

Physical Activity and Health Aspects of COVID-19 Pandemic



Editors **Damir Knjaz** | **Dario Novak** | **Branislav Antala**
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FOREWORD

It is a pleasure to introduce to you this scientific book under the title Physical Activity and Health Aspects of COVID-19 Pandemic. In January 2020, the World Health Organization (WHO) declared a new COVID-19 outbreak to be a public health emergency of international concern. Since then, there have been many confirmed infections and many human deaths. A highly effective method for slowing the spread and infection of the virus is self-isolation or quarantine. However, some countries have adopted measures like travel restrictions and school closures. These extraordinary arrangements have had negative physical and psychological impacts, with increased physical inactivity and sedentary behaviour.

Before the pandemic, in “normal” conditions, analyses showed that more than 3.2 million people in the world die annually directly due to physical inactivity, while some analyses speak of as many as 5 million. When we talk about the leading factors causing mortality and disease development, according to the World Health Organization, physical inactivity is in the high fourth place and is significantly related to other factors and equally represented as a cause of mortality regardless of the level of development of a country.

During the pandemic, other diseases and health risks did not disappear, although the focus of many systems was on the prevention and treatment of patients suffering from COVID-19 virus. A large number of experts in the field of health, kinesiology and other sciences point out the importance of preserving prevention programs in all other segments, regardless of the new pandemic. Physical activity is an indispensable segment of the prevention of many chronic non-communicable diseases, some of which are the leading mortality factors in the world. The consequences of increased physical inactivity, even if due to a pandemic, will be felt by millions of people of all generations. The negative curve of many countries has been present for decades and there is an objective fear that it could worsen significantly during the pandemic period. Mankind will feel the consequences for many years to come in many segments and it is important to point out the importance of physical activity in all the forms available to us.

The topic of this scientific book is related to the COVID-19 disease that is considered the worst pandemic in modern times. It covers some aspects of the pandemic,

and the reader can find three very interesting chapters that cover important topics as the influence of COVID-19 pandemic on physical education and psychological health, as well as the influence of COVID-19 pandemic on overall well-being.

The authors of the book chapters come from a large number of countries, and they certainly are well-respected and experienced researchers. We firmly believe that this scientific book will be a valuable assistance to a variety of scientists, practitioners and, of course, students to better understand the events and problems that arose during the pandemic and to help solve them.

Damir Knjaz
Dario Novak
Branislav Antala

CHAPTER 1

PHYSICAL EDUCATION, PHYSICAL INACTIVITY AND PSYCHOLOGICAL HEALTH DURING COVID-19 PANDEMIC

Branislav Antala, Dario Novak, Damir Knjaz

The prevalence of psychological disorders among people has been rising worldwide. According to many studies conducted among young and elderly people during the COVID-19 pandemic, physical symptoms may lead to more psychological distress and anxiety. A long stay at home and social isolation have strong psychosocial consequences, especially for the mental health of the general and more vulnerable populations. Studies have reported loneliness, anxiety, boredom, anger, denial, depression, insomnia, and suicides in quarantined people. Reduced physical inactivity is another consequential outcome of social isolation at home or quarantine. It is well known that physical inactivity is a major cause of disease, disability, and serious mental problems worldwide. On the other hand, physical activity has a positive effect not only on physical health but is also an indispensable factor in improving the mental health of an individual. Thus, for example, physical activity and exercise are used in the treatment of people suffering from mental disorders and have been shown to be particularly effective in people suffering from anxiety and depression. Furthermore, physical activity, in addition to having a positive effect on neurotransmitter systems, endorphins and hormones (such as coping with stress and treatment of psychotic disorders and dementia), also significantly affects self-esteem and self-confidence, cognitive functions and socialization. Recommendations for physical activity for people with mental disorders include daily exercise for at least 30 minutes or at least three times a week for one hour. It is important to identify risk factors and protective factors to prevent psychological difficulties during COVID-19 pandemic. Understanding the link between the COVID-19 pandemic and psychological health, including mental pain,

could contribute to improving the effectiveness of existing preventive approaches. Also, early identification of serious mental problems is critical for interventions to be successful. This chapter provides the latest evidence on the physical education, physical inactivity and psychological health during COVID-19 pandemic.

“COVID-19, FORCED INACTIVITY AND INEQUALITY IN SPORT” REMAPPING SCHOOL SPORT IN CATALONIA: A REGIONAL EUROPEAN PERSPECTIVE

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ABSTRACT

Particularly focused in Catalonia region, this article draws from a study carried out in order to show the impact of COVID-19 pandemic measures for sport schools in the region. The article also wants to highlight the enormous challenges that sport schools have faced and is going to face due to the recent COVID-19 pandemic emergency measures. Following government calls for general public isolation, school sporting associations, sport for all and other amateur organisations have gone through the longest period of inactivity since the re-establishment of democracy. Having the potential participants locked down at home, it has forced professionals to explore new ways to connect with them. Public sector has joint in, raising awareness on the risk of inactivity and imposing a range of restrictive measures that have impacted sport, especially the one related to schools and grassroots levels. The situation has obliged one of the major School Sport organisations in Catalonia (UCEC) to reinvent strategies in order to survive and keep providing sport initiatives to more than 200.000 scholars and young adults across the region.

Keywords: COVID-19, Sport School, sporting opportunities, sport equity, Physical Activity, Sport for All, Personal & Social Values

INTRODUCTION

Catalonia, a sports country

In Catalonia, sport has always been related to modernity and a civil society self-organisation. In the late 19th century, new vision of sport had a considerable impact in Catalan society, alongside more traditional games such as skittles, tip-cat, tug-of-war, and certain ball games, along with footraces, nautical races with small boats and animal races, thanks to the role played by clubs in consolidating sports as both exercise and entertainment (Santacana, 2014). A number of sporting clubs and associations were created during that period of time, following the need of institutionalisation. Some of them responded to Catalan historical relation to their own natural landscape (hiking, cycling, running, horseback riding) and other were imported thanks to British connection due to a growing commercial and trade agreements (football, tennis, boxing, gymnastics). The will to promote organised physical activity linked with Catalanism political movement, propelled Barcelona's candidacy to host the 1924 Olympic games (Santacana, 2014). However, from the early 40's, Franco's dictatorship progressively eliminated democratic meaning of sporting organisation and their links to Catalanism. Therefore, many clubs changed their icons and symbology, and sport personalities were prosecuted and sentenced to prison. With the return of democracy in the early 80's, all sport manifestations relinked with their original pursuit and were reborn under the basis of "sports for everyone" and the international recognition of the 1992 Barcelona Olympics (Santacana, 2014).

Nowadays, Catalonia is a world renowned sport cluster due to the internationalisation of some of its clubs in many sport manifestations (FC Barcelona, FIATC Joventut de Badalona, Club Natació Sabadell) as well as the irruption of sportsmen and women, such as Lionel Messi, Kilian Jornet, Pau Gasol or Mireia Belmonte. Besides, there is a growing interest for organising top sporting events (Barcelona World Race, Barcelona Zurich Marathon, F1 and Moto Gp Grand Prix). None of these events were possible without excellent sport infrastructure (Camp Nou, Montmeló, Palau Sant Jordi). With 35,424 sports areas, Catalonia has more sports facilities than any other region in Spain, which allows the Catalan population to enjoy more than 300 different sports activities, offered by both public and private sectors (Indecat, 2014).

Catalonia has world-class facilities for hosting, playing, doing, or training in any kind of sport, ranging from motorsports to sailing, skiing, cycling or golf. Having worldwide sport recognition, international events have attracted a number of

major foreign sport companies that have established their headquarters in recent years. Catalonia is the territory with the greatest concentration of sports businesses in Europe. It has more than 500 companies linked to sport which can be grouped into 3 different sports segments (facilities, events, and consumer goods), and represents more than 70% of Spanish production, with a turnover exceeding 4 billion euros and more than 22,000 employees. This growing sector includes a wide variety of industries and accounts for 2.1% of the Catalan GDP (Indecat, 2014).

Catalonia has also developed a solid sport tourism sector thanks to being in an exceptional location and having a miscellaneous outdoors environment which allows the realisation of wide range of sporting disciplines. Together with winter sports, this mountainous country, full of valleys carved out by rivers, glaciers, natural parks, and protected areas, is especially suitable for activities such as hiking, with a network of footpaths over 5,000 km long. Climbing, cycling, horse-trekking and a wide range of activities are also possible in this diverse and charming landscape. Finally, there is a set of international sport events that attracts tourists, ranging from spectators to those willing to take an active part (Indecat, 2014).

Regional sport system

Catalonia sport system is organised under a number of sport institutions which act as governing bodies responsible for managing and revising sport strategies. The main public institution is "Secretaria General de l'Esport i de l'Activitat Física" (SGEAF) and is entitled to develop Catalan regional government sport competencies based on the increasing level of citizens' sport practice collaborating with other private and public organisations through another public institution called "Consell Català de l'Esport" (CCE). Among its duties we can find supporting schooling, medic, technical and legal areas of sport; increasing and supervising regional sport facilities; helping Catalan sport federations competing at international level and promoting sport as a cultural identity sign of Catalan society.

On the private side of sport, there are three main sport organisations: "Unió de Federacions Esportives de Catalunya" (UFEC) which is the cluster of all Catalan sport federations; "Esport Català Universitari" (ECU) integrated by all the Catalan universities which is responsible for organising Catalan university sport championships and "Unió de Consell Esportius de Catalunya" (UCEC), the organisation in charge of managing sport schools across the region.

UCEC, sport school management in Catalonia

The UCEC (Unió de Consells Esportius de Catalunya) is a private sport organisation granted with public support in order to promote school sport and sport for all services across the region. The organisation was founded in 1994 in order to promote Physical Activity and Sport for All principles in Catalonia, focusing on supporting children, adolescents and youth participants and basing its policies on equality, equity and reinforcing personal values, social responsibility, and health habits. The organisation is currently formed by up to 45 county divisions that cover the whole region and allow over 200.000 school students to interact with a wide range of sport disciplines.

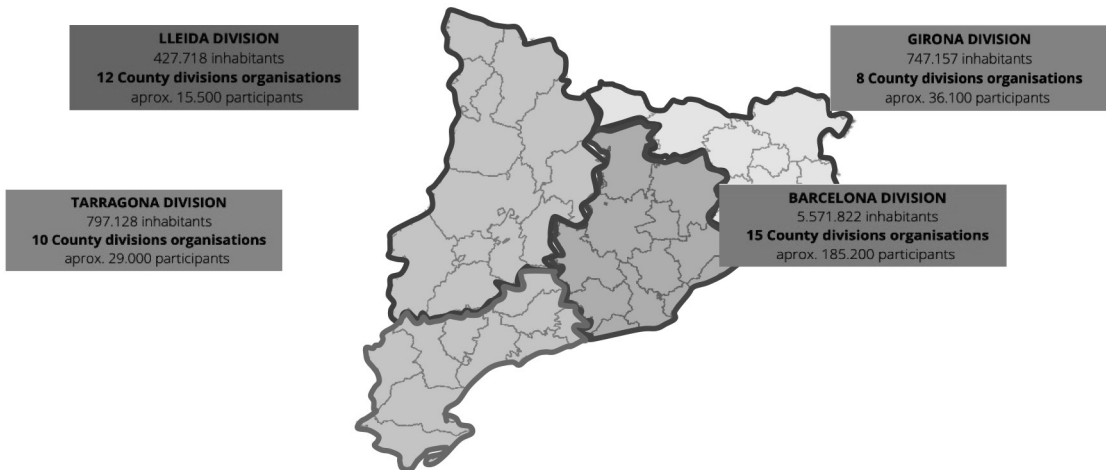


Figure 1. UCEC county division in Catalonia region and number of participants

According to a recent study (Itik Consultoria, 2019), the county divisions can be organised under 4 different categories according to their size and development level:

- 1st Category: A small county division with 1 or 2 employees, with a big dependency on public funding (90% or more), sporting services offer based on youth and children's championships and without website or social media communication.
- 2nd Category: A small-medium size county division with 3-5 employees, with still big dependency on public funding (60-90%), limited sporting services offer, apart from championships and basic website with no social media communication.
- 3rd Category: A medium-large size county division with up to 5 employees, with a balanced dependency on public funding (40-59%), with sporting services of-

fer aiming at a larger population scale and active website as well as active social media communication.

- 4th Category: A large size county division with more than 5 employees, with a low level of dependency on public funding, with a sports company view on generating services for a big scale of population and more advanced website as well as active social media communication.

However, and following the present research, we can assume that there are other multiple subcategories to be added to this classification, due to the lack of territorial private and governmental sporting programs and facilities, that force certain county divisions to develop a number of sporting services that would not be provided by any other public or private organisation.

Sport provision for children and adolescents in school ages

Although over the years more services have been added to the initial offer, UCEC county division’s main objective is to provide sport initiatives to children and adolescents in school ages by organising championships of several sports across the region. In Catalonia, school ages are those included between the age of 6 (1st grade of primary education) and 16 (4th grade of secondary education), this grouping has a direct correlation with mandatory education school years. If we have a look at the big picture, we can see that there is about 70% of sport practise during this period. We observe a peak in the 5th and the 6th grade of primary with up to 80,5% of participation and the lowest level in the 3rd and the 4th grade of secondary education with 67,7% (Itik Consultoria, 2019).

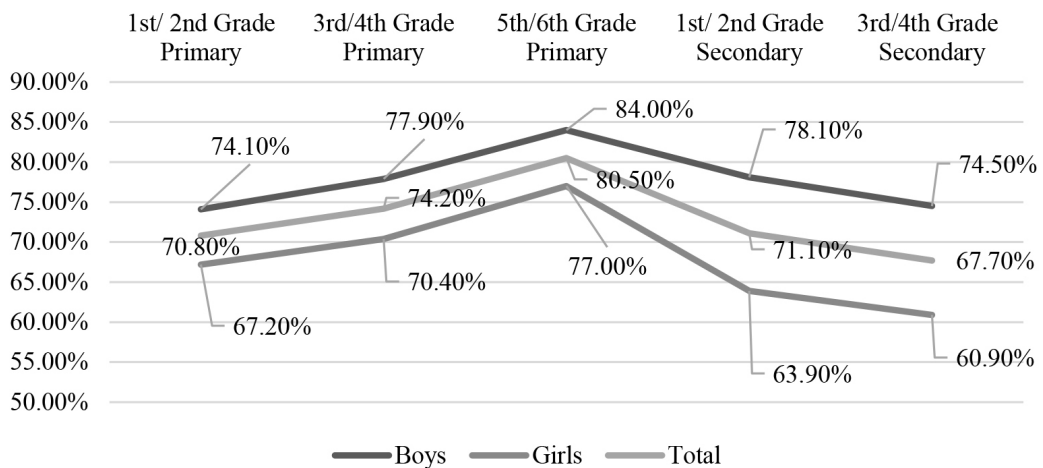


Figure 2. Percentage of participation during school ages in Catalonia

The whole level of practice is not only related to school sport, as from the 3rd grade of primary to the 4th grade of secondary education the irruption of club sport depending on sport federations increases from 34% to up to 72% of the total participation. This progression balances the decrease of school sport participation but cannot match the best of the 5th and the 6th grade of primary (Itik Consultoria, 2019).

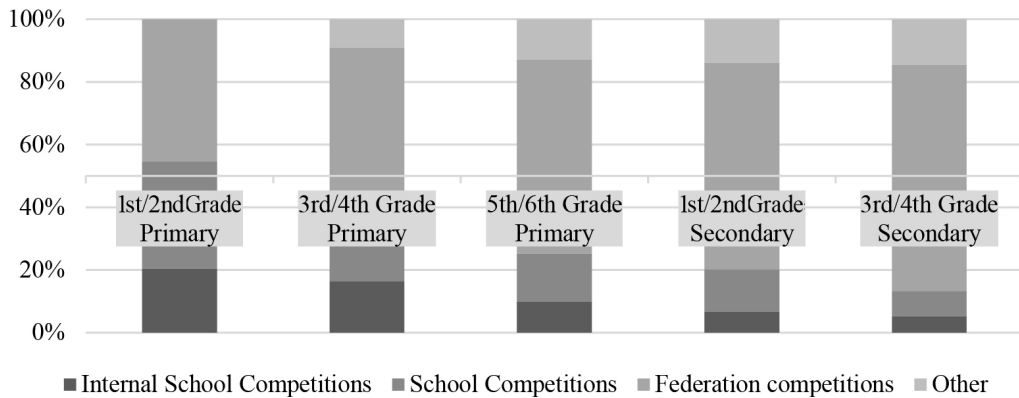


Figure 3. Sport activity distribution among facilitators

Following COVID-19 restrictive measures that have stopped school sport participation and according to the percentages of participation shown above, we can assume that between 30% and 40% of school participants in school ages, have been deprived from engaging in sport activities for several months. Besides, considering that sport club expenses for families are commonly higher than those of school sport, the situation provides a clear example of the social impact of these measures for lower income families across the region and the increment of social inequality.

COVID-19, an unexpected visitor

In March 2020, the whole world was paralysed due to a pandemic situation, many economic sectors were forced to close their businesses and general mobility was reserved to emergency and other basic services. The restrictions had a substantial impact on sport sector from the very beginning at different levels. The first emergency action was taken on 13 March 2020 and stated a lockdown initially planned for 15 days, but this first action lasted for over three months.

On 23 April 2020, UCEC released a press statement informing about the termination of school sport Games (JEEC) due to the pandemic impact in Catalonia. Alongside regional government officials, UCEC steering committee decided to seek out

for a specific procedure to be able to resume school sport games in 2020–2021 season. Regarding other specific sporting activities, UCEC allowed all county division members to autonomously plan de-escalation following the specific sanitary guidelines.

On 9 September, once the 2020 summer season ended and according to all the adapted activities organised during that period, UCEC General Assembly approved a protocol to resume activities and school competitions. The importance of promoting physical activity, social inclusion, social cohesion, and equity, were some of the key points of the protocol based on three main ideas: managing sanitary protocols, security checks for individuals and the importance of facing the economic crisis. A specific document was also released on 17 September in order to stretch the social measures created to face discrimination, urging social services to secure enough funding provision for vulnerable families in every city across the region and UCEC.

Although all the protocols were ready to be deployed, on 10 October the government declared the closure of sport facilities and ceasing all training and sport competitions. Only school groups' social bubbles were allowed to carry on doing physical activity within school boundaries and avoiding any contact with other children or adults. On 30 October, UCEC formally asked Catalan Government to consider physical activity as an essential activity in order to guarantee future athletes' personal development and to be able to confront sports sector economic crisis.

In December 2020, UCEC started the campaign "Esport Segur" (Safe Sport) to highlight sport values and beneficial outcomes of doing physical activity. The campaign was one of the many initiatives taken by the sport sector in order to disseminate the safety measures released to fight COVID-19 and show all the social initiatives undertaken to secure sport and physical activity for vulnerable families in Catalonia. Although the campaign reached the general public, the government continued to stop school sport activities from taking place, arguing the importance of keeping children safe.

On 22 February 2021, PROCICAT, the government bureau in charge of policing COVID-19 measures, equalled school sport with federated sport and allowed UCEC county divisions to finally resume their activities acknowledging the inconsistency of stopping the normal functioning of school sport.

ORGANISATION OF THE STUDY

Setting and participants

The study was carried out between January and April 2021 with comprehensive news and literature review, and the participation of 44 UCEC county divisions in order to provide a clear view of the situation and 9 interviews to school sport professionals. Special attention to these leading figures was crucial in order to make a reasonable prospection on what is likely to be the situation in years to come.

Aims and hypothesis

The main aim was to analyse school sport situation after COVID-19 pandemic measures focusing on UCEC organisation as a main provider of this type of services across the region. The following dimensions were set in order to classify research findings:

1. County division's objectives and shared vision within the UCEC organisation.
2. Level of maintained activity during the pandemic period.
3. Restrictions' impact on daily basis activity and future provisions.
4. County divisions visibility, level of territorial impact within participants and general public.
5. Public administration relationship according to restrictions and perceived treatment.

The following hypotheses were established in order to examine the above research dimensions:

1. COVID-19 restrictive measures have reduced within 25% and 50% of School Sport activity.
2. COVID-19 restrictive measures have shown the need of reorganizing School Sport activity.
3. COVID-19 restrictive measures have shown the need of emphasizing UCEC attributions within Catalan Sports system.

METHODS

The data collection was set using a mixed method of both qualitative and quantitative instruments (Balcells et al., 2013). On one hand, a validated questionnaire using a representative sample, demonstrating adequate reliability and validity, was facilitated to all county divisions managers in order to collect data related to the second and third dimensions and with the will to provide a quantitative measurement of COVID-19 impact on county divisions. On the other hand, and after analysing the quantitative data provided, a prospective research was conducted under the form of 9 qualitative interviews administered to relevant leading professionals in order to recap more information about the particular situation of some county divisions and have a better understanding of their dissemination across the region.

OUTCOMES

The real impact of COVID-19

All county divisions members take part in school sport competition JEEC (Jocs Esportius Escolars de Catalunya) and the Catalan program for engaging sport in school placements called PCEE (Pla Català de l'Esport a l'Escola). If we look at the number of young athletes they provide to the school competition, we find that the majority (66% of all county divisions) provide less than 5.000 participants into the competition and only 34% have a significant impact of more than 5.000 participants during a school year. Due to the pandemic situation, we find that 36 out of 42 county divisions had more than 25% decrease in number of participants, being more than 50% in 14 of them. Only 6 county divisions had an impact below 25%. Most of the county divisions that had a lesser impact are those with lower participants in a regular season. This fact increases the overall decline of activity across the board.

The unknown, worrying insecurity and fear of not being able to continue with the planned activities after the pandemic measures taken were the most common feelings once the news about the lockdown arose in early March 2019. County division members struggled to offer activities back in that period as seen in the graphic below. Nine county divisions (more than 21% of the participants) stopped all the activities and did not provide any initiative, five other members provided activities reducing the number of participants (12% of the total participants). Social

media was one of the most recurrent tools used during the peak of the pandemic stage as over 22 county division members (over 50% of the ones who answered the questionnaire) engaged in this type of channel to reach participants. The proposed activities ranged from virtual physical challenges to fitness sessions, and from physical activity routines to the need of emphasizing the aims of county division objectives. Online training for technical members and general population was another option chosen during the lockdown period. Two county divisions used this type of activity alongside 9 others.

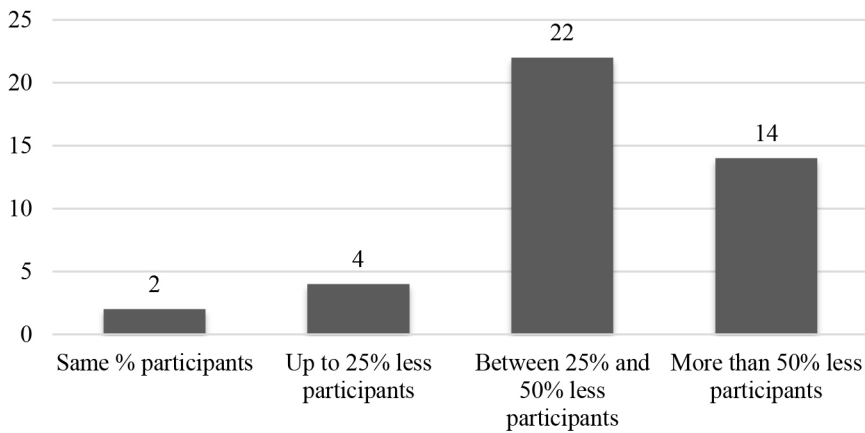


Figure 4. Participants decline between pre-COVID-19 season and COVID-19 season

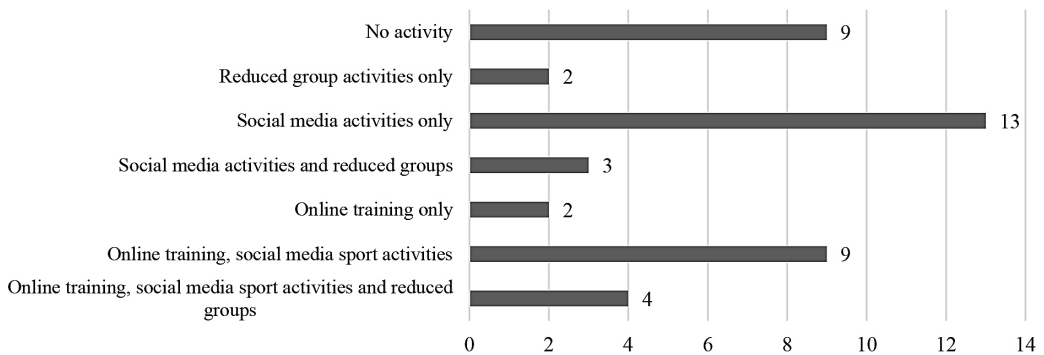


Figure 5. Type of preferred activities facilitated during the pandemic period

If we look at the sport disciplines affected, 37% of county divisions agreed that team sports were the most affected due to the social interaction involved in the activity, followed by 20% of UCEC members that saw no difference among dis-

ciplines, 14% of the answers recorded a big impact on multisport program, 12% experienced same level of disruption in team sports and individual sports, 11% in multisport and team sports, and finally only 6% of the total answers pointed out individual sports as the most affected discipline.

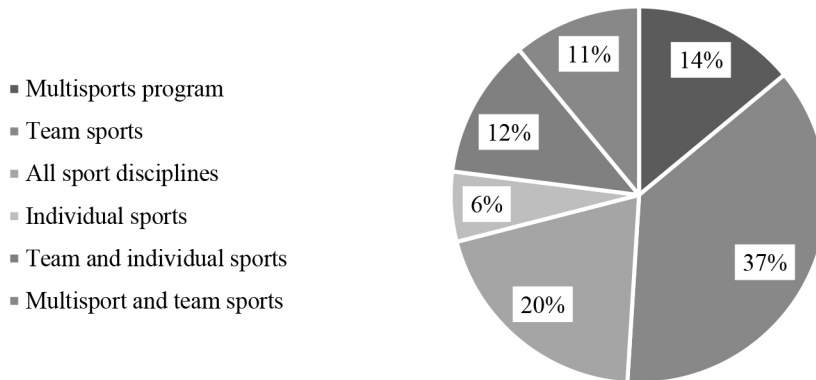


Figure 6. Most perceived disrupted programs and sport disciplines

When questioned about the perceived motivation of activity decrease after the COVID-19 restrictive measures, 12 county divisions responded that health fears were the most relevant reasons that families argued for stopping the sport activity of their children. Other 7 members believed that the economic situation was the key reason for not taking part in sport activity, as well as the lack of interest of families and children due to the restrictive measures in participating in sport competitions. At the end of the list, 2 UCEC members saw families change of priorities during the lockdown pandemic situation and grouping limitations that made the activity less appealing and motivating.

School Sport, new challenges and needed meaningful changes

Although UCEC county divisions were created in order to support school sport competitions in Catalonia, over the years they have adapted their objectives according to the managing territory. Therefore, we can find county divisions in small and less populated territories that have become the unique physical activity and sport facilitators as there are no other private or public organisations in charge of doing so. Regardless of size, many county divisions have seen the importance of promoting sports services outside the specific school sport provision and reaching more age groups. The need of generating more varied sport activity demands better sport facilities and specific funding from Catalan government and public organisations.

COVID-19 has forced county divisions to reinvent themselves and generalise the usage of social media to be close to the usual participants and the general public. Besides, the pandemic period has changed the perception about sport and physical activity in many areas of personal and social life, as well as the impact of inactivity in citizens' mental, emotional, and physical health. According to professionals, county divisions need to engage with this renewed interest in sport and increase the number of participants within the society. Although there is no clear evidence of the ultimate impact of COVID-19 in school sport in future years, professionals argue that there is a need of revising age group activities in order to face secondary education decline activity in favour of sedentarism and less interest in physical activity (Mera-Mamián et al., 2020). Asking youngsters about their preferred physical activities and avoid them from engaging with other social activities that can have a negative impact is another crucial future action to be taken in order to develop lifelong healthy habits (Marques et al., 2017).

The majority of the interviewed leading professionals have urged the need of re-drawing the Catalan Sports System in order to highlight the importance of territorial knowledge and presence of UCEC organisation county divisions and set specific guidelines for all the other private and public organisations involved. According to territorial leaders, there is a need for increasing the presence of sport within the political and institutional debate, as well as providing more funding opportunities to be able to create a stronger system. There is a need of showing the importance of investing in sport and physical activity as a tool for preventing illnesses, creating a healthier society, and reducing the need of using public services such as doctors, hospitals, and drugs (Rodríguez, 1990).

CONCLUSIONS

Although further quantitative and qualitative research studies would be needed to incorporate information from Catalan government authorities and other public and private sport system key subjects such as UCEC, following the results reached during this research and in relation to the hypothesis raised at the beginning of the study we conclude that:

1. COVID-19 restrictive measures have reduced between 25% and 50% of School Sport activity. It is still to be seen if the decrease in school sport activities will be recovered over the following years. Particular measures will be needed in order

to tackle the situation of youngsters and adolescents from secondary education as the ones of major risk of abandoning school sport system.

2. COVID-19 restrictive measures have shown the need of reorganizing school sport activity. Most of interviewed leading professionals from school sport UCEC organisation clearly state that the school sport system must be prioritised and funded in order to secure its survival. The same professionals ask for a revision of objectives and strategies linked with territorial needs and demands.
3. COVID-19 restrictive measures have shown the need of emphasizing UCEC attributions within Catalan Sports system in order to protect the social view, the enhancement of sport values, the protection of equity and providing sport services to the most vulnerable citizens in Catalonia.

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