

# Impact of covid-19 outbreak on the Physical Activities of Adolescents -A review study

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## Abstract

In March 2020, COVID-19 was designated a pandemic, prompting lockdowns in a multitude of nations throughout the world. The purpose of this review was to identify the existing information regarding physical activity and the coronavirus outbreak on children's and adolescents' health. Governments in each of the afflicted countries have taken various actions in response to the COVID-19 epidemic. Societal constraints aimed at containing the virus's spread have disturbed children's and adolescents' daily activities, including physical exercise, sedentary behavior, and sleep. During the constraints imposed, individuals who continued to engage in physical activity improved even more. Children's physical activity was significantly reduced as an effect of COVID lockdown. The focus of this research was to look at potential health-risk behaviors among solitary children and adolescents. In relation to social isolation and social deprivation of children without previous illness or conditions, health-related behaviors such as screen exposure, physical activity and fitness, sedentariness, sleep patterns, eating habits, and body composition were identified. It is necessary to develop strategies to encourage youngsters to engage in appropriate physical activity throughout the epidemic. Keeping up with regular PA in a safe home setting is critical for younger generations amid the COVID-19 emergency.

**Keywords** Covid-19, Physical Activity, children, Adolescence.

## Introduction:

The World Health Organization proclaimed COVID-19 a pandemic on March 11, 2020, reporting nearly 3 million illnesses and 207,973 fatalities in 213 nations and territories. (WHO, COVID-19) In late December 2019, the Huanan Seafood Wholesale Market in Wuhan, Hubei, China, witnessed an epidemic of unusual pneumonia characterized by fever, dry cough, lethargy, and sometimes gastrointestinal symptoms. (Huang C et al. 2020) Thailand, Germany, Japan, the Republic of Korea, Germany, Singapore, the United States, and Vietnam were affected by the disease. The country's first case was reported on January 21, 2020. As of February 6, 2020, WHO had detected 28,276 confirmed cases in at least 25 countries, with 565 deaths. (WHO 2020-nCoV Situation Report.) The COVID-19 epidemic halted the world's progress. For many people worldwide, social life has changed since early 2020. Mobility has been reduced due to government limitations and changing societal

norms (Google-2020).

Homeschooling and online learning activities have largely replaced regular classroom sessions for most kids and adolescents. In the initial response to the COVID-19 outbreak, families sought guidance and solutions to maintain healthy routines, such as healthy movement habits and opportunities to spend time outside, as well as suggestions for physical separation, behavioral limitations, and general instructions to "stay home." (Hongyan G et al. - 2020). "Skeletal muscle action that results in energy expenditure. "It was familiar with physical activity. (Caspersen, 1985). Living at home for extended periods can contribute to more excellent sedentary behavior and less physical activity, as well as a psychological health burden. (Hemphill. N et al. - 2020) Concerns about the effect of coronavirus disease 2019 (COVID-19) on vulnerable populations, including children and young adults, have intensified in recent years.

Anti-contagion efforts, like school closings, shutdowns, and new restrictions, have disturbed daily activities and resources, potentially impacting children's and adolescents' mental well being. According to science, the Spanish flu virus can cause catastrophic brain injury by stimulating immune function, resulting in a cytokine storm (Alnefeesi Y et al., -2021). According to new research, certain genetic connections may also be part of COVID-19 and

mental diseases such as insanity, manic depression, and shell shock (Moni MA, et al.-2021 ). Different countries have set different points for reducing school attendance. Nonetheless, as of March 18, 2020, over one-half of the world's children were not attending school in over 100 nations and 188 countries by April 8, 2020, during the COVID-19 epidemic ( Viner R.M, et al- 2020). Even though these procedures and attempts are laudable and essential, there are

grounds to be worried about since lengthy school closures and staying at home in this period may have detrimental physical and mental health consequences for children. ( Samantha KBrooks,et al-2020). Children and teenagers are also facing significant obstacles. Reduced physical activity and extended sedentary behavior may hurt children's and adolescents' physical and mental health, leading to even lower physical activity levels and more extended sedentary behavior. As a result, the vicious cycle must be interrupted. Furthermore, data shows that physical activity protects susceptible populations from viral infections.( Laddu D.R., et al-2020)

According to new research, such stress can hurt short-term and long-term mental health, including mental discomfort and behavioral issues. The COVID-19 epidemic has wreaked havoc on children's lives, resulting in school closures and other limitations, as well as a slew of additional pressures that may continue to threaten their health and well-being (Nearchou F et al.2020)

Several broad impacts on physical exercise behavior include intra-personal, societal, and environmental variables, and these determinants change over time.( Sallis JF et al., -1999). Because they do not fulfill their physical activity standards, most children and adolescents globally (85%) are categorized as

indolent(Guthold et al,-2020). Several studies have looked at the effect of physical education on mental illnesses, except a few fragmentary studies that found an inverse relationship between physical exercise and mental trauma in children and young people( Ussher MH et al,-2007). Physical activity enhances physical health with attentiveness in school-aged children, as well as their behavior, attitudes, and academic achievement( Burkhalter et al,-2011)

### Statement of the problem

School closures have been linked to increased anxiety and loneliness among children, as well as aggravation, sense of loss, distress, lack of discipline, and behavioral problems. Early childhood physical inactivity can lead to a variety of health issues. Physical inactivity has

also been linked to a higher chance of chronic health issues deteriorating.If internet use becomes progressively uncontrolled, increased digitalization might amplify risks like as online bullying and sex trafficking. Researcher would to conduct a study on "Impact of covid- 19 outbreak on the Physical activities of Adolescents-A review study."

### Research methodology

The systematic review will include adolescent physical activities. India's research includes observational studies, descriptive studies, qualitative studies, and mixed-method studies. Studies will be obtained using data system keywords from international databases such as MEDLINE through PubMed, EMBASE and SCOPUS, as well as Indian resources such as the Neonatal Database (JCDR). Furthermore, manual searches will be conducted on the Indian websites of major organizations, women's and child welfare ministries, NGOs, registries, Google search, paediatric papers, Shodhganga and grey literature. This article involves Of the 58 review papers, 42 correspond to adolescent physical activities, 8 correspond to the influence of COVID-19, and 8 correspond to children's and adolescents' mental health.

## Objectives

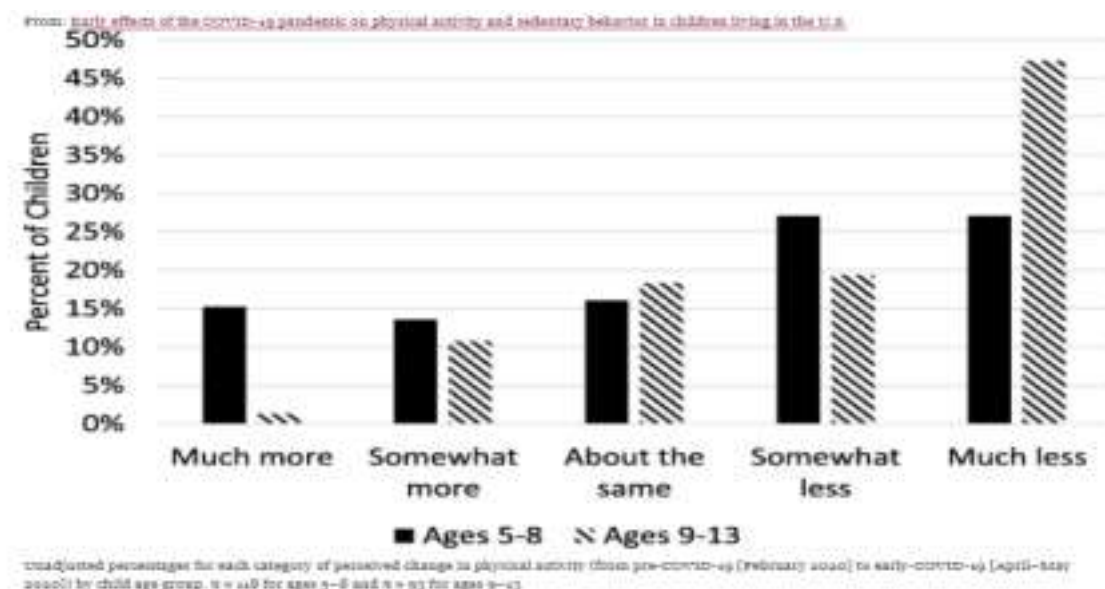
The researcher would like to find out the impact of COVID-19 on children's physical activity in the worldwide scenario. Here objectives are tried to achieve using secondary data International and National level.

Researcher would also like to offer suggestions to the research problem. **INTERNATIONAL VIEW**

Pandemics are not just a serious public health issue; they also frequently result in disastrous political and economic problems in the countries impacted. COVID-19 is seen as a sign of inequity and a lack of social development, as well as the century's greatest threat to world public health. In December 2019, the first modern COVID-19 pandemic was reported in Wuhan, Hubei Province, China, with the bulk of early cases attributed to a seafood wholesale market outbreak. (C. Huang et al, - 2020) Physical activity has been linked to a variety of physical and mental health advantages for children of all ages (Piercy KL et al,-2018). COVID-19 is wreaking havoc in numerous nations throughout the world, with Africa being the most affected. However, in terms of COVID-19 spread, Africa is expected to be the most

susceptible continent (Moore.M et al,-2017). In order to stop the spread of the disease, countries have deliberately restricted people's mobility, transportation, and economic activities. (N. Fernandes-2020).

College students' mental health may be harmed by the pandemic's impacts, including a lack of face-to-face conversation and activity level and long periods of screen time from online study. (M. Fernández Cruz, et al,-2020) (Ruíz-Roso et al,- 2020). Insufficient physical activity and inappropriate sedentary behavior in children are severe since children's behavioral patterns are likely to remain into adulthood, increasing the risk of several major health disorders later in childhood and adulthood (Physical Activity Guidelines Advisory Committee-2008). According to research from Europe, Families caring for children with intellectual and developmental impairments have been hit harder by the COVID-19 epidemic than the broader public (Fontanesi L et al,-2020). They highlighted the need to develop adequate mitigation strategies as part of the quarantine planning process. As a result, parents and governments have a worldwide and urgent obligation to ensure that children and young people are safeguarded from the psychological and physical repercussions of COVID-19 quarantine. (Wang G, et al,-2020)



Multisystem inflammatory syndrome (MIS-C), a unique presentation in older children, manifests as significant abdominal pain, joint swelling, and pain (Toubiana.J et al-2020). Food insecurity affects a large number of

children. According to the European Union's

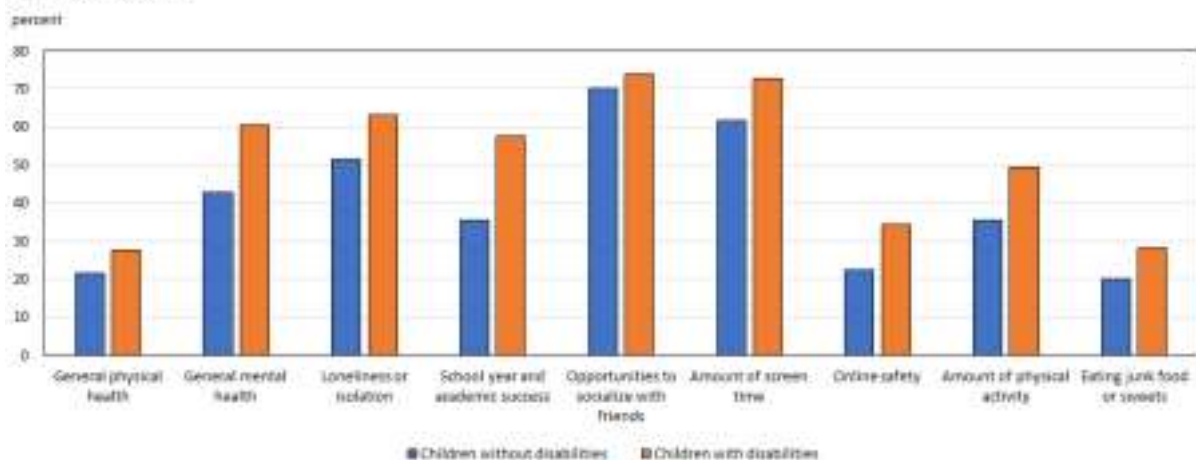
statistics office, 66 percent of European Union adolescent mothers, including 55 percent of those in the U.K., cannot afford similar meat, fish, or vegetarian supper every other day. In the

United States in 2018, food insecurity was expected to affect 14% of parents with children it also affects on Physical Growth. (U.S. Department of Agriculture Food security in the United States.2020)

Since the epidemic began, there have been rare complaints of developing child abuse severity; nevertheless, numerous states are recording a troubling decline in child reports of abuse to child protective services, which is thought to be due to underreporting(Schmidt S,et al-2020).

Promoting proper physical exercise in children is a severe public health concern. According to current estimates, more than three-quarters of American children and adolescents aged 6 to 15 do not meet the 2018 Physical Exercise Guidelines for Americans' daily minimum of 60 minutes of moderate-to-vigorous physical activity (U.S. Department of Health and Human Services, .2018). It has been suggested that Obesity rates among children will rise as a result of COVID-19 school closures (Workman.J-2020)

Crowdsourcing participants' concerns for their children aged 0 to 14 years due to the COVID-19 pandemic, by presence of children with disabilities at home



Notes: Percent calculations exclude both "not applicable" and "not stated" responses. The pattern of results was similar when "not applicable" responses were included.  
 Sources: Arim, Rubab, Lorraine Findlay and Dafna Kahen. 2020. The impact of the COVID-19 pandemic on Canadian families of children with disabilities. *SoCioCare COVID-19: Data to Insights for a Better Canada*. <https://www150.statcan.gc.ca/n1/pub/45-28-0001/1630001/article/00086-eng.htm>

For example, in the United Kingdom, 93% of children spend more than 13 hours each week online, while 97% of teenagers spend more than 20 hours online( Ofcom. 2019).

It has been recommended that holistic learning experiences focused on physical, intellectual, sociological, and emotional outcomes are established to encourage long-term and lifelong engagement in physical activity (Kirk et al-2020). Exposure to these unfavorable postures can cause pain and discomfort in the back, knees, hands, fingers, neck, and wrists, leading to

musculoskeletal disorders(Rodríguez-Ruíz et al-2011). A lack of natural air or being susceptible to sweltering, cold, dry, humid conditions, intense noises in a quiet environment, and very bright or dark lighting may significantly affect students' overall performance and engagement in online classes (Zhong et al- 2019). According to evidence, adolescents are physically less active, spend much more time on screens, have

inconsistent sleeping habits, and consume fewer healthful foods while not in school, leading to weight gain and cardiorespiratory fitness decline. (Brazendale K et al-2017). Physical activity can be defined as any physiological movement generated by muscle contractions and includes subcategories such as sports, leisure-time activities, and dance, defined as an organized, systematic, repetitive, and purposeful treatment (Wegner.M, et al- 2020). In the next two decades, the rate of childhood overweight in the United States is anticipated to reach 40%( Kopelman PG 2000). Researchers examined four-movement behaviors during the COVID-19 pandemic: screen time, physical activity or exercise, sleep quality and sleep length as indicated by the Canadian 24hr Movement Regulations for Children and Adolescents (M. Tremblay et al 2016).

This study linked negative alterations in P.A. to increased sadness, anxiety, and stress

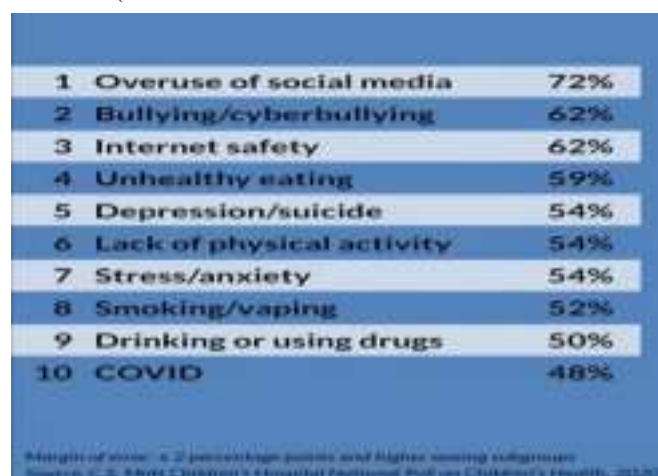
symptoms. Home confinement during the pandemic had a detrimental influence on all P.A. intensity levels, according to an international assessment of 1000 adults from Europe, Africa, Asia, and the Americas (Achraf Ammar et al-2020). P.A. is inextricably linked to school

related activities, active transportation, and sports engagement among children and adolescents. Regarding the shutdown of schools during the COVID-19 pandemic and the inaccessibility of physical education courses due to the move to online training, this condition may jeopardize P.A. in the population. Schoolwork has become much more sluggish than usual due to the lockdown( Rundle.A.G et

al-2020).

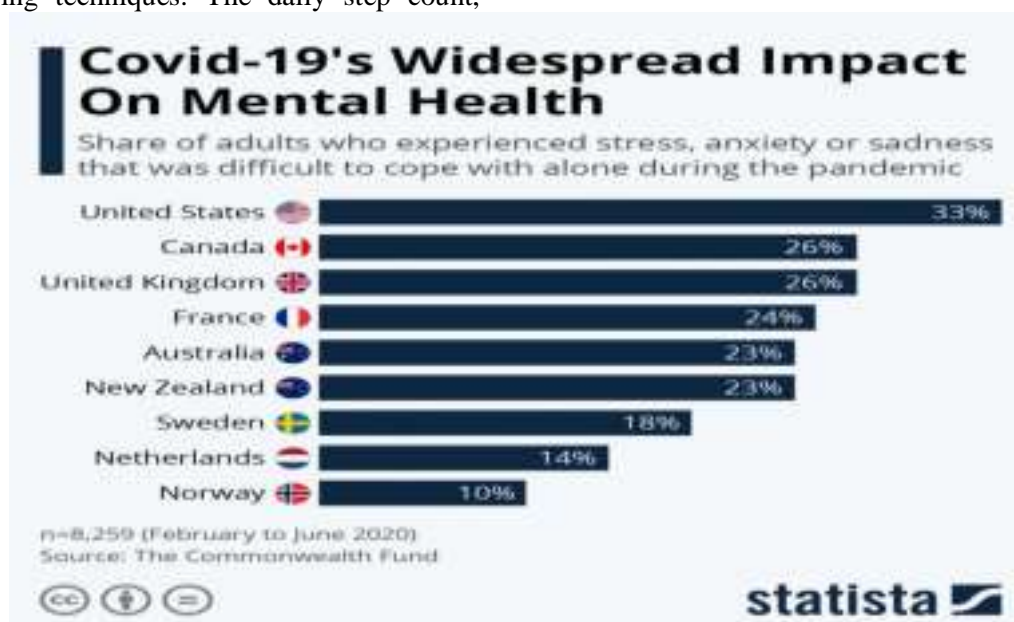
According to subsequent research, summer recess weight gain is more visible in African American and Hispanic children and those who are already facing obesity (Franckle R-2014 ). One study also discovered that physical activity could enhance adolescent individuals' mental health, self-confidence, obesity risk factors, and other chronic disease risk factors. ( Cavill.N et al-2001).

2020 top 10 child health concerns among all parents. A recent national study reveals parents' top fears regarding their children in the pandemic era.



Physical exercise is a significant health indicator that is likely to be influenced by social distancing techniques. The daily step count,

which is a proxy for physical activity, has been linked to all-cause mortality (Pedro F- 2020)



Obesity, diabetes, and other health problems are on the rise. Many parts of the world are

experiencing increased violence, and a drop in physical activity is one of the numerous factors

being blamed. According to data from the United States, 16.5 percent of adolescents aged 6 to 19 are overweight or at risk of becoming overweight, according to a 1999-2002 article survey (Hedley, 2004). The importance of maintaining regular physical exercise and avoiding attributes that lead to a sedentary lifestyle was highlighted in a Chinese study. They

argue that remaining healthy during the COVID-19 pandemic requires staying busy and exercising consistently in a safe home setting (Chen P et al-2020)

## NATIONAL VIEW

India shuttered its schools as an emergency measure on March 16, 2020, becoming one of the first nations in the world to do so. Virtual platforms were employed at all levels to facilitate children's education once school closed. Early studies of India's experience have found that the nation's social inequalities impact the success of digital classrooms (Pravat, 2020). Reduced physical activity and extended sedentary behavior have long been linked to physical and psychological health issues (Jiménez-Pavón D, 2020). The human body needs sufficient sustenance in a healthy diet to meet physical requirements and maintain fundamental body physiology. Improper nutrition leads to calorie overfeeding or a shortage of one or more essential nutrients, such as underfeeding. Weight gain is a health hazard resulting in weight gain and several non-communicable diseases. In economically impoverished, developing nations like India, however, undernutrition is a severe health concern caused by a lack of nutrients and energy. It creates nutrition-related issues, different deficiency illnesses, and even mortality by reducing physiological immunity (Bhattacharya et al. 2019). The current research shows that a wide range of symptoms has been described in children, with varying severity and prevalence. These findings are consistent with those from the adult population, which indicates that the general public has a greater incidence of depressive and anxious symptoms than the adult population. (Rajkumar, RP. 2020)

Adolescents' mental and physical problems should be treated as soon as possible, and Adolescent Human development and Sexual

Health clinics serve as a platform. Kerala's government, for example, has created new adolescent clinics that will be available for two hours every day (Kerala Government's Response to COVID-19, 2020). The shutdown might promote excess weight in the COVID-19 pandemic due to insufficient physical exercise, more snacking, and the ingestion of calorically dense foods, in an observational study conducted by a group, dietary carbohydrate and snacking regularity increased by 21% and 23%, respectively, in an observational study, whereas exercise time was decreased in 42% of participants and excess weight was found in 19% of type 2 diabetics (A. Ghosh et al- 2020). Since they cannot comprehend the entire scope of a scenario or fully explain their views to adults, children and adolescents are more vulnerable to mental health problems (Nazish

Imran et al-May 2020). The pandemic disrupted their daily routines, preventing them from attending school and, as a result, from engaging in social and leisure activities (Anant Kumar et al. 2020). Overuse of mobile phones has been reported in the Indian media as negatively influencing functioning. Increased digital connections can also lead to "emotional contagion," where one person's pain and terror spread to another (Gao et al-2020).

A child's response to a crisis scenario is influenced by his previous experience with emergencies, physical and mental health, family socioeconomic circumstances, and cultural background. According to much research, children's psychological well-being is negatively impacted by crisis events. The most common symptoms include anxiety, sadness, changes in appetite, and social communication impairment. (Dalton L et al -2020). Homestay for an extended period has a detrimental influence on life quality and health, and well-being. One of the most serious consequences of physical inactivity is the risk of weight gain, which increases the risk of diabetes, cardiovascular disease, embolism, malignancies, low back pain, osteoarthritis, and impairments. The bad food habit that usually accompanies screen usage exacerbates this issue. (Hoof, E. V- 2020)

In a Maharashtra adult population, we discovered a significant 48 percent drop in quality of life. During a lockdown, more participants reported increased daytime

napping, decreased sleep quality, and occasionally interrupted sleep, as well as insufficient physical activity, negative subjective mood status, increased eating and snacking patterns, marginally increased hunger, and a disrupted daily routine (Renzo. L. D et al-2020). School cancellations may have caused youngsters to sit in front of the television and computers for more extended periods; back discomfort, eye pain, and sleep difficulties are just a few of the physical issues that could arise. The Hindu documented a 50% spike in violence statistics during the lockdown, with youngsters seeking safety from violence and sexual violence. (Naseri A et al-2020)

### Suggestions:

Staying at home is associated with long periods of reclining and sitting, watching T.V., and talking on the phone. In addition, sedentary people will almost certainly increase their food and calorie intake. As a result, a reduction in physical activity and rest energy expenditure, along with a rise in calorie consumption, may lead to a higher risk of sedentarism. As an outcome, while long-term residence is identified as a safe and effective precautionary

measure against virus circulation. A sedentary lifestyle can lead to disastrous physiological effects such as excess weight and immune disorders and mental abilities such as loneliness and aggressive behavior, which can last until the disease is gone. Parents begin to be creative with their physical activities at home, and they understand and support their kids' participation and being athletic in new and safe ways.

All recommendations are to participate in group activities, pursue a new number of possibilities, use digital education and wellness exercise apps, and spend as much time outside as possible. We observed that children and adolescents were quite active, played outdoors less, were much more sedentary, engaged in more leisure internet activities, and slept more often during the initial COVID-19 viral epidemic. It is possible to engage in various outdoor physical exercises while being isolated. For example, running and walking are two of the major types of physical activity among the average adult population around the globe. During the COVID-19 epidemic, running and walking were both suitable types of exercise as long as a social

distance was established. A social distance of around five meters for aerobic activity and ten meters for running has recently been recommended to minimize considerable particle exposure, albeit factors like speed influence this.

Moreover, due to the COVID-19 outbreak, several physical fitness venues, such as new indoor gyms and clubs, have closed, and faculty members will be unable to continue a portion of their physically active routine. In such circumstances, an alternate exercise that may be done at home should be considered. Self-development and self-physical exercise can improve endurance and operational characteristics. Regular physical activity that could be good for overall health includes muscular strength exercises, yoga, meditation, and Zumba. In addition to the previously mentioned recommendations for staying physically healthy throughout the COVID-19 global epidemic, it is recommended to end the duration of sedentary behavior by relocating from resting to standing and walking approximately every 20–30 minutes at home, as this has a variety of health benefits.

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