate physical activity as a part of a broader set of life skills when they are just having fun.

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