

COVID-19 versus Physical Activity in the Context of University Students

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Abstract

PURPOSE: *The aim of the paper is: (1) to outline a general view of the implications of the population's sporting activity restrictions in light of the government's measures related to COVID-19; (2) to present, in the broader context of the issue, the results of the Institute of Physical Education and Sport (hereafter referred to as the IPES) from February 2021, to investigate whether, during the ongoing pandemic associated with the spread of the COVID-19 disease, at a time of restriction of physical activities and cancellation of contact physical education (hereafter PE) in schools, students of the VSB-TUO engage in specific sport and physical activities within their possibilities.*

METHODS: *To meet the objectives of the research survey, the method of questioning – an online questionnaire – was chosen. The total number of the university students who were addressed was 1164-first-year students from all seven faculties of VSB – Technical University of Ostrava (hereinafter referred to as VSB-TUO) answered. The questionnaires were subjected to the statistical classification of the first-level data. Another method was the comparative method of working with documents, comparing with the results of comparable questionnaire surveys from 2015 and 2018, and relevant scientific discussion in this context.*

RESULTS: *The results of the research confirmed that first-year students of all VSB-TUO faculties, who as graduates of the relevant secondary school could no longer complete the subject Physical Education due to pandemic measures, preferred unorganized physical activities in accordance with the situation, such as walks, including walking the dog. 34.8% of respondents answered that they “did not miss sport” or that they “were not interested in sport at all”. A high percentage of respondents (44.3%) admitted that they “did not miss” organized Physical Education lessons “at all”, while some (31.3%) stated that thanks to the subject Physical Education, they were able to play sports “at least once a week”.*

CONCLUSION: *Due to the high number of interviewed first-year students of VSB-TUO, it can be assumed that we would reach similar results in a vast population of peers, and the findings can be generalized. The study summarizes the latest reflections on impersonal forms of the teaching of Physical Education on the motivation and intensity of sports and physical activities within the general level of foreign surveys as well. Relevant research in our cultural setting coincidentally concludes the indispensable importance of the growing role of regular physical activity in school, family and leisure, including its attractive innovation during the lockdown pandemic.*

Introductory note

The rapid and inexorable worldwide spread of SARS-CoV-2 – the coronavirus which causes the disease known as COVID-19 – presents Physical Education professionals with new and unforeseen challenges related to an unpredictable situation. Campus closures due to the pandemic created an urgent need in schools and higher education institutions to consider available alternatives to in-person programmes. Most notably, online Physical Education, which previously stood in the periphery of the field's vision (Ferdig & K. Kennedy; 2014, pp. 201–222), is now a subject of central focus. Online Physical Education can offer the swift response needed in the context of COVID-19. This specific way of teaching is a potential solution to a problem and part of a growing presence in education, marked by the increasing viability of virtual alternatives to traditional

brick-and-mortar format classes and in-person instruction. While most school systems typically require daily physical attendance during weekdays and bring students together in large groups to learn in a collective endeavour, the closing of schools and the months of social distancing have shifted the site of learning to the home, where students learn primarily alone or with the help of family members through the technologies available. Physical Education (PE) and organized active recess time that would typically occur in school have been either cancelled or made a part of digital home-schooling. Distance education and online learning have been gaining momentum in recent years (Kooiman, 2017), and technologies, such as virtual reality and artificial intelligence, offer new possibilities for education. The present pandemic in such a perspective has merely punctuated the need to explore integrating such innovations into 21st-century teaching and learning. Traditional Physical Education has faced challenges related to equity and access, such as language barriers, funding limitations, and inadequate physical spaces for participation (Collin et al., 2020).

An important question at this critical juncture in the evolution of the profession is whether online Physical Education can be optimized in ways that leverage the efficacy and impact of in-person Physical Education programmes for diverse communities and settings. Notably, a body of evidence already exists to suggest that, when supported with appropriate pedagogical practices, digital technologies, such as social media, blogs, video analysis, and video games, can be effectively integrated into Physical Education to enhance students' learning (Bodsworth & Goodyear, 2017). Barriers and facilitators to using digital technologies in the Cooperative Learning model in Physical Education (Bodsworth & Goodyear, 2017). Moreover, findings from a recent study reflecting new challenges of pandemic situation, have shown that secondary school students enrolled in online health and Physical Education had more favourable perceptions of their learning experience (e.g., teacher feedback and responsiveness, understanding and interest related to the content, and perceived health gains) compared to students enrolled in in-person programmes (Williams et al., 2020)

All current developments in society have been marked and subjected to the fight against the spread of the Covid-19 viral disease in our public space for many months. The effort of society and the imperative of each individual's behaviour and actions is to protect themselves, their families and the people around them from COVID-19, while maintaining the usual quality of life. The ongoing COVID-19 pandemic is currently a global societal crisis affecting all areas of human activity, including sport.

Temporary measures to prevent the spread of COVID-19 also apply to the physical activities of the general population. The need to stay mainly in the home environment has led to a reduction in physical activity and exacerbation of the negative attributes of a sedentary society. The result is sedentary, physically inactive activities in most professions, in the environment of households and individual forms of transport (Sekot, 2015). Cancellation or extreme restrictions of the school subject Physical Education, organization of sports clubs, and closed sports grounds make it impossible in a completely unprecedented way to conduct sports leisure activities, which has a negative effect on the physical fitness of children, youth and adults, and, in the medium or long term, also on their wellbeing, and, therefore, the state of health. At the same time, physical activity is one of the strongest weapons in the fight against diseases of civilization, it serves to strengthen physical and mental health (Sekot, 2015; McElroy, 2002).

The importance of sports activities

Experts, medical doctors and educators had pointed out the crucial importance of regular physical exercise and the consequences of physical inactivity long before the outbreak of the COVID-19 pandemic (McElroy, M. 2002; Nieman et al. 1990). With increasing urgency, it is emphasized

that regular physical activities as an integral part of lifelong individual “rituals” are a prerequisite for the individual's overall development on the path to physical and mental health. E.g., exercise performed with a medium intensity of 20–30 minutes 3–4 times a week significantly strengthens the immune system and thus reduces the risk of possible viral infection. (Nieman et al.; 1990). At the same time, it is recalled that, on the other hand, a single high-intensity exercise in untrained individuals can lead to impaired immunity and an increased risk of infection. (Simpson et al., 2020)

During the COVID-19 pandemic, the WHO (World Health Organization) currently recommends moderate-intensity physical activity in the public virtual Internet space for 140 minutes a week (WHO, 2021). Adequate physical activity is prevention of many diseases, supports the proper function of the immune system, and contributes to better coping with stressful situations. Exercise is an integral part of mental hygiene, and stress management appears to be essential in demanding quarantine conditions and implementing all pandemic measures (Wright and MacDonald, 2010). Specific recommendations of sport science relating to given populations are recommended (Powell, et al., 2018).

In their article dealing with physical activity during the COVID-19 pandemic, the authors Pudilová and Tuka from the Czech Society of Sports Medicine emphasize several rules for physical activity of the population that would not contradict government measures and are, at the same time, safe for those who perform physical exercises (link <https://www.kardio-cz.cz/2020-03-28-pohybova-aktivita-v-dobe-pandemie-covid-19>):

- Avoid very high-intensity physical activities.
- Do not exercise if you have symptoms of incipient viral infection.
- After the viral infection has subsided, start physical activity slowly.
- Adjust the intensity and strenuousness of physical activity to your personal level of training.
- It is necessary to consider the previous restrictions resulting from your internal diseases or diseases of the musculoskeletal system.
- If any pain occurs during a particular physical activity, do not try to overcome it.
- Do not forget a regular drinking regime, a healthy diet, and enough sleep.
- Even when releasing the quarantine, it is better to avoid indoor sports grounds and places with a higher concentration of people, especially if you are being treated for a chronic disease or you belong to the risk groups.
- Be in a positive mood. Remember that keeping yourself merry and cheerful is key to staying healthy.

The idea that physical activity has a positive effect on physiological functions was developed at the end of the last decade to claim that physical activity can positively affect the symptoms of stress due to health threats and, last but not least, contribute to reducing stress related to isolation and limiting social contacts (Powell et al., 2018). The role of Physical Education lessons for pupils and students are accented as an indispensable part of the school curriculum (Mužík & Krejčí, 1997).

The impact of COVID-19 on physical activity and wellbeing

Since its onset, the COVID-19 pandemic has spread to almost all countries of the world. Social and physical distancing measures, lockdowns of businesses, schools and overall social life, which have become commonplace to curtail the spread of the disease, have also disrupted many regular aspects of life, including sport and physical activity. This policy briefly highlights the challenges COVID-19 has posed to both the sporting world and to physical activity and wellbeing, including marginalized or vulnerable groups.

The global outbreak of COVID-19 has resulted in the closure of gyms, stadiums, pools, dance and fitness studios, physiotherapy centres, parks, and playgrounds. Therefore, many individuals are not able to actively participate in their regular individual or group sporting or physical activities outside of their homes. Under such conditions, many tend to be less physically active, have longer screen time, irregular sleep patterns, and worse diets, resulting in weight gain and loss of physical fitness. The benefits of periodic exercise in such new and unpredictable situations have proved that physical activity is very helpful, especially in anxiety, crisis, and fear. There are concerns that, in the context of the pandemic, lack of access to regular sporting or exercise routines may result in challenges to the immune system, physical health, and it may lead to the commencement of or exacerbating existing diseases that have their roots in a sedentary lifestyle (Roe et al., 2021)

Lack of access to exercise and physical activity can also have mental health impacts, including stress or anxiety that many will experience in the face of isolation from everyday social life. In addition, possible loss of family or friends due to the viral infection and the impact of the virus on people's economic wellbeing and access to nutrition will exacerbate these effects.

For many, exercising at home without any equipment and limited space can still be possible. For those whose home life can involve long periods of sitting, there may be options to be more active during the day, for example, by stretching, doing housework, climbing stairs or dancing to music. In addition, particularly for those who have internet access, there are many free resources on how to stay active during the pandemic. Physical fitness games, for example, can be appealing to people of all ages and can be used in small spaces. Another important aspect of maintaining physical fitness is strength training which does not require large spaces but helps maintain muscle strength, which is especially important for older persons or persons with physical disabilities.

METHODS

A survey method, specifically an electronic questionnaire available at <http://accounts.google.com>, was used, including statistical processing of the data using the 1st stage classification and graphical display in the form of pie charts.

The respondents were first-year students of all seven faculties of VSB – Technical University of Ostrava. Physical Education is a compulsory subject in the first year. A total of 2,302 students enrolled in Physical Education in the University Edison electronic system as of 15 February 2021 were contacted. Altogether, 1,164 students finally participated in the survey, which is 50.54% of all respondents.

The questionnaire included introductory information for the students, a request to complete the questionnaire, and information on the research purpose. The questionnaire was anonymous and contained eight questions, seven closed questions and one semi-closed question. Altogether, 758 males and 406 females participated in the survey. The most significant number of them were from the Faculty of Economics of VSB-TUO, the largest faculty at VSB-TUO.

Individual questions of the survey:

1. Do you miss the opportunity to play sports due to restrictive government measures?
Yes
No
I am not interested in sports.

2. In the pandemic period restricting physical activity you:
 1. Exercised at home.
 2. I took the opportunity to play sports outdoors.
 3. I did not do much physical activity.
 4. I did not do any physical activities.

3. As part of compliance with the government's measures related to the COVID-19 pandemic:
 1. I exercised regularly at home.
 2. I went for walks, including walking the dog.
 3. I practised brisk Nordic walking.
 4. I jogged.
 5. I cycled.
 6. I went cross-country skiing.
 7. I did other physical activities.

4. When the VSB-TUO outdoor sports facilities – gym, aerobic hall (with restrictions related to the number of people doing exercises) – were open (with restrictions) due to epidemic measures:
 1. I used this possibility frequently.
 2. I used this option occasionally.
 3. I did not use this option at all.

5. Training videos were regularly posted on the YouTube channel of the Institute of Physical Education and Sport (IPES).
 1. It inspired me to exercise at home.
 2. I did not use the videos for home exercise.
 3. I did not know about them.

6. TV classes organized by the Institute of Physical Education and Sport:
 1. I miss them very much.
 2. Thanks to the lessons I had the opportunity to do sports at least once a week.
 3. I do not miss them at all.

7. Faculty
 - EKF
 - FAST
 - FBI
 - FS
 - FMT
 - HGF
 - FEI

8. Sex
 - Female
 - Male

RESULTS

Opinions of university students on the changing conditions of Physical Education

Physical Education at schools is thus limited or completely suspended during the fight against the pandemic. Due to the nature of this subject, a remote approach is almost impossible; in addition, preference in teaching was given to theoretical subjects. The term school Physical Education refers to children, youth and adults from primary and secondary schools to universities. Gradually, Physical Education teachers began to engage in contact with pupils and students using mobile applications or online teaching. Without previous experience, they started shooting training videos, encouraging regular sports activities, and emphasizing the importance of indoor activities.

Teachers at the Institute of Physical Education and Sports (hereinafter referred to as IPES, formerly the Department of Physical Education and Sports – DPES) were also fully aware of the risks involved in banning full-time Physical Education. The impossibility of contact with students led to the severance of relations between the IPES (teaching, winter and summer sports courses) and students of all grades. The consequences of the cancelled university PE at VSB-TUO for first-year students of all faculties are particularly noticeable in terms of the offer of physical exercises and the equally significant level of limiting social contacts. Students of the first years of universities in the academic year 2020/2021 are also those who completed their secondary school studies at the pandemic and were affected by epidemiological measures in the final year of secondary school. After about 14 days of full-time teaching at the university, they were again dependent on the distance form of education. They did not have enough time to get acquainted with the course of study at the university, they did not gain contacts with students in higher years, and probably they did not even know the other members of the created study groups.

IPES at VSB-TUO has long been interested in the opinions of VSB-TUO students on teaching PE, and their leisure-time physical activities. Whenever it has been possible, IPES has always adapted the offer of physical exercises to the requirements of the respondents – VSB-TUO students. Research surveys with the aim of finding out students' opinions on teaching PE and its quality, on the possibilities of sports at VSB-TUO, on the level of the sports environment has been conducted repeatedly since 1998, the number of respondents ranged up to 500 respondents. The survey took the form of filling in questionnaires in paper form, since 2015, using modern electronic technologies. The last research before the COVID-19 pandemic took place in 2018 (Durdová, 2018); 530 respondents, students of all years and all faculties of VSB-TUO took part in the online survey out of 2469 students who had been addressed. We were interested in the choice of sport, in satisfaction with sports activities at VSB-TUO, in preferring a specific day and time to exercise during the day. We were also interested in how many times a week students use the IPES' offer for their leisure activities. This research survey showed a positive evaluation of the work of the IPES (23% of respondents were very satisfied with the programme offered, and 47.5% stated that they were rather satisfied, while only 5.8% were somewhat dissatisfied and 1.5% were very dissatisfied). Similarly, students evaluated the possibilities of PE and sport at VSB-TUO – 28.3% were very satisfied, and a total of 49.4% of respondents were satisfied. We also obtained very similar results as in the questionnaire survey from 2018 by the survey in 2015 (Sekot & Durdová et al., 2015). The discussed research is supposed as the fundamental explorational study of the proposed relevant topic, “the role of university study physical education for motivation and adherence of sportive activity”. Hoping that virus limitation has been, not only for the time of being, alarming episode of our time.

The IPES has always been very focused on building a relationship with students interested in virus limitation sports. Most often, contacts took place during TV lessons, sports courses or during trainings of the university sports club (USC at VSB-TUO). The IPES has regularly organized

a number of sports events for students (or employees). It had a daily offer of physical activities in the afternoon and evening at the VSB-TUO sports grounds. The IPES has come up with a wide range of physical exercises during each exam period. The IPES has regularly organized traditional university-wide large sports events with the support of the Rector of the university – e.g. VSB-TUO Sports Day, VSB-TUO Technika Run running race, a weekly suburban sports camp for children of VSB-TUO employees, once a week exercises for school kindergarten children.

The last targeted survey of VSB-TUO students under the auspices of IPES took place in February 2021, at the time of the PE ban and the consequences of measures related to limiting the spread of COVID-19. In this survey, we were mainly interested in first-year students. As previously mentioned, these students did not have continuous teaching of PE in the second half of the last year at the secondary school (2019/2020) or in the winter semester of the academic year 2020/2021.

The online questionnaire survey in February 2021 was attended by 1164 respondents, the 1st year students of all seven faculties of VSB-TUO. There were 758 men and 406 women, 32.2% of whom were students of the Faculty of Economics and 22.8% of the Faculty of Electrical Engineering and Computer Science. The other five faculties did not differ much in the number of respondents, and it was 10 -16% of the total number of respondents.

When asked whether students currently, at the time of epidemiological measures, miss sports activities, 65.2% answered “yes, I do”, 25.3% “No, I do not”, and 9.5% answered that they were “not interested in sport”.

Another question concerned physical activities that respondents could perform themselves during epidemiological measures. The answers can be summarized as follows:

- I did exercise at home (42.5%),
- I took the opportunity to play sports in nature (31.4%),
- I did not regularly engage in physical activities (22.3%),
- I did not perform any physical activities (3.8%).

By asking about specific regularly performed sports activities, the following order of activities was created:

1. walks, including walking the dog,
2. regular exercise at home,
3. running,
4. cycling,
5. Nordic walking
6. other physical activity.

In other questions, we were interested in the involvement of respondents in activities offered by the IPES VSB-TUO at the time of the release of epidemiological measures (outdoor sports ground, gym, aerobic hall – always in compliance with the permitted number of people and all epidemiological measures). 74.1% “did not use this option at all”. This fact is certainly influenced by the fact that students accommodated at VSB-TUO university dormitories moved out and went to their places of permanent residence. 15.4% of respondents used the opportunity to play sports at VSB-TUO sports grounds (albeit with restrictions) “very often” and 10.6% of respondents “occasionally”.

When, due to the worsening pandemic situation in the Czech Republic, all sports activities were banned, the IPES offered short video training (aerobic exercises, stretching, Pilates, circle training) on its Youtube channel, which could be used for doing exercise at home.

When asked whether these videos were a stimulus or inspiration for doing exercise at home, the vast majority of respondents (73%) answered that they did not know about these videos at

all. At the same time, notifications about the possibility of training online under the guidance of the IPES teachers were announced on the IPES website or the IPES Facebook.

The answer of the respondents to a specific question also leads to reflection: “Do you miss organized Physical Education at VSB-TUO?”. Their answers:

- I miss it very much (24.4%),
- Thanks to teaching PE, I had the opportunity to play sports at least once a week (31.3%),
- I do not miss it at all (44.3%).

It should be reminded again that the respondents – first-year students, due to government measures and the introduction of distance learning, practically did not have time to look around the university, did not get acquainted with the university environment and university specifics. They did not find opportunities for sports at VSB-TUO and did not get acquainted with the offer of sports activities of IPES. Since mid-September 2020, when the distance form of teaching was introduced, it has been impossible to play sports and use the well-equipped VSB-TUO sports grounds. We firmly believe that we will once again continue the regular teaching of PE, the traditional offer of the IPES sports activities in the academic year 2021/2022. Unfortunately, we have lost the students of the first years of the academic year 2020/21 and let us hope that the IPES will have to strive for them with a well-established offer of sports activities in the nearest possible future.

CONCLUSION

The COVID-19 pandemic has forced an unprecedented global shutdown that has dramatically changed what it means to be a teacher, a student, and even a parent in the months that schools have been closed. While most school systems typically require daily physical attendance during weekdays and bring students together in large groups to learn in a collective endeavour, the closing of schools and the months of social distancing have shifted the site of learning to the home, where learning happens primarily alone or with the help of family members through the technologies available. Physical Education and organized active recess time that would normally take place in school have been either cancelled completely or made a part of digital home-schooling. In different cultural, economic and political settings, social distancing measures require people to stay apart from each other and avoid gatherings with anyone other than their closest family members. These measures have resulted in the cancellation of all organized afterschool sporting activities. Across the world, millions of students have experienced the disruption of their regular routines for learning and physical activity (Roe et al., 2021)). If the demonstrable fact that regular sports and physical exercise not only affect physical and mental health but that they strongly affect the immune system of those who do physical activities is accepted, then a one-year break from PE in the case of children and adolescents can have serious, as well as far-reaching consequences. If the relationship to sports is not supported in the family (Sekot, 2019), the absence of PE, closed playgrounds, and sports grounds can negatively affect the health of children, youth, and the general population. In this context, the socio-psychological and highly socializing significance of Physical Education, physical exercises and games cannot be underestimated. Joy, relaxation, and healthy competition in friends' company during physical activities lead to positive feelings and moods to stress reduction.

If sport is not part of the family or individual lifestyle, it will be the duty of Physical Education teachers, sports coaches, and all sports activists to try to return children, young people, the general public, and sports grounds and encourage regular diverse sports activities.

COVID-19 continues to represent the single biggest challenge to contemporary community sport globally. Compliance with social distancing policies, strict return-to-play protocols, and COVID-19 specific training has, perhaps, forever changed the way that children and young people engage in organised sport. Within this context, and while many children and families seek to re-engage with community sport, we have an obligation to ask questions about how the pandemic has impacted youth sport, understand the short- and long-term consequences, and explore what (if any) opportunities can be seized to assist and improve future participation and retention. Furthermore, last but not least, search if such an unprecedented situation could reveal new ways, horizons, or methods to motivate children and young people to regular sportive activities and adherence to the sport as an integral part of lifestyle(s).

Everyone in the sports community is feeling the impact of COVID-19. Events and competitive seasons at all sports levels are being cancelled, and training facilities are closing. Athletes, coaches, parents, and sport stakeholders are scrambling to develop contingency plans. With no live events to cover, media sources focus on the Coronavirus pandemic, which could further exacerbate everyone's concerns. Fortunately, mental performance and mental health practitioners and organizations are helping to mitigate the effects of this highly fluid situation through online support. A vital step to search for and find a solution to how parents, peers, coaches, and sports organizations can effectively engage with each other during the crisis and during return to play.

In growing urgency, the educational institutions have to take into account that also for parents, it is recommendable to be a positive role model (Sekot, 2019). No matter how young or old the children are, they will likely look for guidance to help them respond to these circumstances. And in the specific situation of distance learning and perhaps training, guidance from their teachers, coaches and parents in a unique and unrepeatable situation can help the children find productive, favourable, meaningful ways to spend that time, rather than spending hours and hours in front of a screen. Supporting children to stay busy helps them to avoid focusing all of their attention on the negative ramifications of the pandemic, such as event cancellations, school closures, and social isolation. Not being able to compete could be a potential identity crisis for some athletes. Therefore, it is a priority to let children and young people enjoy feelings of intensive physical sportive experiencing. School and parental investment can help ease the pain and confusion they might be feeling, helping children find ways to be productive, physically and mentally active, and take care of themselves physically and mentally in a pandemic situation.

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