

## The Effect of COVID-19 Pandemic on Performance of University's Athletic Team: A Review

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### **Abstract:**

**Background:** The purpose of this study is to identify pandemic-affected physical activity levels, as well as the positive and negative effects on the University Athletic Team. According to the all information both male and female athletes' physical fitness levels, have shown decreased performance after the corona period.

**Materials and Methods:** The data in this study are fully original and were gathered from previously published publications in recognized journals on the topic of the COVID-19 effect of athlete performances. Thirty-five articles were assessed, and eight were included in this systematic review. Fifteen articles were recognized in the field effective levels of athlete physical activity, towel articles were recognized in the field of Physical development of corona period (about positive and negative effect), Eight were included academic effect for sports performance also five books were included in this systematic review to find out the factors to identify specific criteria of health level impact to the athlete performance.

**Results:** As supposed, during the corona period, athletes were reduced their performance level due to the lack of proper sports training and facilities. Important factors are outlined with appropriate evidence.

**Conclusion:** Particular attention should be given to the before the COVID period performance, during a COVID period, and after the COVID athlete's physical fitness level. Especially overall, the performance of athletes has decreased due to a lack of training. Few players' performances have been increased due to the incremental training hours.

**Key Word:** COVID-19 out break, physical activity, positive and negative effects.

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### **I. Introduction**

The global pandemic caused by the new coronavirus illness 2019 (COVID-19) has had a profound impact on the sport. While every aspect of the sports industry has been hit, the sports sector has perhaps been the most severely affected in terms of scope [1]. Over the last year, the social backdrop established by the COVID-19 epidemic has had a tremendous impact on various aspects of human development. The epidemic of this virus, which was originally discovered in the Chinese city of Wuhan at the end of December 2019, has spread throughout the world [2] Confinement as an effective technique to minimize contagion has been one of the international public health strategies to contain the spread of COVID-19 [3].

People were also not sufficiently engaged in physical activity and sports as a result of the containment measures and the little success made throughout the pandemic. Sport had long been considered as a contributor to societal development because to its impact on human development on a physical, social, inclusive, and economic level, and it had become a significant part of people's life prior to the epidemic [4]. This is also expressed in the Sustainable Development Goals and their contributions, particularly in the goals of gender equality, good health and well-being. [5] Also a result, the current crisis could have a significant psychological impact [6] [7], because confinement and insecurity are associated with increased emotion and unpleasant feelings [8]. Academic activities, including university sports, have also been banned following a health authority advice in the case of universities [9] It has prompted university students to seek out virtual platforms as a means of maintaining academic as well as physical and sporting activity. There factor load of the effect of Covid-19 and Academics on University Sports (Fig 1).

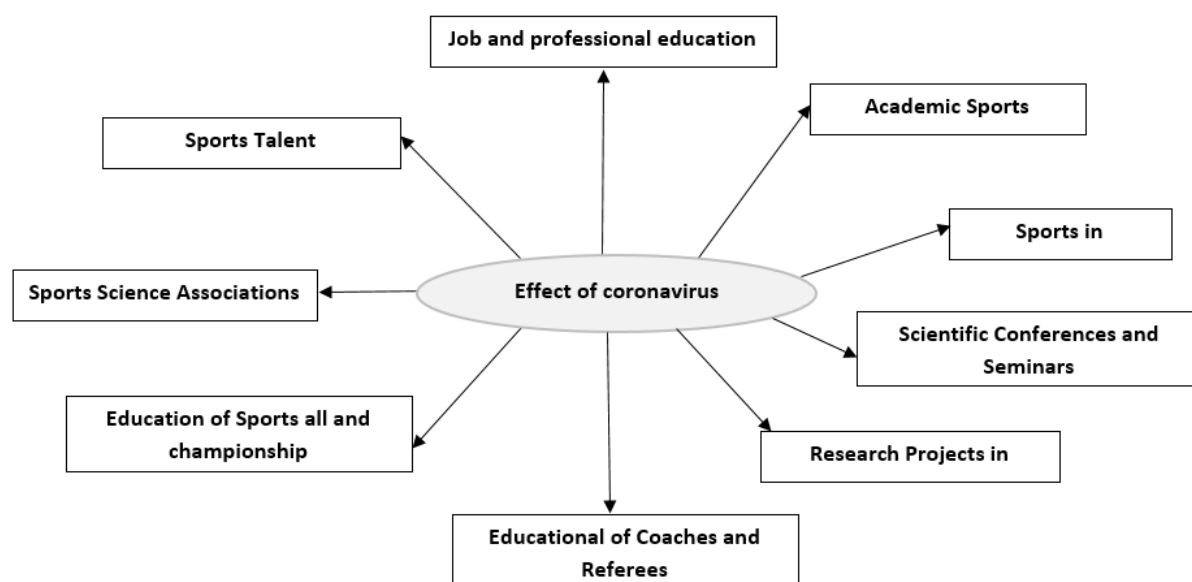


Figure No 1: Model of University academic and Sports under the influence of COVID-19 standard mode [10]

### 1.1. Aspects of Psychosocial Health in University Athletes

In view of the aforementioned and the university's context and long-term viability. Sport is described as a sort of physical activity that promotes people's overall development by utilizing human motor skills. University sport, on the other hand, is more challenging due to the difficulties in establishing its orientations [11]. Provide a sports taxonomy that allows us to identify university sports as a way to supplement students' higher education preparation. Because its characteristics and beneficiaries will be quite specialized, this difference is required [12]. Its objectives include enhancing one's health, physical condition, and quality of life, as well as the development of physical qualities and motor abilities, and functioning as a leisure activity and a means of building social bonds. This complies with UN requirements for higher education institutions and their long-term viability, as well as the Sustainable Development Goal of "Good health and well-being." In this approach, a range of factors, including physiological, social, and psychological factors, influence sports performance. Intensive training, a lack of energy, financial troubles, absences from school, competition, and other everyday commitments all beset university athletes on a regular basis. Negative connections between athletes and their family members are linked to increased levels of depression and mental health issues. Some of these elements, such as the athlete coach relationship, can reduce burnout, whether due to biological or emotional factors [13]. Students entering university, on the other hand, engage in insufficient physical exercise, and this prevalence rises drastically over the transition from youth to adulthood [14]. This signifies a potential future risk to this population's well-being and health, as well as a significant change in physical-sporting activity habits. [15].

Allowing University students to spend time with their families as soon as the universities close due to this epidemic period. It was a great relief to them as they had to stay at home and their health level or when they got sick they were able to get all the food and medicine they needed more than they had from the hostel. It has been a great help to them in maintaining their health, getting their education online and practicing properly, and during this corona period has enabled university students to pursue both education and sports. But the important thing about higher education is that they want to learn things on their own so they can have a little trouble collecting reference due to not being able to put things like discussions and other class revisions with friends when they are home alone, but it's zoom technology and google team. University students who have been accustomed to studying on their own for a long time have been exposed to individually adjusting their education and the rest of their pathways, there by Cognitive-behavioral self-regulation techniques; emotion management, sportsmanship, and leadership skills; imagery and performance planning; concentration and attention control strategies; development of self-confidence, self-esteem, and competence in sports; cognitive-behavioral self-regulation techniques; emotion management, sportsmanship, and leadership skills.

### 1.2. Sustainability, Affections, and Emotions

Understanding well-being, which has been defined as "a condition of total physical, social well-being, not only the absence of disease or infirmity," as one of the core goals of sustainable development. [16]. It's also important to consider the link between physical well-being and positive and negative emotions, because a person who feels well has a more positive vision of reality, which has an impact on both themselves and others,

and thus on their own health. As a result, good impressions of reality and effective emotional control contribute to the human being's holistic development and vital experience. Emotional views of reality relate to "dimensional conceptions," which take into account all affective experiences, good and negative (joy, excitement, falling in love, sadness, anger, fear and anxiety, etc.) [17]. Define Positive Affect as the opposite of vital dissatisfactions, whilst Negative Affect, on the other hand, cautions about issues such as loneliness, futility, and despair, among other things.

With the Corona period the students were so impressed with this that they had to move away from their friends, lovers, teachers and go home individually so that they had no one to share their feelings with even their closest friends so they could share it with the family at home. Even university students with many difficulties had to use the online route to seek the help of friends, for example not being able to go to the bank even for a cash transaction and sometimes having to photocopy lecture notes to obtain them via email or e-money banking. Many university students had to face many difficulties in carrying out their day-to-day training activities as the corona period led to the decision to close public places in the country under tight security, including the purchase of common sports equipment as well as the closure of the ground. Therefore, they become very anxious due to the decrease in their performance levels.

### **1.3. Affective Levels and Physical Activity**

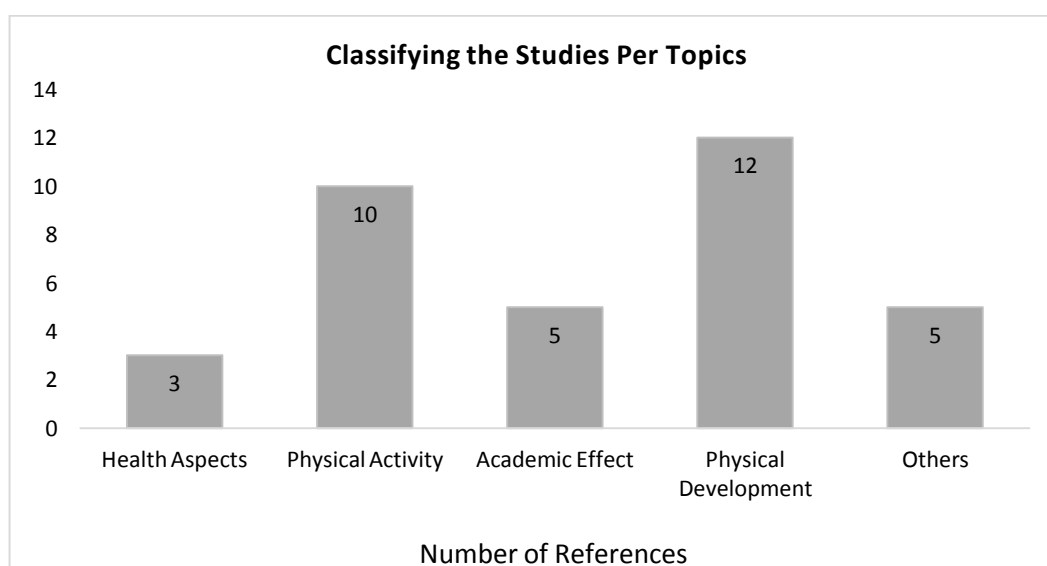
The aim, motivation, and past attitude of the subjects are some of the ideas that seek to explain the performance of physical exercise from a psychological standpoint [18]. Furthermore, findings from studies that linked physical activity to other health behaviors, both with American and European samples, show that people who engage in some type of physical activity or sports practice have healthier behaviors than physically inactive people, in addition to physical and psychological benefits [19].

### **1.4. Confinement and Affections**

The COVID-19-caused pandemic necessitated quarantine and uncertainty, resulting in elevated affect and unpleasant feelings [8]. University other studies have proven the impact of confinement on athletes, notably owing to high levels of stress, worry, and depression symptoms as a result of the health emergency's uncertainty, which have short- and long-term repercussions on physical condition, performance, and sleep quality.

## **II. Material And Methods**

The approach for this systematic review was developed based on previously reported recommendations and results. The data in this article are all original and were gathered from articles published in research gate, journal of coronavirus disease 2019, international journal strategies and solutions for sports due to COVID-19 Pandemic, journal of Positive and negative well-being during the covid -19 and books. Google Scholar, Science Directed and Research Gates were used to search for papers on the topics of "The effect of a covid-19 pandemic" and "Positive and negative effect on the sports performances due to COVID 19" The diagram below divides all the information in this graph by article topics into five paths categorized for convenience (Fig 2).



**Figure No 2:** Categorized overall article topics. (Number of Articles 35 Total and Classifying the Using Article per Topics)

The gathered research articles were evaluated, and fake journals and publications that did not fulfill the standards were eliminated. Following a thorough evaluation of the abstracts, introductions, findings, and comments, the acceptable articles were chosen. After evaluating the papers, they were classified.

**2.1. Survey Procedure:**

Based on the experiences of secondary University Sports Team students. There were 25 closed-ended questions in the structured questionnaire. The author included extra questions tailored for secondary school student-athletes experiencing the COVID-19 outbreak, which addressed numerous topics, in addition to demographic data relating to grade, gender, team/individual sport, training hours previous to pandemic, and competition years/level. (1) immediate effects of the COVID-19 pandemic on the current season (cancellation or postponement of competitions/meets, current training status, participation in other physical activities); (2) psychological effects (isolation, fear, frustration, lack of initiative); and (3) sport-related concerns (loss of fitness and physical preparedness, competitive disadvantage, and concern for the following season). The participants were also questioned how they were dealing with the pandemic and whether they expected their lifestyle to change as a result of it.

**III. Results**

**3.1. Data Analysis**

All of the data was compared the t-test and ANOVA were employed to determine significance in the statistical study. A statistically significant P-value was less than level of significance (0.05).

**Table No 1:** Undergraduate male and female student athletes test battery performance from the Sabaragamuwa University Athletic Team in Sri Lanka. (Average values are included)

Pre Test (June 2021)			Post Test (October 2021)		
Burpees count	Push-ups count	Sit-ups count	Burpees count	Push-ups count	Sit-ups count
<b>Male Athletes (Average Performance)</b>					
13	35	30	11	32	28
11	19	24	9	17	24
14	35	32	13	32	30
9	12	25	8	10	28
14	24	28	15	24	25
13	27	25	12	18	22
P-Value			0.088	0.126	0.136
<b>Female Athletes (Average Performance)</b>					
11	13	29	9	14	28
11	14	24	10	15	25
12	15	25	10	13	25
10	15	20	11	15	20
12	24	25	13	24	25
8	10	18	8	12	18
6	10	20	8	12	20
10	15	22	9	16	24
10	18	20	12	17	22
9	12	20	8	10	17
8	8	18	8	9	16
10	15	20	9	16	19
8	15	20	8	17	23
11	10	18	9	8	20
9	18	20	10	19	20
P-Value			0.29	0.193	0.319

#### IV. Discussion

Home confinement has become a required measure in many areas of the world as a result of the introduction of COVID-19, and while its primary goal is to reduce contagion, it also carries other health hazards such as stress, anxiety, sleep difficulties, and mood disorders [10]. Confinement has benefits as a preventive strategy, but it also has negative or undesirable impacts in the general population, necessitating immediate action to alleviate the negative effects on people's mental health [13], also taking into account the advantages of physical activity in terms of improved well-being and resilience [20]. The policies have also had negative consequences for university athletes, as they have hampered athletes' ability to compete and participate in tournaments, impacting levels of physical activity, anxiety, demotivation, and, in some cases, burnout syndrome [13]. who have previously evaluated their physical fitness levels (satisfactory or higher) using the test were chosen to have their performance levels monitored under the new methodology [21]. That test battery was used to put the University athletic team to the test.

##### 4.1. Academic Effect

With online learning becoming more popular, universities must guarantee that students and employees are safe while on campus (Fig 3). While persons over the age of 60 are at a higher risk for Covid-19, traditional-aged university students are at a lower risk. However, in recent weeks, we have witnessed firsthand how swiftly the new coronavirus may spread in densely populated regions, including university campuses. Simple actions should be taken by administrators to prevent the disease from spreading on their campuses. This should involve teaching students how to wash their hands properly, cover their sneezes and coughs with their elbows, and isolate themselves if they have the flu or a cold-like symptom. Educators should be aware of students who have traveled extensively over spring break, and urge those who have been overseas in areas that have been severely affected to be cautious while returning to universities.

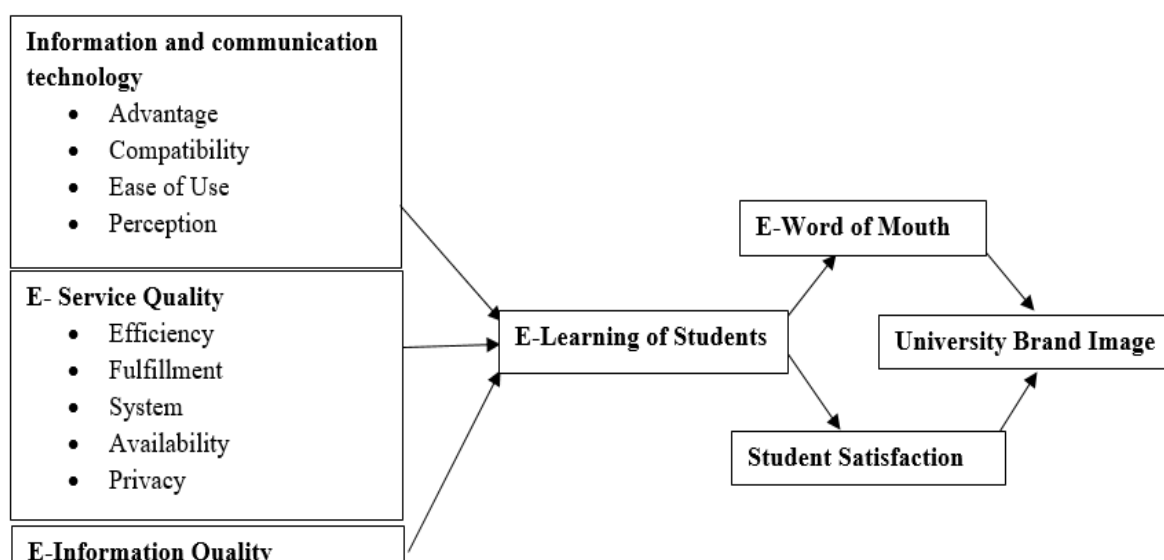


Figure No 3: shows the theoretical framework. [13]

While lectures cancellations, enrollment drops at the start of a new semester, and class closures may be transitory, it is difficult to predict if the novel coronavirus will cause long-term damage to higher education (Table 2).

Table No 2: The SARS-CoV-2 epidemic has caused differences in educational delivery.

Teaching strategies	No pandemic year	Pandemic year	Outcomes from adaptations
Theoretical lessons	During class, Microsoft PowerPoint presentations are used.	During class, Google Meet gave a presentation.	In online education, the usage of PowerPoint was critical.
		Theoretical sessions were filmed, and the video was then published to the Virtual Teaching Platform, which was made available to students following the class.	In the latter part of the course, available sessions and connections to other online resources reduced live attendance.
	Face-to-face encounters do not necessitate the use of additional technologies.	Chat, microphone, and/or camera interactions with students	For a variety of reasons, several students found using the camera to be difficult (i.e., intimacy, false follow-up of classes, bad Internet connection)

			etc.).
	Using the whiteboard in the classroom	A digital as well as an external board was purchased.	During class, the usage of the digital board made many explanations and doubts easier to resolve.
Practical lessons	Physical and hearing impairments were all rehearsed and used by students.	Problem-solving exercises, dialogues, and indirect touch via movies and other simulation tools were all employed as instructional tactics.	Simulators serve a vital role in creating awareness of the collective and comprehension of the activity restriction for particular specific impairments, such as sensory disorders.
Document analysis	Students are given additional texts in preparation for discussions.	The necessary reading materials have been uploaded to the Virtual Teaching Platform.	Students have more time to study and participate in academic activities during the lockdown. Better discussion responses and a larger percentage of students who completed the additional readings
Interaction with persons who are disabled	Normally, two of the three impairment categories are included.	It was impossible to make direct touch with persons who were disabled.	With the addition of new movies and online materials, indirect interaction was boosted.
Case study	After teaching the material (15 percent of the course).	on Paralympic categorization, there were no differences in the study case assigned	
Self-made materials for the group assignment task	The idea to put into practice with persons with impairments includes home-made resources for the teamwork-assigned assignment (25 percent of the course).	Students were urged to use resources that they might already have at home.	For two reasons, the quality and complexity of materials were lower in the pre-pandemic group: 1.Difficulties purchasing or obtaining materials for the team proposal. 2.There was no possibility for students to meet and collaborate on the production of these items.
Tutoring	Students frequently seek a few hours of tutoring during the course. .	Individual tuition is now more flexible thanks to Google Meet.	Due to teachers' flexibility and the lack of a physical presence requirement at the office, the number of tutoring requests surged dramatically.
Complementary activities	Students can participate in extracurricular (and volunteer) activities (e.g., festivals, visit to centers, etc.). Students receive bonus points for participating in those activities.	All of these scheduled events were put on hold due to the quarantine.	All planned complementing activities were canceled due to the status of alert, and students were unable to participate.
Test	The final test (60 percent of the program) is 3 hours long. During the exam or online proctoring examinations, students can utilize any form of supporting material.	Instead of a handwriting exam, the exam was administered over a Moodle platform. There have been no modifications to the "open book" policy.	The test was set up sequentially due to the "open book" principle (i.e., students must answer questions one-by-one with no options to go back to previous questions already answered). Cheating on tests has becoming more common.  More instructors are needed for the test, which will be administered in many virtual rooms.

#### **4.2. Mental health**

Fear (not just of the virus, but also of financial and other instabilities in their families), anxiety, boredom, frustration, and heightened stress levels are some of the mental health issues that children encounter as a result of the illness spread. COVID-19 has been linked to mental symptoms in studies [22] As a result of the constraints, there will be an increase in loneliness, despair, dangerous alcohol and drug use, as well as self-harm or suicide conduct [23]Sports activity has been shown to protect against mental health symptoms and disorders [24].Physical activity has been demonstrated to lessen symptoms of sadness and anxiety in university students [25]. Periods of inactivity, isolation from athletic teams, distance from the athletic community, less qualified interactions with athletic coaches, and a lack of social support have all been shown to cause emotional distress and psychological disorders in athletes, as have periods of inactivity, isolation from athletic teams, distance from the athletic community, and lack of social support [26]. University athletes may struggle to sustain motivation as a result of the disturbance in both personal and competition routines. It's critical that athletes have access to counsel and information to help them improve or establish appropriate coping skills [27].

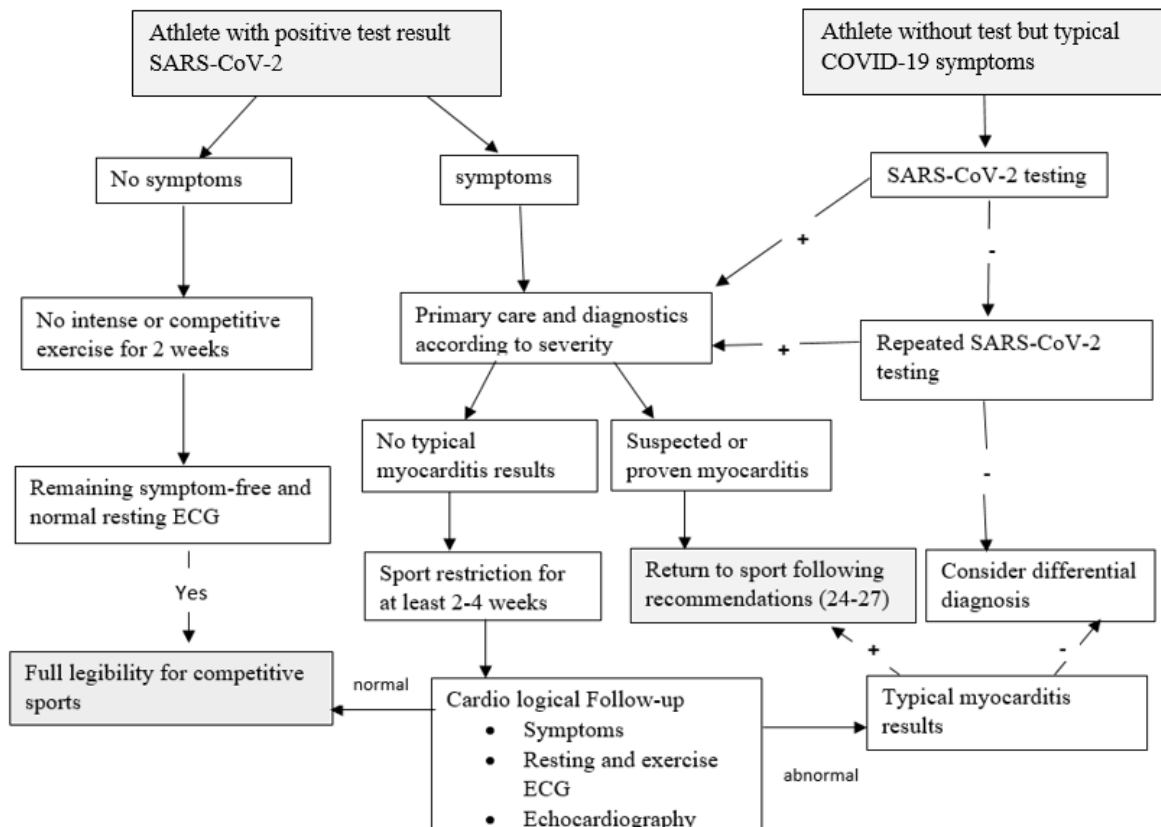
This, according to the author, entails creating a daily plan that prioritizes nutrition, fitness, flexibility, learning, and social interactions. They also suggest encouraging young athletes to share their schedules with

friends and coaches in order to improve accountability and motivation. When it comes to the effects of isolation, children's sentiments when their sports activities are canceled may include disappointment, missing their teammates, and fear of falling behind/losing abilities without practice. Indeed, the pandemic may have generated a sense of isolation among millions of students due to the disruption of study, the inability to attend institutions, and the cancellation of sports. These effects are likely to be amplified in elite young athletes.

#### 4.3. Physical Development

##### Positive effect and Negative Effect Variable

The mean scores of the various indicators of the scale, as well as the mean of the sum of the scores for each dimension: Positive Affect and Negative Affect are shown in descriptive (Fig 4) format.



**Figure No 4:** For an athlete with a positive SARS-CoV-2 test result or characteristic COVID-19 symptoms, a proposed methodology for returning to sport has been developed. ECG stands for electrocardiogram, while COVID-19 stands for coronavirus disease. (SARS-CoV-2) is known to induce severe respiratory symptoms up to acute respiratory distress syndrome (ARDS), but it also affects the cardiovascular system.)

##### 4.3.1. Physical health

Physical health is the state of being free from illness or injury. It can cover a wide range of areas including healthy diet, healthy weight, dental health, personal hygiene and sleep. Physical health is vital for overall well-being. As scientists acquire more data, the picture of COVID-19 infections in children is changing. Many children infected with COVID-19 show no symptoms, but those who do have fever, cough, and sore throat are the most prevalent symptoms. Children with less symptoms and milder sickness are less likely to be examined, implying that their vulnerability to COVID-19 remains unknown. Youngsters, unlike adults, have no clear risk factors, albeit those with chronic lung illness, cardiovascular disease, or neuromuscular disease are more likely to be admitted to hospitals than previously healthy children. Children with severe immunosuppression or who are receiving cancer therapy, on the other hand, are far less impacted than adults. In hospitalized children in the EU/UK with mild laboratory confirmed COVID-19, 3% had underlying chronic lung disease (excluding asthma), 4% had neuromuscular disorder, 2% had cardiovascular disease (excluding hypertension), 1% each had cancer, asthma, hematological disorders, and HIV or other immune deficiency, and 1% had cancer, asthma, hematological disorders, and HIV or other immune deficiency [28].

It is unknown if the disease has any medium or long-term effects on the health of children who have been infected and recovered that would impact their ability to engage in physical activity or play sports.

Adolescents with acute severe multi-system inflammatory disease. Different parts of the body become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs. Complications can cause damage to the heart. A consistent observation is that the first cases appear one month after the COVID-19 curve. Almost none of these children had symptoms of COVID-19 disease, however most children test positive for COVID-19 antibodies. Timing of cases, and the fact that the majority test negative for SARS-CoV2 on PCR but positive for antibody suggests the illness is mediated by the development of acquired immunity rather than direct viral injury. Referred to as Pediatric Multisystem Inflammatory Syndrome (PMIS) the CDC and WHO terms are Multisystem Inflammatory Syndrome in Children [29].

The condition can be serious and potentially fatal, though in the majority of cases patients seem to respond well to medical care, including steroid treatment [30]. It is yet unclear why some children contract this syndrome and others do not, and whether those with certain medical conditions may be more susceptible to it than others. Research is ongoing to learn more. As a post-infectious condition, children cannot infect other children. These health concerns, along with parents' fear of having their children exposed to COVID-19 while playing, may impede child participation in sport. In addition to the direct physical health consequences, indirect risks can be posed through the restriction of participation in sport and physical activity especially given that so much of it is school based. Regular physical activity in adults has been consistently shown to have a myriad of benefits, including in preventing the risks of non-communicable diseases, improving physical functioning and mental health [31].

There is no evidence that increased lung capacity and airflow associated with strenuous exercise in elite athletes of any age increases the risk of SARS-CoV-2. The risk posed to children both young athletes and children in general by COVID-19, appears to be much less than to adults. Factors leading to a lower risk in children include host factors such as age-related differences in endothelium and clotting function and higher levels of vitamin D and melatonin. Some children with disabilities can only access physical activity in a supportive environment with professional assistance, making exercise from home a challenge. Although there is no evidence to suggest that children with disabilities are high risk due to underlying health conditions, understandable concern and insufficient evidence to prove otherwise may impede their ability to get exercise and fresh air in the manner their peers without disabilities can. For similar but unjustified reasons, they also may return to play later. Especially when the physical health development of the undergraduate currently studying at Sabaragamuwa University was found to have some slowdown in their training at the university because their day with lectures was too busy for them to practice.

#### **4.4. Nutrition**

Good nutrition is essential for physical and mental well-being in education and sport. The COVID19 pandemic places children from low-income households in all countries at nutritional risk. This is particularly true in countries that already had prior to the onset of the pandemic a high burden of under-nutrition and those affected by the humanitarian crisis [32].

In certain nations, underprivileged students rely on the university system for athletes' meals/ snacks to supplement their meals. School meals are either the only meal consumed by the students during the day or they fulfill a large portion of their daily dietary requirements. When university meal programs are reduced or eliminated, COVID-19 might have a significant influence on this student's nutritional health. The ideal condition is for school food programs to continue even when schools are closed, and there are examples of governments or civil society groups making such preparations during the COVID-19 shutdowns, but this has not happened in many cases. Those in charge of school sporting programs should keep in mind that some students' nutritional state may have worsened while school was closed. Similarly, students from low-income households attending numerous sports academies that closed due to the pandemic may suffer from malnutrition, which may damage their training and future performance when the academies reopen. As athletes return to play, their nutritional health should be a top priority.

There is no evidence that athletes have extraordinary vitamin requirements. Some endurance runners, adolescent and female athletes are at risk of iron depletion with or without obvious anemia. These people require nutritional counselling and may benefit from supervised iron supplementation. The major nutritional demands arising from hard athletic exercise are for carbohydrate and water. Liberal carbohydrate and water consumption is essential for full recovery between training sessions and in preparation for competition. The pre-competition meal provides limited benefits other than promoting full hydration. Large intakes of simple carbohydrates close to competition may precipitate hypoglycemia and impair performance. During exercise, water consumption to replace sweat losses is the major concern. The formulation of nutritional guidelines for athletes, based on the physiological demands of athletic exercise, indicates that the ideal dietary pattern for athletes coincides in most respects with internationally recognized recommendations for a healthy diet. A review of the limited published information on dietary habits of athletes indicates that, in general, they do not select diets that promote either good health or optimal performance.



#### *4.4.1. Dietary Habits and Nutritional Practices of Athletes*

In spite of the extensive number of distributions concerned about sustenance for competitors, not many conventional investigators of the dietary admission and eating conduct of competitors have been distributed, in actuality, sports medication is making proposals about the function of nourishment in the planning of competitors without exact information on their dietary patterns. Moreover, dietary overviews to evaluate whether education in sports nourishments is affecting the dietary acts of competitors have not been done. In brief, they should provide information on the following aspects of nutrition:

- The daily energy intakes by athletes in different sports. These may also provide an indirect indication of energy expenditure which may be difficult to assess directly.
- The proportions of athletes' diets that are supplied by protein, fat and carbohydrate
- Whether there are relative deficiencies or excesses due to erroneous practices in the consumption of these or other nutrients
- Whether athletes spontaneously select the most suitable diets to meet the nutritional demands of training and competition
- The range of dietary habits that may be tolerated without a detrimental effect on performance. The inter-relationships between athletes' diets and health risk factors, e.g. adiposity, blood lipids, and glucose tolerance.

In addition, there is evidence that the nutritional stresses imposed by some forms of training may be greater than can be met by a conventional diet, the requirement for carbohydrate by endurance runners. This can only be confirmed by determining the consumption of the nutrient and comparing it with the specific aspect of nutritional status in question.

#### *4.4.2. Protein Consumption*

The protein in athletes' diets accounts for about 16% of energy intake, but the proportions vary considerably from 10 to 36%. Protein intakes appear to be lower among endurance athletes, who favor intakes of about 15%, while some groups of power and strength athletes consume more than 20% of their energy as protein. Relative to bodyweight, protein intakes usually exceed 1.5g/kg/day and intakes exceeding 2.0 g/kg/day are common. Generally, the pattern of protein intake of sportswomen is similar to that of men. It appears that athletes usually have generous protein intakes, but they do not seem to be much greater than those consumed by the non-athletic population. Some athletes especially those who compete in power and strength activities, have excessive protein intakes.

##### *4.4.2.1. Fat Consumption*

Fat accounts for about 36% of athletes' energy intakes. Again the proportions vary, and range from about 20% to more than 50%. There is no obvious relation to sport but power and strength athletes tend to have higher fat intakes than endurance athletes, possibly associated with their higher protein consumption. The most striking relationship is between fat intakes and the countries in which the studies were made. Very few of the athletes surveyed ate diets with less than 30% of the energy provided by fat.

##### *4.4.2.2. Carbohydrate Consumption*

Carbohydrate provides about 46% of the energy consumed by athletes. The range is wide and intakes from 22 to 36% of energy were reported. While one has a strong impression that athletes consider protein to be an important part of their diet, their attitudes towards carbohydrate intake are less clear. There is some evidence that athletes engaged in high intensity endurance training do have higher carbohydrate intakes than those engaged in less intense training.

Sucrose is only one form of dietary carbohydrate but if one assumes that these athletes had otherwise average eating habits, it seems likely that they had empirically discovered the benefits of a high carbohydrate intake.

##### *4.4.2.3. Consumption of Vitamins and Minerals*

Generally, the athletes consumed all micronutrients in excess of the recommended allowances, including those of the B vitamins that should be consumed in proportion to the energy content of the diet. Some were considered to consume less than optimal amounts of thiamine (vitamin B1) vitamin supply to their young athletes by measuring urinary vitamin excretions, and considered these to be satisfactory, except for vitamin, despite high energy consumptions, were considered to have suboptimal vitamin and iron intakes because sweetened foods such as confectionery and soft drinks provided a fairly large proportion of their energy.

**4.4.4.4. Use of Dietary Supplements**

Despite the adequacy of their normal diets, the use of dietary supplements, particularly multivitamins, minerals and protein, without medical indication of their need, appears to be extremely widespread among athletes.

**4.5. Training Period**

Higher classified athletes had higher training knowledge and beliefs/attitudes, albeit they were mostly rated as "moderate," implying that training-related evidence may not reach a "good" level in all athletes. COVID-19-mediated lockdown harmed lower classification athletes in practically every area of optimal training prescription and periodization (amount and quality of training across intensity, duration, and frequency). Because of a lack of resources (e.g., space, equipment, facilities, and multidisciplinary support teams), athletes' training behaviors changed, with more training alone and training to promote general health and well-being (i.e., remaining physically active) rather than sport or discipline specificity. This was partly due to a lack of resource (e.g., space, equipment, facilities, and multidisciplinary support teams), with such access favoring higher classification athletes. Over half of the athletes polled said that such changes to their training had a negative impact on their motivation (and likely affected mental health in many more).

The introduction of digitally mediated "remote" based practices at the athlete/practitioner coaching/training interface was well embraced by higher classification athletes. To increase their knowledge and beliefs/attitudes towards training, it would seem smart to offer acceptable athlete-centered (and practitioner) materials. This type of upskilling would offer athletes with data to help them adjust their training in response to specific scenarios (e.g., COVID-related situations, injury, and illness). Using online learning and engagement platforms that allow free access to seminars and workshops, sports organizations or teams should provide vital resources to players, independent of their categories. In this context, a unique method of delivering information to athletes of various categories is necessary. The research suggests that policies and resources (including assistance) to promote remote training with athletes would be beneficial to stakeholders. In addition, to diversify, emergent technologies (e.g., virtual reality) should be considered (improving motivation and engagement) It's time to talk about lockdown-friendly training [33] [34].

Finally, these findings and their context present a compelling case for carefully considering and prescribing adequate sport-specific (re)conditioning upon return to "regular" training and/or competition in order to reduce the risk of injury [35] [36]. Stakeholders may utilize the data and discussions to build rules, methods, and guidelines to help athletes train while staying safe and well (including mental health) amid pandemic-related training disruptions. Although there has been some setback in university athletes' training as a result of their tactics, this is due to the availability of a closed playground, which allows them to dedicate more time to their training, mostly through the e-learning system. The use of learning technology to provide lessons was extremely beneficial to the players since it allowed them to listen to the teachings over and over again. This is a significant indicator that they were able to optimize their training during this time, as seen by their success in national sports contests this year. Here are several examples: National number one 110m Hurdles shattered 24-year old Sri Lanka record of 110 Hurdles clocking 13.97 seconds [37] [38] Previous record held by Mahesh Perera of 14.0 set in 1997 Nationals and Ms. Weranga Thisarani a 2nd year undergraduate of the Department of Sports Sciences and Physical Education, Faculty of applied sciences, Sabaragamuwa University of Sri Lanka, won a Bronze medal in Hammer Throw (41.92m) at 99th National Athletics Championship.

**Table No 3: Structure of selected review articles (Overall sources used for this review are lineup by publication year)**

Year	Author	Topic
2019	Pillay L, J. v	Nowhere to hide: the significant impact of coronavirus disease 2019 (COVID-19) measures on elite and semi-elite South African athletes
2019	Menting SGP, H. D.-G.	Optimal development of youth athletes toward elite athletic performance: how to coach their motivation, plan exercise training, and pace the race.
2020	Altena, E., Baglioni, C., Espie, C., Ellis, J., Gavriloff, D., Holzinger, B. Riemann, D	Dealing with Sleep Problems during Home Confinement Due to the COVID-19 Outbreak
2020	cdc.gov	For Parents: Multisystem Inflammatory Syndrome in Children (MIS-C) associated with Covid-19
2020	ecdc.europa.net.	Rapid Risk Assessment: Coronavirus disease 2019 (COVID-19) in the EU/EEA and the UK.
2020	UNESCO-IESALC. Caracas, Miranda, Venezuela,	El Coronavirus COVID-19 y la Educación Superior; Impacto y Recomendaciones.
2020	Giovanetti, M., Benvenuto, D., Angeletti, S., & Ciccozzi, M. M.	The First Two Cases of 2019-NCov in Italy.
2020	Jukic I, C.-G. J.	Strategies and solutions for team sports athletes in isolation due to COVID-19.
2020	Jukic, I., Calleja-González, J., Cos, F.,	Strategies and Solutions for Team Sports Athletes in Isolation Due to

	Cuzzolin, F., Olmo, J., Terrados, N., al, e	COVID-19
2020	Karagiannopoulou, E. &	The impact of Greek University students' perceptions of their learning environment on approaches to studying and academic outcomes.
2020	Kucharski, A., Russell, T., Diamond, C., Liu, Y., Edmunds, J., Funk, S., Munday, J.	Early Dynamics of Transmission and Control of COVID-19
2020	Lades, L., Laffan, K., Daly, M., & Delaney, L.	Daily Emotional Well-Being during the COVID-19 Pandemic
2020	Lima, C., de Medeiros Carvalho, P., Lima, I., de Oliveira Nunes, J., Saraiva, J., de Souza, R., Neto, M.	The Emotional Impact of Coronavirus 2019-NCov (New Coronavirus Disease.
2020	Raony, Í. d.-d.-A.-S.	Psycho-Neuroendocrine-Immune Interactions in COVID-19: Potential Impacts on Mental Health. <i>Frontiers in Immunology</i>
2020	who.int.	Multisystem inflammatory syndrome in children and adolescents temporally related to Covid-19.
2020	Watkins, J	Preventing a Covid-19 Pandemic.
2020	UNICEF	World Food Programme paper, entitled "Supporting Student's Nutrition during COVID-19"
2020	World Health Organization	Mental health and Covid-19. Denmark: WHO Regional Office for Europe
2021	AWS Chandana	The Test Battery: Evaluate Muscular Strength and Endurance of the Abdominals and Hip-Flexor Muscles.
2021	H. L. C. Lakmal , P. C. Thotawaththa , A. W. S. Chandana	The Kinematic Analysis and Comparison of Foreign and National 110 m Hurdling Techniques in Sri Lanka
2021	Swanson, B.	Youth sport participation by the numbers. AMBRIDGE, MASSACHUSETTS: Active kid
2022	J.A.L.N. Jayathunga, A.W.S. Chandana	Biomechanical model and kinematic analysis of hurdle clearance flight phase: a review

## V. Conclusion

The global impact of the pandemic due to the outbreak of COVID-19 affected higher education universities, causing the suspension of their activities, and consequently, affecting university athletes in their on-site training processes and the suspension of national and international competitions. The current study investigated the levels of physical activity and the positive and negative effects of pandemic control measures such as confinement and physical distancing in a sample of University Athletic team athletes in order to know the effects on physical activity and the positive and negative effects of pandemic control measures such as confinement and physical distancing in university athletes. Based on the foregoing, it can be concluded that, in the non-sporting samples, maintaining a frequency, intensity, and duration of training-type physical activity during the pandemic was associated with a preservation of Positive Affect and a level of Negative Affect comparable to non-pandemic periods. As a result, doing such training in both the female and male samples served as an effective agent in enhancing the athletes' emotional moods, and hence their mental health. Transitioning to online study at higher education colleges has been a difficult task because to the Covid-19 outbreak. The goal of this study was to see how online learning attitudes affected the online learning preparedness of sports science students during the coronavirus epidemic (covid-19). In this context, students from the Applied Sciences faculty of the University's athletic team participated in the research by taking online learning platform courses in Coaching Training, Physical Education and Sports Teaching, Recreation and Sport Management, and Physical Education Department. The study discovered a fairly significant positive link between sports sciences students' views about online learning and their preparedness to learn online. As a result of this finding, it was discovered that in order to obtain high readiness in online learning, online attitude must also be high. It is to manage the process effectively by interacting between student-student, student-teacher, student-content, or student-system; it is to provide education without the restriction of space and time for students; it is to manage the process effectively by interacting between student-student, student-teacher, student-content, or student-system. The use of technology allows for online learning, which is also an innovation brought about by technical processes. As a result, theoretical frameworks from a pedagogical standpoint, as well as actual advancements, may be formed through this learning process made feasible by technology. During the time when the instructor is not there, it is critical for the student to feel competent, self-assured, and to have a good attitude [39]. During the time when the instructor is not there, it is critical for the student to feel competent, self-assured, and to have a good attitude [40]. The attitude toward learning is one of the first steps in improving this talent. As a result, the attitude is the first variable in the study. Motivation is a significant factor that influences attitudes. When a student is driven, he or she will be self-disciplined in order to reach their goals. When it comes to the learning process, the learner's attitude toward it is crucial. The way a person feels about an activity allows them to rate it as good or bad. Similarly, throughout the educational process, attitudes have a significant impact on learning processes, behaviors, and performance. It demonstrates that attitudes are a significant instrument in students' self-motivation and performance in this environment [41].

Because a poor performance is often accompanied with a poor attitude. If the student's attitude is negative and insignificant, his or her chances of engaging in the learning process may be reduced [42]. Previous research in this area has found that having a positive attitude is important in predicting academic success. This data clearly shows that the attitude toward online learning should be favorable. It has been discovered that a positive attitude is a variable that has a direct impact on a student's positive preparation for the course [43]. The importance of adopting online learning environments in both theoretical and practical courses in sports sciences, a multidisciplinary area, has been demonstrated via this study, as well as the favorable attitude and preparedness of sports sciences students toward online learning environments. Following then, there was more study. It is suggested that all of university's sports sciences and online learning conditions be revealed, as well as an examination of online learning attitudes, online student engagement of sports sciences students, and online socialization situations. Additionally, similar studies should be conducted on the instructors, who are the most important engines and trainers of the education system. Staying healthy during pandemics necessitates athletes being active and adapting their training to preserve fitness and wellbeing when communal training and competition are limited. Conditioning exercises, skill development, the use of cloth masks, and drills that allow for physical distance to be maintained in training should all be stressed. Athletes must follow government training restrictions, but they should be actively encouraged to exercise, complete their educational requirements, set realistic training goals, and realign expectations for competition participation in light of the impact of Covid-19 on their sport in their community. Athletes with a Covid-19 infection that is likely or proved Athletes who have symptoms that match Covid-19 should be tested and, if necessary, seek medical advice. To prevent the virus from spreading to others, they should implement proper quarantine and contact tracking measures. Athletic sporting training and competition were completely disrupted by Covid-19. Even once societies have recovered from the pandemic's restricting effects, returning to athletic competition will take years, and the norms and etiquette of competition will almost certainly be irrevocably altered.

### **Future Consequences and Concerns**

As of this writing, it is unclear what influence the COVID-19 situation will have on children's participation in sports. Several issues about financial restrictions and education have been expressed. Financial Consequences are; COVID-19 is putting a lot of pressure on state budgets, corporations that sponsor sports, sports groups, and, most significantly, family finances, and will likely continue to do so for several years. The situation will be the same for everyone: costs will outstrip revenues, and expenditures will have to be prioritized. It will be difficult to justify further expenditure on children's sports activities in this context. Furthermore, people who are currently sponsored will fight change since it would jeopardize their position. The COVID-19 problem has the potential to exacerbate the significant disparity in student access to sports. Children from lower-income families have reduced access to sport in most nations. COVID-19 has triggered an economic crisis that has led in a substantial number of parents losing their employment or seeing their salaries decreased. As a result, they may no longer be able to fund their student's involvement in sports, and as a result, fewer students will be able to participate in activities that require financial assistance from their parents.

In certain cases, the financial burden of COVID-19 on families may force students to work instead of attending school or participating in extracurricular activities. It will be crucial to establish a link between child rights and participating in sports, as well as between sport and the preservation and fulfillment of rights. Frequently provide safe environments for students as well as a platform for teaching children critical life skills, such as cleanliness and COVID-19. The economic crisis brought on by the COVID-19 epidemic may limit the amount of money available from foundations and development agencies as they divert their resources to more critical life-saving programs. This might have serious consequences for the availability of resources for sport for development programs, which many severely vulnerable adolescents rely on and benefit substantially from. Exclusively for pubescent and adolescent girls risk disappearing in the effort to use the limited resources available to reach as many children as possible, leaving them without a safe space to address specific gender issues such as menstruation, sexual and reproductive health and rights, and gender-based violence.

### **Opportunities**

The COVID-19 epidemic has had negative effects on university students in the area of athletics, but the issue also provides opportunity. It has served to emphasize the important role that sport plays in society, which is now better acknowledged and cherished on a variety of levels. At the family level, the lockdown may have raised awareness of the importance of pupils participating in sports and physical activities on a daily basis. Additionally, it has allowed parents and caregivers to spend more time with their children. This might have included using sports-related activities to entertain and bond with youngsters at home. These physical exercise and sport experiences may lead to a stronger understanding of the value of their children's right to play, as well as longer-term behavioral changes. More broadly, the increased risk of severe illness consequences in those with low levels of physical activity, such as obesity, emphasizes the need of children's engagement in sports as a

preventative health approach. This might lead to a renewed push for university students to engage in health-promoting physical exercise and sports. The monies that have just been made accessible underscore the importance of sport. Sports groups have also banded together to share their pandemic reaction experiences. Beyond the epidemic, there is a possibility to expand on this excellent knowledge exchange. The university athlete is receiving more attention from regional instruments and procedures, with recent conferences of ministers responsible for sport including it on their agendas, as well as consideration of the impact of the COVID-19 problem on students. As the lockdown is removed, there may be some beneficial practices that have emerged as a result of the epidemic that may be maintained. For example, proper cleanliness standards may be maintained, perhaps leading to enhanced health for all stakeholders in sport. Furthermore, it has been claimed that some university students with impairments are using the internet to find innovative ways to participate in sports with their coaches/teachers. This time available during the epidemic may also be used by sport professionals to improve their skills in the area of handicap inclusion by using internet resources. Coaches and trainers will understand the necessity to utilize disability-inclusive techniques following the pandemic, even if these masks are no longer being used. This period of reflection and self-evaluation may also be used to ensure that sport is a safe environment for university students when they return to participate or compete. This might be aided by a review of present policies and procedures. In a crisis situation, there is also a chance to promote university athlete student protection in sport as a policy and a practical tool to protect children's rights and best interests. The pause in sport activities gives a chance for organizations where child safeguarding in sport policies have yet to be established or have not been recently reviewed or tested to guarantee optimum efficacy for the benefit of children when sport resumes.

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