



## Commentary

## COVID-19: It's still time for health professionals, physical activity enthusiasts and sportive leagues not to let guard down



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## ABSTRACT

Emerging viral diseases represent a serious issue to public and global healthcare systems and have a high potential for disease dissemination in sport/physical activity and exercise facilities. The Coronavirus disease 2019 (COVID-19) pandemic has frightened the sports and physical activity community and enthusiasts for potential transmission, dissemination, and lethality in vulnerable populations; those with chronic diseases, co-morbidities, the elderly people, and in young and healthy people. This pandemic has caused a chain reaction with cancellations of sports competitions and gymnasiums closing around the world. Currently, some sporting events are gradually resuming in certain regions of the world and also the return of competitions and training. In general, without fans and public, the sports media can only report the infection of athletes and coaching staff members. However, this situation is dynamic - the world is currently experiencing the second wave of the disease; with the safety and containment measures for the disease is changing daily. The purpose of this article is to present information concerning the COVID-19 pandemic, to clarify health issues for professionals and people connected to sport and physical activity venues, presenting information to assist in educations and the health promotion and prevention. The time is now for making changes, reviewing the actions and conducts necessary for prevention, and most importantly not letting our guard down, even as vaccines become available for all people in the world. Remembering that even after getting vaccinated, it is necessary to continue with safety measures, for example, the use of facial masks and social distance and hygiene, that is, washing your hands frequently and/or sanitizing with 70% alcohol. We can't let our guard down for COVID-19.

## Introduction

According to the World Health Organization (WHO),<sup>1</sup> viral diseases continue to emerge and represent a serious issue to public and global healthcare systems with the high potential to cause epidemics (regional) and consequently pandemics (world).<sup>1,2</sup> Viral infections have a high potential for dissemination in sport, physical activity, and exercise facilities (gymnasiums, arenas, and gyms) and events (athlete meetings, tournaments, championships, sportive leagues, and competitions).

Around the world, millions of people are at high risk and more vulnerable of acquiring viral infections through factors such as immunosuppression and the existence of chronic diseases (in this sense older people are more vulnerable), the presence of co-morbidities (overweight and high blood pressure), and the environment itself. These factors are the key in the spread of diseases between populations.<sup>3</sup>

Particularly, viral diseases (because, Coronavirus disease 2019 - COVID-19) in athletes and sport competitions have attracted interest and became an important topic.<sup>4-7</sup> The surrounding environment in which these people compete and train presents a setting with a high degree of closeness and socialization for spectators and practitioners, which provide numerous opportunities for viral infection, transmission, and dissemination.<sup>4-7</sup> Today, not only are competitive athletes who travel for competitions affected by COVID-19 - many teams and individual sports athletes who have been infected by the disease have been widely reported, but also spectators and recreational practitioners of physical activity and sport, and participants of sporting events in their

community.<sup>4,5</sup>

The purpose of this commentary article is to present information, about the pandemic caused by COVID-19, to clarify health issues for professionals and people connected to sport and physical activity participations, and to develop and present information to assist in educations and the health promotion and prevention. At a time where chaos exists with the constant and daily increase of infected and killed by the disease; currently (1/28/2021), there are 99,864,391 confirmed cases in the world and 2,149,700 deaths from the disease; and human, social, and economic catastrophe awaits, unfortunately, much speculation still exists regarding the causes and medical management, despite growing scientific research about COVID-19. The facts associated with the disease transmission and spread are changing daily. Therefore, the time is now to review plans of action and make changes to better impact prevention before, during, and after the COVID-19 pandemic, improve health literacy and education for all individuals involved in sport and physical activity and the general population, to reduce disease risk infection and death and better face these dire health conditions.

*The disease features vs. world of sport*

COVID-19 is characterized by respiratory illness resulting in severe acute respiratory syndrome.<sup>6</sup> Although no definitive understanding of the origin of this disease exists, one hypothesis is that the coronavirus was transmitted to humans through direct contact with animals such as camels, cattle, and cats.<sup>2</sup> Another hypothesis is this disease originated

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from bats and then moved into other mammalian hosts. Scientists concluded that COVID-19 is transmitted from human-to-human, and symptomatic people are the most frequent source for the spreading of this disease.<sup>1,2</sup>

Unfortunately, the COVID-19 became a global pandemic with bodily effects similar to the lethal 1918 “Spanish flu pandemic” caused by influenza virus (H1N1). To prevent the virus dissemination and transmission in large scale, infection control measures through effective public health (local and global) management and control, and education and health promotion initiatives are necessary. At all times, national and international actions and needs are urgent and require social, economic and scientific support to contain the disease. Fortunately, we are close to a mass population vaccination process around the world. However, there are still many challenges and protection and safety measures cannot be ignored.<sup>1,2,6</sup> One factor that has hindered the control of the contagion and dissemination of COVID-19 is that people are not fully adhering to the guidelines of the WHO and Centers for Disease Control and Prevention (CDC). Despite everything that happened with the first wave of the disease, depending on the region of the world, unfortunately, the global society is not adequately practising quarantine, isolation, and social distancing regulations. In addition, rules for disease control differ around the world as a result of social and economic differences and state and federal political management adding to the confusion and lack of proper adherence to the CDC and WHO guidelines.

The COVID-19 pandemic<sup>1,2</sup> has left the international community (e.g., sports associations, institutions, federations and sports leagues) extremely concerned about the potential for transmitting the virus in sporting events, arenas, and training facilities. The American College of Sports Medicine (ACSM)<sup>8</sup> has released a position statement on its website regarding the safety and spread of COVID-19:

*“Personal trainers, exercise physiologists and fitness professionals may especially [be] concerned about the novel 2019 coronavirus. ... Due to the frequency and physical proximity with which you have interactions with individuals and potentially infected surfaces, the ACSM would like to offer helpful resources on how you and your clients can stay safe”.*<sup>8</sup>

Additionally, – The *British Journal of Sports Medicine*<sup>9</sup> posted a letter to the scientific community and the general public (Exercise and Infectious Diseases - COVID-19) in which included important guidance:

*“If possible, exercise outdoors! If it's available to you go for a run in a rural area. And, if you do live in a city with no way to avoid contact with others, then try a workout at home. YouTube and exercise APPS on your mobile phone will come in handy here. It's important to maintain a healthy lifestyle with regular exercise- it will benefit your immune system”.*<sup>9</sup>

COVID-19 pandemic has caused, since its discovery and spread around the world, fear and a feeling of uncertainty among all (health professionals, public recreational managers, sports staffs, civil society, businessmen, media, athletes, practitioners, and others). A “pandemic in our time” just happened at other periods of human history. The problem is that the transmission potential is increasing because of world globalization, the fall of barriers and borders that separate people around the world, and the popularity of global travel or even the great popularity among fans of sports such as soccer.<sup>1,4,5</sup>

In the year 2020, the situation has become serious enough that major leagues such as the National Basketball Association have suspended their season. This suspension happened after Utah Jazz all-star center Rudy Gobert tested positive for COVID-19.<sup>10</sup> Suspension of sporting events have been adopted by other leagues such as Union of European Football Associations, England's Premier League, Rugby Union's, Indian Wells tennis tournament, and a number of marathons (Barcelona, London, Boston, New York, and Chongqing International Marathon in China).<sup>11,12</sup> The Tokyo 2020 Olympic Games were postponed to 2021, and the Olympic flame handover in Athens is to be completed behind closed doors for fear of spreading COVID-19.<sup>11</sup> Gradually, sporting events are

being resumed following safety protocols, as some countries are emerging from the first wave of COVID-19 contamination. However, a second wave is underway and new protection and security measures, social and economic interventions are being carried out by health and public managers. The situation of a pandemic is dynamic and the attitudes of opening and closing physical activity and sports environments change every day depending on the burden of private and public health systems.

Moreover, also in 2020, sporting entities like the Ultimate Fighting Championship (UFC) have already held closed-door events and even changed event locations.<sup>12</sup> A primary concern is statements and initial pronouncement such as that of the UFC president, “fights ‘will go on’ despite coronavirus”.<sup>12-14</sup> However, “it is time”, as “Bruce Buffer says”, not to let your guard down and to not shirk responsibility.<sup>14</sup> The pressure and of public and sporting directors and managers increases even more with the second ongoing wave of the disease.<sup>1,2</sup>

In this context, still today, a divergent of opinion exists whether or not to continue with large sporting events, especially those involving large numbers of spectators in closed environments having direct contact. But in uncertain scenarios, common sense and prudence are needed to determine whether the sports events should stop or continue since the current COVID-19 has a high potential for infection and spread.<sup>1,2</sup>

However, the actions of sporting entities and institutions, of greater or lesser expression around the world, have been changing all the time in the course of the pandemic and according to the position of state and federal governments with the pressure of the productive sector and economic and businessmen. One thing is for sure, we have to pay attention and follow the recommendations of public health and reference entities like CDC and WHO.<sup>1,6</sup>

*What to do? More than ever, we need to act collectively and with prudence and common sense*

COVID-19 transmission and spread have a high potential in locations where many people accumulate and have close physical contact and it is difficult to maintain social distance (e.g., airports, shopping centers, universities, high schools, etc.) and in either closed or open environments involving professional, university, amateur, or recreational athletes participating in various sporting venues. Given the number of COVID-19 stricken individuals around the world, the recommendations state that the number of indoor or outdoor events, unfortunately, must be drastically restricted. Social isolation, staying at home (mainly for the elderly and with morbidities), and leaving only when necessary is most prudent,<sup>1</sup> still in 2021, in the first semester, to observe the outcome of the pandemic scenario, even with the possible arrival of the vaccine and mass vaccination.

In a first moment, COVID-19 mostly causing the common cold and flu are mild and self-limiting, typically involving symptoms such as fever, muscle pain, nasal congestion, headache, malaise, dry cough, expectoration, and dyspnea. However, in the most serious cases, severe lower respiratory tract infection is associated with organizing pneumonia and fibrocellular intra-alveolar organization with a bronchiolitis obliterans, developing into a pneumonia-like pattern, increasing morbidity and mortality,<sup>1,2,15</sup> currently in both young and elderly people.

Considering the health effects caused by COVID-19, one can assume that signs and symptoms could impair physical and sports performance and have medium- and long-term effects, cause immunosuppression, and progress to more severe health conditions if no diagnosis is made and adequate treatment is not completed. In the most serious cases, COVID-19 can cause severe acute respiratory syndrome (and pneumonia and significant pulmonary impairment) requiring mechanical ventilation and care in an intensive care unit and oxygen therapy.<sup>2</sup> Fatal and serious cases were primarily found in the elderly (aged  $\geq 80$  years - 15%). Approximately 50% of the critical cases are people affected with comorbidities such as cardiovascular disease, diabetes, chronic respiratory disease, and oncological diseases.<sup>2</sup>

Thus, an important note is the positioning of respected entities such as WHO and CDC who stress that “*Older adults and people who have certain underlying conditions like heart or lung disease or diabetes are at increased risk of severe illness from COVID-19.*”<sup>1,6</sup>

Although still uncertain, people who physical exercise regularly may be less vulnerable to viral diseases since the aforementioned non-communicable diseases are less prevalent in physical activity practitioners or even in less fragile and vulnerable elderly people with more autonomy and independence.<sup>16</sup> However, this same benefit of physical exercise needs to be better understood in a study through robust controlled and randomized clinical studies in patients infected with COVID-19.

As stated by Drs. Pedersen and Saltin, “Exercise is Medicine” for a range of chronic diseases including cardiovascular, metabolic syndrome, oncological, and respiratory diseases.<sup>16</sup> In addition, much scientific evidence is available supporting the practice of regular physical exercise, mainly of moderate-intensity, for improving immunity and positively impact immunosuppression conditions.<sup>16,17</sup>

Probably, due to the time required to carry out quality studies, it is not possible to categorically state the possible positive impact of physical exercise on COVID-19. However, in other health disorders of the respiratory tract, such as asthma and chronic obstructive pulmonary disease, physical exercise has a positive impact on immune function as does other positive health habits such as getting adequate sleep, not smoking, moderate alcohol consumption, a good diet, and proper hydration<sup>15–18</sup> and consequently higher levels of functional capacity. In the other hand, exhaustive exercise such as marathon running and triathlon participation is known to cause immunosuppression and potentially increase the risk for upper respiratory tract infections.<sup>16–18</sup> The literature has already established that virus infections could evolve into more serious conditions, such as myocarditis. Thus, risks associated with strenuous physical activity during the acute phase of viral infection do exist. Sudden death and serious complications have been reported after performing vigorous exercise during the acute phase of a viral illness, even in fit young adults. Skeletal muscle abnormalities are observed in people with respiratory tract infections, resulting in progressive physical disability and loss of performance. In these cases, people must avoid vigorous training for the first month after infection.<sup>16–18</sup> This is also possible when the COVID-19 infection.

Only now are vaccines or specific antiviral drugs becoming available for treating of the COVID-19.<sup>2</sup> However, the CDC and WHO<sup>1,6</sup> has issued the following general recommendations: “*Avoid close contact with subjects suffering from acute respiratory infections; Wash hands frequently, especially after contact with infected people or their environment; Avoid unprotected contact with farm or wild animals; People with symptoms of acute airway infection should keep their distance, cover coughs or sneezes with disposable tissues or clothes and wash their hands; Avoid close contact with subjects suffering from acute respiratory infections; People with symptoms of acute airway infection should keep their distance, cover coughs or sneezes with disposable tissues or clothes and wash their hands and must wear masks; Individuals that are immunocompromised should avoid public gatherings.*”<sup>1</sup> In other words, rigid, hard, and strict personal hygiene measures are necessary for the prevention and control of COVID-19 infection and propagation.<sup>1,2</sup> At present, therapeutic strategies dealing with COVID-19 infection are only supportive, and prevention aimed at reducing transmission in the physical activity and sportive scenarios and community and is our best weapon. For example, sportive authorities have canceled indoor and outdoor sporting events for safety and public health reasons in 2020.<sup>11,12</sup> However, gradually the world is resuming economic, social, and sportive activities after the first wave of the COVID-19 pandemic. Currently, the countries scenarios around the world, for dealing with the pandemic, are different and continuously changes over time with the arrival of each next wave.

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infection are only supportive, and prevention aimed at reducing transmission in the physical activity and sportive scenarios and community and is our best weapon. For example, sportive authorities have canceled indoor and outdoor sporting events for safety and public health reasons in 2020.<sup>11,12</sup> This is expected to continue in 2021 in some locations around the world. Even without fans and fields, courts, and arenas crowded with audiences, there are constant reports of athletes, journalists, sports officials, health and sports professionals, and spectators becoming infected by the disease. This shows that there are many random or non-random factors involved in this context of virus programming and infection.

However, gradually the world is resuming economic, social, and sportive activities after the first wave of the COVID-19 pandemic. Currently, the countries scenarios around the world, for dealing with the pandemic, are different and continuously changes over time with the arrival of each next wave.

Most important are the recommendations from the WHO and CDC<sup>1,6</sup> because these safety, sanitary, and hygienic measures make a difference in the outcome of pandemic scenarios, with or without mass vaccination, as we still have to know the dynamics and facets of COVID-19, which has proved to be a treacherous and in many cases lethal condition. It is necessary to protect and sanitize all the time.

Table 1 below shows a summary of the compilation of information from WHO and CDC, entities active in the field of public health and health promotion and education.

#### Final words

With the process of social, economic, and technological globalization in the last half-century diseases have also gone global.<sup>19</sup> Thus, local and global healthcare systems as a whole need strengthening. Access to better health and treatment services needs to become globalized and accessible to everyone. Assuming that local and global healthcare systems are an important part of the fight against COVID-19, the vulnerability of a single healthcare system puts all other healthcare systems at risk for failure. Education and health promotion and the dissemination of prevention strategies are essential around the world.

Promotion of prevention strategies and dissemination of accurate information is absolutely necessary to prevent viral infection among athletes, practitioners, spectators, journalists, health professionals, and the public in general. Reinforcement of the general recommendations for frequently washing and sanitizing hands and avoiding contact with face and mouth is unquestionably necessary.<sup>1,2</sup> These measures still need to be maintained with or without the vaccine.

Although some countries have relaxed their efforts towards the most aggressive rules of quarantine and social isolation, after the first wave of COVID-19. No margin for safety exists and now is time not to let our guard down. Rather we must follow the public health guidelines before, during, and after pandemics. In our view, these preventative measures apply to all people involved in the practice of sport and physical activity, whether they are practitioners, professionals, spectators, media, entrepreneurs, and association, federation, and league officials. It is probably best to take all this hard learning and measures from now on and for a long time not to say forever.

Despite the fact that it is not completely safe to attend physical and sports practice environments - even with the implementation of safety and hygiene measures, as it is extremely difficult to control all variables, sometimes random, that can lead to infection by COVID-19, our research group showed in a relevant sample that those people who reported higher levels of physical activity also reported fewer symptoms of the disease, in the course of the pandemic,<sup>20</sup> as well as better mental health which is impacted by the person's country of origin. We could see this in Brazil vs. Switzerland comparison.<sup>21</sup> In addition, people with underlying diseases and with less functional capacity, possibly, could be more vulnerable to the disease as we pointed out in two other studies<sup>22,23</sup> and the practice of systematic physical exercise has proved to be a powerful

**Table 1**

Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) recommendations for the prevention, of contagion and dissemination of COVID-19<sup>1,6</sup>, are presented.

KNOW HOW IT SPREADS	TAKE STEPS TO PROTECT YOURSELF	AVOID CLOSE CONTACT	TAKE STEPS TO PROTECT OTHERS	IF YOU ARE SICK	IF YOU ARE NOT SICK	CLEAN AND DISINFECT
Avoid being exposed to this virus	Clean hands often	Avoid close contact with people who are sick	Stay home if you are sick, except to get medical care	Wear a facemask when you are around other people (e.g., sharing a room or vehicle) and before you enter a healthcare provider's office	You do not need to wear a facemask unless you are caring for someone who is sick (and they are not able to wear a facemask)	Clean and disinfect frequently touched surfaces daily
Virus is thought to spread mainly from person-to-person	Wash hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing	Put distance between yourself and other people if covid-19 is spreading in your community	Learn what to do if you are sick	If you are not able to wear a facemask (for example, because it causes trouble breathing), then you should do your best to cover your coughs and sneezes, and people who are caring for you should wear a facemask if they enter your room	Facemasks may be in short supply and they should be saved for caregivers	This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks
Between people who are in close contact with one another (within about 2 m)	Use a hand sanitizer that contains at least 60% alcohol		Cover mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow	Learn what to do if you are sick		If surfaces are dirty, clean them: use detergent or soap and water prior to disinfection
Through respiratory droplets produced when an infected person coughs or sneezes	Cover all surfaces of your hands and rub them together until they feel dry  Avoid touching your eyes, nose, and mouth with unwashed hands		Wash hands (after cough or sneeze) with soap and water or clean hands with a hand sanitizer for at least 20 seconds  Throw used tissues in the trash  Wear a facemask if you are sick			

tool to face the disease.<sup>22,23</sup>

World society as a whole still needs to take more seriously all of this situation and to start moving towards a post-COVID-19 world. This undertaking will include the sport and physical activity community. We will emerge from this pandemic being different people, having developed new health behaviors. The fact is that “humanity is still on the ropes”, as in a boxing match being hit and trying to stay upright but suffering extreme and perhaps irreparable psychological and physical damage. Finally, we must not let down our guard and must change in ways to benefit society as a whole.

**Authors’ contributions**

RLV conceptualized the idea and wrote. MSA, PTN, BK, and CABL wrote. All authors read and approved the final manuscript.

**Submission statement**

The manuscript has not been published and is not under consideration for publication elsewhere.

**Conflicts of interest**

The authors have no conflicts of interest to report.

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