

ANALYSIS ON THE IMPACT OF SOCIAL RESTRICTIONS DURING THE PANDEMIC ON SPORTS PRACTICE IN ITALY: REFLECTIONS, CONSEQUENCES AND PERSPECTIVES

ANALISI SULL'IMPATTO DELLE RESTRIZIONI SOCIALI DURANTE LA PANDEMIA SULLA PRATICA SPORTIVA IN ITALIA: RIFLESSIONI, CONSEGUENZE E PROSPETTIVE

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Abstract

Measures aimed at containing the coronavirus pandemic (COVID-19) have led to social distancing and the limitation of exits for all age groups. Physical movement was drastically limited or stopped, with important consequences on physical and mental well-being. This can have a negative effect on body image, especially on the younger population, leading to a lower level of self-efficacy and self-esteem.

Many opportunities to be physically active have been suspended (Hall et al., 2020) with potential consequences for children and adults. As a matter of fact, physical inactivity can have a negative effect on body image, especially in younger population (Gaddad et al., 2018) with severe consequences in self-efficacy and academic achievement (D'Amico & Cardaci, 2003). In older adults the greater sedentary time, can lead to the increased risk of ill-health and poor wellbeing when associated with isolation (Schrempft et al., 2019; Herbolsheimer et al., 2018).

Many research activities, in the field of social sciences and biology, have analyzed the benefits of physical activity on psycho-physical well-being. There are numerous scientific evidences showing how exercise decreases the risk of developing cardiovascular disease, osteoporosis and some forms of cancer, in addition to helping preventing obesity and diabetes (Warburton, Nicol, Bredin, 2006). Furthermore, physical exercise has significant effects on mental health (Stuart, 2016); in particular, the benefits of sport have been explored to counteract the development of states of anxiety (Anderson, Shivakumar, 2013) and depression (Craft, Perna, 2004). We can affirm that sport is an important moderating variable in the perception of individual well-being, the integrity of which depends on numerous factors of an environmental and personal nature, which, all together, determine our health state.

Through this study we wanted to analyze how the pandemic has changed the sports practice habits of the Italian population in the period of social restrictions. The O.P.E.S. Organizzazione per l'Educazione allo Sport (Organization for Sports Education) distributed and collected the results of a social survey questionnaire that reached hundreds of people practicing sports by collecting data on both users and changes in the service offer.

This article scientifically analyzes the results of the questionnaire and on the basis of these evaluations are proposed on the impact of the COVID 19 emergency period on sports practice in Italy.

Le misure atte a contenere la pandemia da coronavirus (COVID-19) hanno portato al distanziamento sociale e alla limitazione delle uscite per tutte le fasce d'età. Il movimento fisico è stato drasticamente limitato o interrotto, con importanti conseguenze sul benessere fisico e mentale. Questo può avere un effetto negativo sull'immagine corporea, soprattutto sulla popolazione più giovane, portando a un livello più basso di autoefficacia e autostima.

Molte opportunità di essere fisicamente attivi sono state sospese (Hall et al., 2020) con potenziali conseguenze per bambini e adulti. In effetti, l'inattività fisica può avere un effetto negativo sull'immagine corporea, soprattutto nella popolazione più giovane (Gaddad et al., 2018) con gravi conseguenze sull'autoefficacia (D'Amico & Cardaci, 2003). Negli anziani il maggiore tempo sedentario può portare ad un aumento del rischio di cattiva salute e scarso benessere se associato all'isolamento (Schrempft et al., 2019; Herbolsheimer et al., 2018).

Molte attività di ricerca, nel campo delle scienze sociali e della biologia hanno analizzato i benefici dell'attività fisica sullo stato di benessere psico-fisico. Esistono numerose prove scientifiche che dimostrano come l'esercizio fisico

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diminuisca il rischio di sviluppare malattie cardiovascolari, osteoporosi e alcune forme di cancro, oltre ad aiutare a prevenire l'obesità e il diabete (Warburton, Nicol, Bredin, 2006). Inoltre, l'esercizio fisico ha effetti significativi sulla salute mentale (Stuart, 2016); in particolare, sono stati esplorati i benefici dello sport per contrastare lo sviluppo di stati di ansia (Anderson, Shivakumar, 2013) e depressione (Craft, Perna, 2004). Possiamo affermare che lo sport è un'importante variabile moderatrice nella percezione del benessere individuale, la cui integrità dipende da numerosi fattori di natura ambientale e personale, che, tutti insieme, determinano il nostro stato di salute.

Attraverso questo studio si è voluto analizzare come la pandemia ha cambiato le abitudini di pratica sportiva della popolazione italiana nel periodo di restrizioni sociali. O.P.E.S. Organizzazione per l'Educazione allo Sport ha distribuito e raccolto i risultati di un questionario di indagine sociale che ha raggiunto centinaia di soggetti praticanti attività sportive raccogliendo dati sia sull'utenza che sulla modificazione dell'offerta di servizi.

In questo articolo si analizzano scientificamente i risultati del questionario e sulla base di questi si propongono valutazioni sull'impatto del periodo di emergenza COVID 19 sulla pratica sportiva in Italia.

Key words

Sport Managing; Athlete; Covid-19; Life style; Data Analysis;
Sport Manager, Atleti; Covid-19; Stile di vita; Analisi dei dati;

Introduction

This research work, in collaboration with O.P.E.S., Organization for Sports Education, aimed to investigate the behavior of the companies promoting motor activities and that of users. The pandemic has impacted not only people's lifestyles, but also that of services, which in part had to readjust their style and training offer.

The professionalization of sport has led to the evolution of increasingly complex organizations. These initiatives often balance divergent goals such as financial, sporting and community outcomes. However, Sport Managers handle such tensions and often oversimplify the realities of these conflicts (Raw K., Sherry E., Schulenkorf N., 2020).

It aims to explore the management of facilities during the pandemic. A basic qualitative methodology has been adopted, the results show how the managers have had to face complex situations to which they have not always acted in the best possible way. the objective of this study is therefore to understand how management skills in correlation to the pandemic situation can affect the dynamism of an entrepreneurial ecosystem but also of well-being

1. Background

The World Health Organization's Guidelines (201) stipulate at least 60 minutes of moderate-to-vigorous physical activity (MVPA) per day for children and at least 150 minutes per week for adults. Among MVPA we can mention brisk walking, jogging and running (Piercy et al., 2018). It is also recommended to accompany with resistance exercises, like muscle strengthening (e.g., resistance training and weight lifting) and bone-strengthening (e.g., running and jump roping) at least three days per week. Physical activity (PA) confers significant overall health benefits (Warburton & Bredin, 2017), both in a psychological and physical points of view. People who engage in regular physical exercise have been shown to have an higher protection against the development of chronic diseases and an improved quality of life. Regular physical activity can reduce risk of developing type 2 diabetes and metabolic syndrome, and also heart disease and stroke (Coombes et al., 2013). Research shows that adults who participate in greater amounts of physical activity have reduced risks of developing cancers of the bladder, breast, colon, etc. International literature demonstrate also its positive impacts on mental well-being, preventing symptoms of depression and anxiety (Stanton et. al, 2014). A review by Smith et al. (2013) demonstrates a positive relationship between moderate physical exercise, like walking, and cognitive functions and a negative relationship with dementia and cognitive decline. Besides, we can't forget that the physical activity has an important role in body im-

age satisfaction, especially in young people that are building their personality and social role. The scientific literature report a positive incidence of P.A. on body image and perceived body attractiveness (Altıntaş et al., 2014), as well as on body perception as an element of global self-esteem (Mariani et al., 2019). Gaddad et al. (2018) recorded that an increased level in sedentary lifestyle is correlated with a lower body image perception. Unfortunately, COVID-19 outbreak experience had effects on sedentary behaviors, increasing inactivity both in adults and in children, accumulating more sedentary behavior, like passive screen-time such as TV and video-games (Fröberg, 2020). It is important to mention that even before the Covid-19, the recommended levels of physical activity were not achieved among children and adults. However, physical movement has been drastically limited or interrupted (Hall et al., 2020), with important consequences on mental and physical well-being. Furthermore, with current restrictions, the possibility to have facilities for exercising regularly is dramatically reduced. International and Italian studies published immediately after pandemic outbreak show that physical activity levels decreased even more among children and young people (Moore et al., 2020; Xiang et al., 2020; Maugeri et al., 2020; Huber et al., 2020). Furthermore, a Japanese study (Okazaki, 2015) highlights the risk of a significant decrease in physical exercise also in the following 3 years after a natural disaster. The reduction of active behavior in favor of a sedentary attitude has been demonstrated to lead to psychological problems. International literature, concerning present and previous pandemic experiences, reported a high level of psychological distress in population during and after quarantine, such as depression, stress, irritability, confusion and anger (Brooks et al., 2020; O'Reilly et al., 2020; Spinelli et al., 2020; Yoon et al., 2016;), with long-lasting effects (Gallo et al., 2020). Nationwide restrictions included staying at home, unless seeking medical care, providing care, purchasing food, undertaking exercise, or attending work in an essential service. All undergraduate university classes transitioned to online, mostly home-based learning. This disruption to daily life may have consequences for eating and physical activity patterns.

Methods: In this observational study, we examined the effect of isolation measures, during the early phase of the COVID-19 pandemic in Australia (March/April; Liu et al., 2012). Some studies show that the greater sedentary time can lead to an increased risk of ill-health and poor wellbeing when associated with isolation (Schrempft et al., 2019; Herbolsheimer et al., 2018). Among university students, these restrictions have also caused a tremendous level of stress of uncertain future (Al-Rabiaah et al., 2020). This stress may lead to unfavourable effects on the learning and psychological health of students. Based on these evidences, the purpose of this study is to examine the impact on sports and physical activity levels of the COVID 19 emergency period in Italy. The sport labor market's needs are susceptible to environmental factors. The situation regarding COVID-19 has particularly been influential in altering employment and education policies. The purpose of this research was twofold (1) to understand the graduate employability (i.e., hard and soft skills): and contributions that higher education institutions can make to produce human resources and (2) to identify the differences regarding the above factors before and after COVID-19. The results of Delphi study with executive-level experts in sport business identified various hard/soft skills and higher education's potential contributions. Moreover, experts' expectations are found to be intensified after the COVID-19 outbreak.

2. Method

This is a cross-sectional study with a questionnaire to collect data. The questionnaire was built on two levels: (1) Analysis of the management of sports facilities and services, gyms. Trying to understand the effectiveness of the measures taken both at the government level and at the personal investment of the structures. (2) Survey aimed at adults. The goal is to understand the behavior of sports users in relation to the training, educational and sports offer. The questionnaire analyses physical activity level and habits after first lockdown compared to the period before the Covid-19 pandemic restrictions. The questionnaire has been shared using a digital platform create appositamente and includes a brief description of the study and the declaration

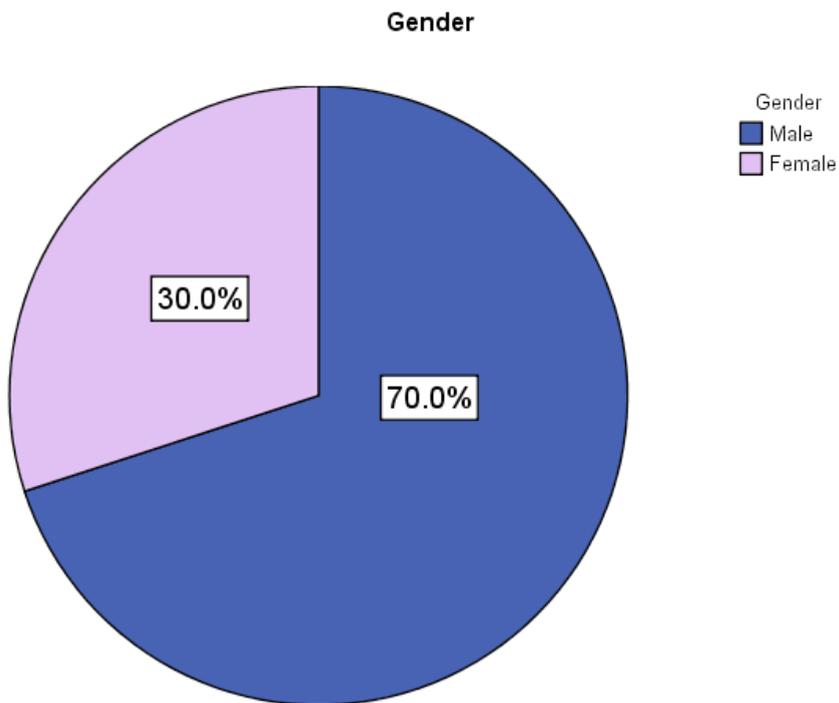
of anonymity and confidentiality. The participants express their consent to participation. Data was collected between During first pandemic. Participants were recruited from O.P.E.S. Organizzazione Per L'educazione Allo Sport, which promotes and organizes, on a non-profit basis, in collaboration with the Affiliated Sports Associations, athletic and recreational initiatives of a local, provincial and national nature. 68 managers of sports activities were interviewed

3. Data Analysis

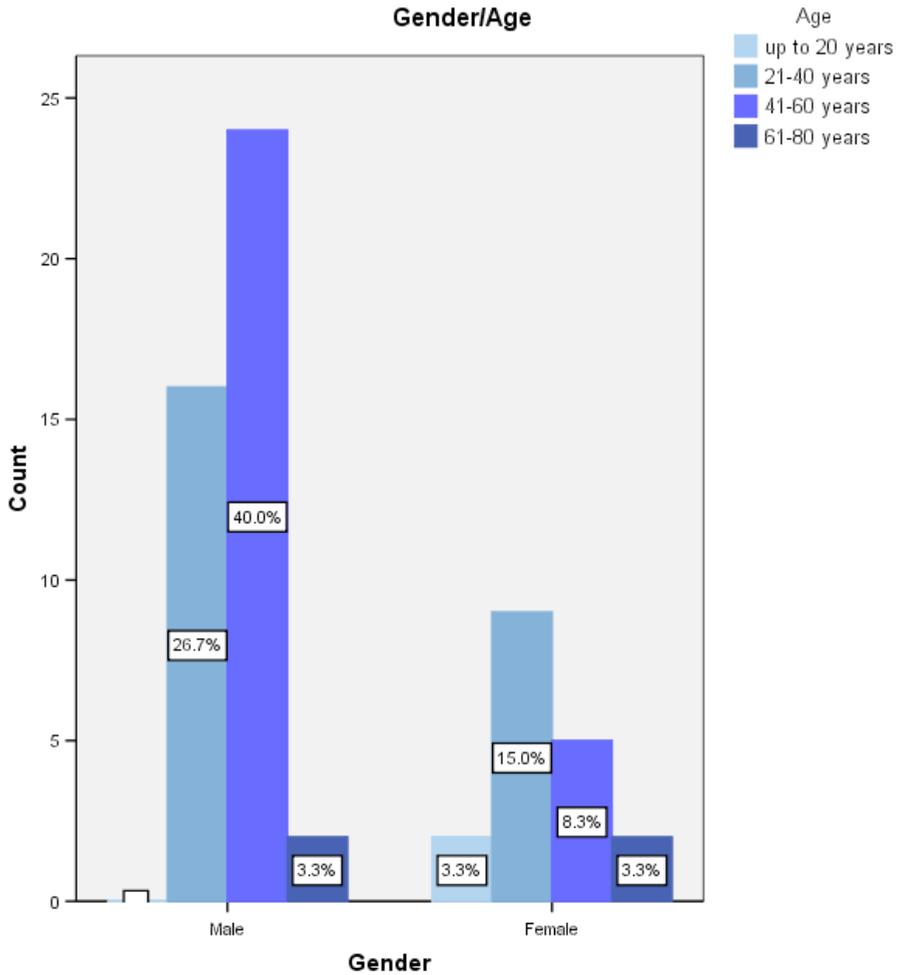
Level 1 Management of Sport Facility

Sample analysis

As can be seen from the graphs below, the sample is predominantly male (70%), most of which between 41 and 60 years, against 30% female, most of which between 21 and 40 years.

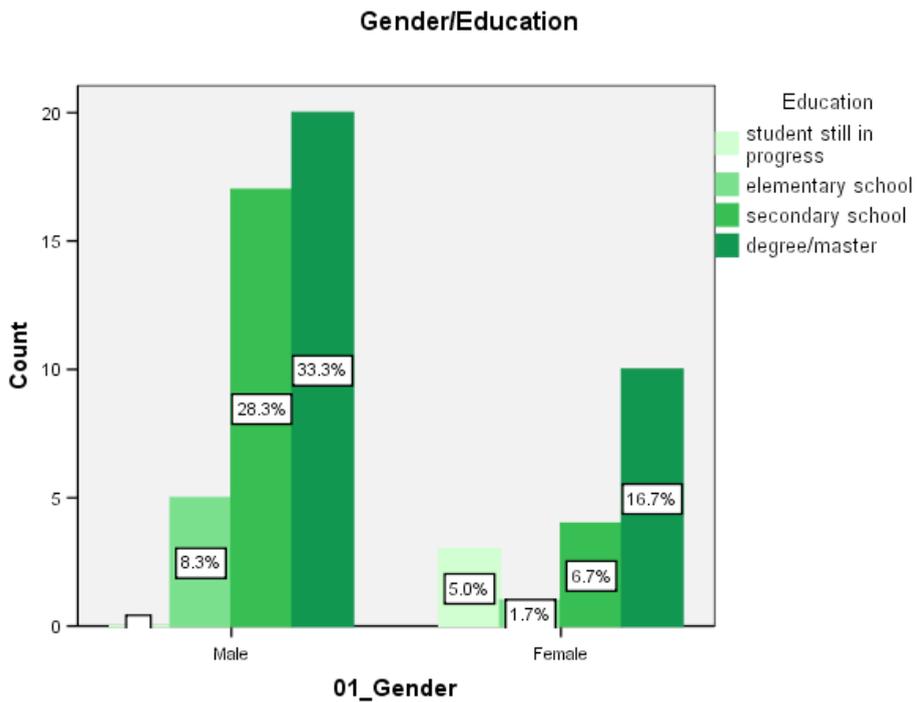


Graph. 1 Gender

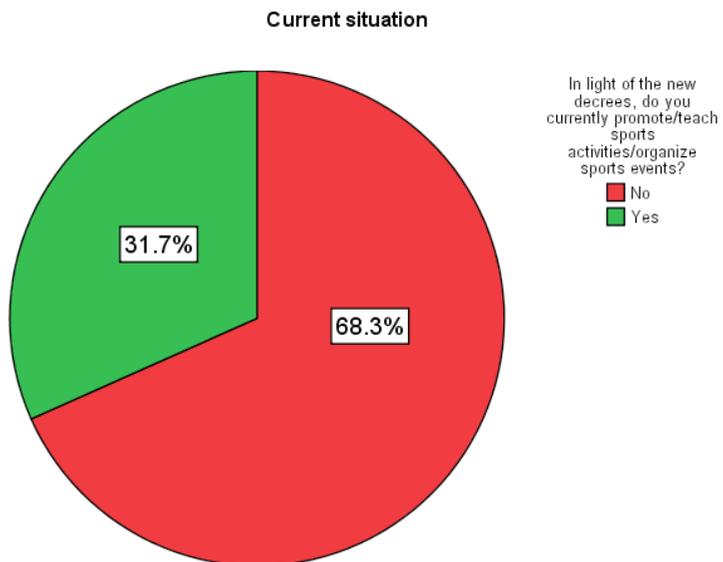


Graph. 2 Gender per Age

The graph 2 shows a clear preponderance of men over women. However, it should be noted that while in the 61-80 age group the percentages are identical, in the two age groups from 21 to 60 there is a clear male superiority even if with a reversal of the trend between the two age groups. In the range up to 20 years there is only the presence of female entrepreneurs.



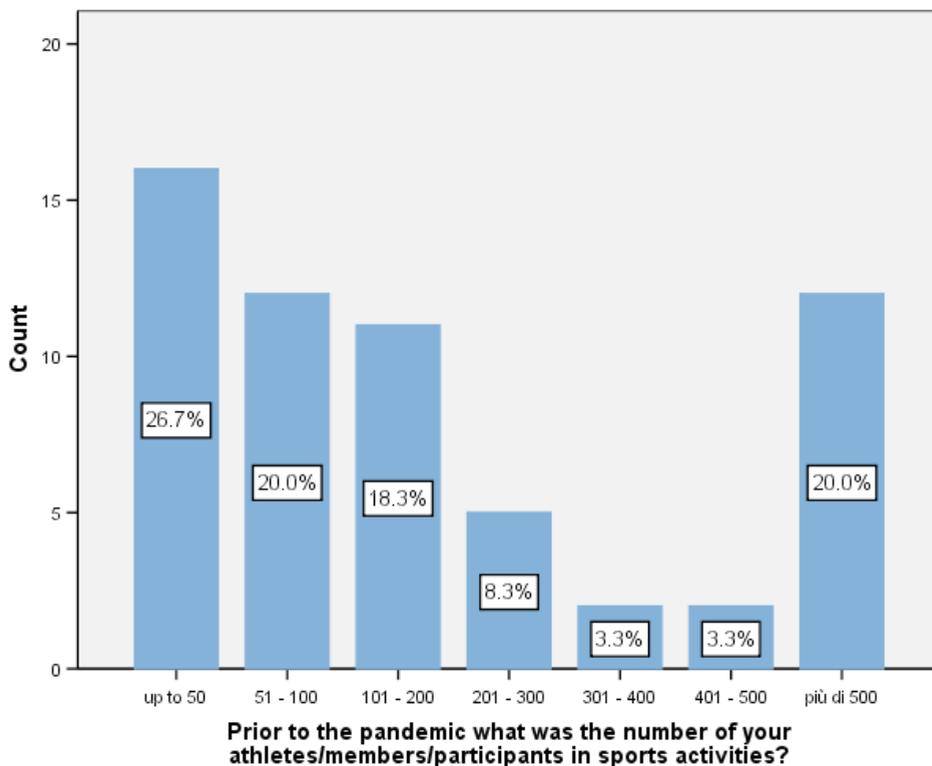
Graph. 3 Gender per Education
 50% of the interviewees have a university degree or master's degree. 35% of high school diploma.



Graph. 4 Current situation/promotion sports

In light of the new pandemic crisis, about 70% of the interviewees proposed sports activities or training on sport.

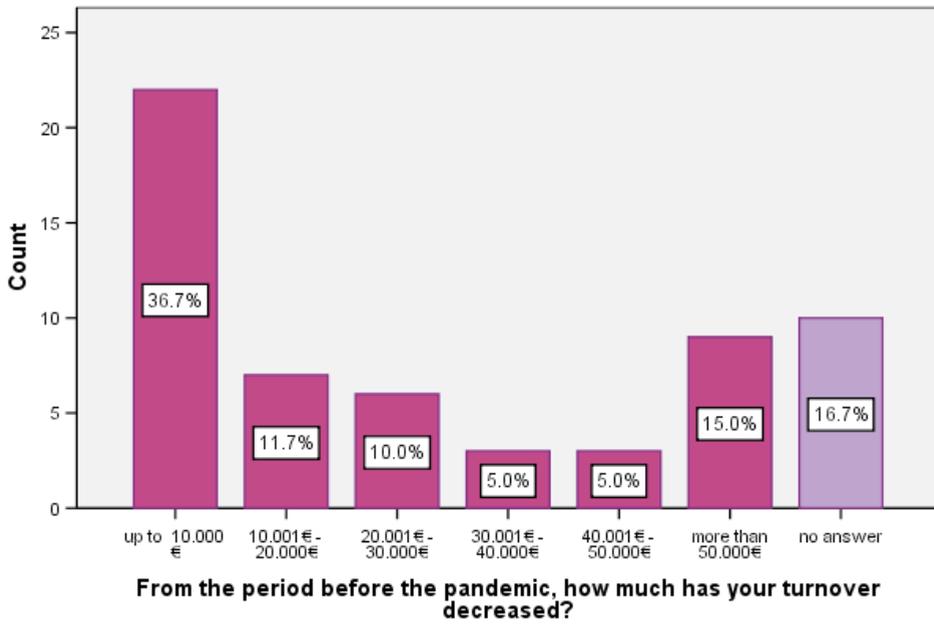
Number of athletes/mebers/participants



Graph. 5 Number of athletes/mebers/participants prior pandemic

Graph no. 4 indicates, as a percentage, the number of athletes enrolled in the sports facility of the interviewee. Most of the structures welcome a maximum of 200 athletes, but 20% of the structures interviewed welcome more than 500 athletes. Almost 15% are establishments with a number of users from 200 to 500.

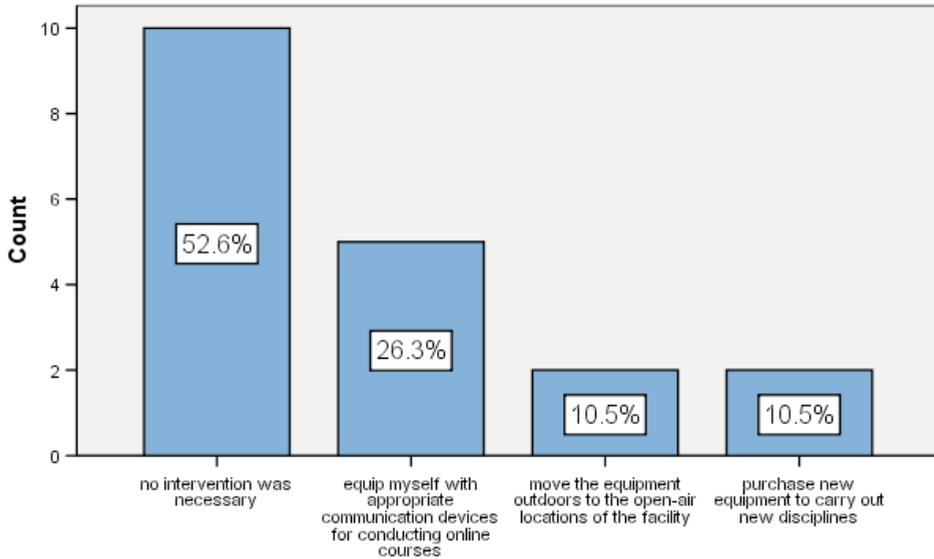
Decrease in turnover



Graph. 6 turnover decrease

Graph no. 6 indicates that most of the structures had a decrease in turnover of up to 10,000.

Interventions

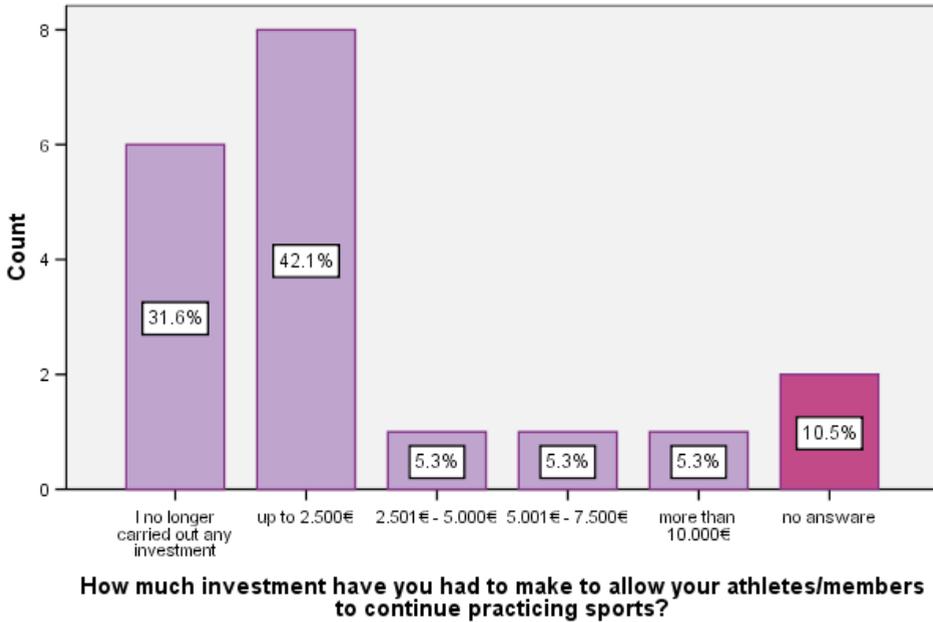


What interventions have you had to carry out in order to be able to continue playing sports?

Graph. 7 Interventions

In graph 7 it can be seen how the sample was split in half between those who did not need to take training measures or investments to modulate the training offer and those who did. The interventions developed were mainly of three types: (1) Development of online training / sports interventions with the relative purchase of suitable technological supports. (2) Development of outdoor sports activities and the purchase of suitable sports equipment for the recovery of outdoor spaces. (3) Diversify the training offer. More than half of the structures have not made any type of investment.

Investments



Graph. 8 Investments

31% of respondents did not invest capital in the business while 58% did. Economic investments range from € 2,500 (42.1%) up to € 10.00 (15.9%). The graph shows that more than 70% of the interviewees have not invested or invested very little to allow their athletes to continue doing sports.

Frequencies

Sports Qualification/Profession

| | | Responses | | Percent of Cases |
|--|------------------------|-----------|---------|------------------|
| | | N | Percent | |
| Sports Qualification/Profession ^a | Sports manager | 18 | 26.5% | 30.5% |
| | Event organizer | 10 | 14.7% | 16.9% |
| | Facility Owner/Manager | 19 | 27.9% | 32.2% |
| | Technician | 19 | 27.9% | 32.2% |
| | No answer | 2 | 2.9% | 3.4% |
| Total | | 68 | 100.0% | 115.3% |

a. Dichotomy group tabulated at value 1.

Table 1 Dichotomy Qualification/Profession

The graph describes the qualification of service managers. Almost 70% of respondents are

facility managers / owners or event organizers. As can be seen from the table in the Percent of case column, the values are greater than in the previous column. So, for example, 26.5% of sport qualifications are Sport managers, while 30.5% of those interviewed gave sport manager as their answer. This difference is due to the fact that the possibility of giving multiple answers has been given. In general, this reading applies to all tables.

The next table (n°2) indicates the types of sports offered before the pandemic. As you can see, there are two dominant sports: football and fitness.

Prior to the pandemic, what sports activities events did you promote teach organize?

| | | Responses | | Percent of Cases |
|---|---------------------------------------|-----------|---------|------------------|
| | | N | Percent | |
| Prior to the pandemic, what sports activities events did you promote teach organize? ^a | Climbing | 2 | 2.2% | 3.3% |
| | Martial arts | 3 | 3.3% | 5.0% |
| | Athletics | 3 | 3.3% | 5.0% |
| | Basketball | 3 | 3.3% | 5.0% |
| | Body building/weight room | 7 | 7.7% | 11.7% |
| | Football/futsal | 16 | 17.6% | 26.7% |
| | Sports/classical dance | 8 | 8.8% | 13.3% |
| | Horse riding | 1 | 1.1% | 1.7% |
| | Fitness/functional gymnastics | 11 | 12.1% | 18.3% |
| | Artistic/rhythmic gymnastics | 2 | 2.2% | 3.3% |
| | Not answer | 5 | 5.5% | 8.3% |
| | Sswimming | 3 | 3.3% | 5.0% |
| | Organizer of national championships | 3 | 3.3% | 5.0% |
| | Organizer of provincial championships | 1 | 1.1% | 1.7% |
| | Organizer of regional championships | 1 | 1.1% | 1.7% |
| | Organizer of training courses | 5 | 5.5% | 8.3% |
| | Organizer of multidisciplinary events | 9 | 9.9% | 15.0% |
| | Organizer of national tournaments | 1 | 1.1% | 1.7% |
| | Padel | 1 | 1.1% | 1.7% |
| | Volleyball | 1 | 1.1% | 1.7% |
| Rugby | 4 | 4.4% | 6.7% | |
| Tennis | 1 | 1.1% | 1.7% | |
| Total | 91 | 100.0% | 151.7% | |

a. Dichotomy group tabulated at value 1.

Table 2 Sports and events promote prior to the pandemic

In light of the new decrees, how do you currently promote/teach sports activities/organize sports events?

| | | Responses | | Percent of Cases |
|---|---|-----------|---------------|------------------|
| | | N | Percent | |
| In light of the new decrees, how do you currently promote/teach sports activities/organize sports events? | No answer | 1 | 3.6% | 5.3% |
| | I organize events of national interest | 6 | 21.4% | 31.6% |
| | Promoting online courses | 3 | 10.7% | 15.8% |
| | Promoting activities in public parks | 2 | 7.1% | 10.5% |
| | Using the outdoor areas of the facility | 11 | 39.3% | 57.9% |
| | Using the halls of the plant because my athletes participate in competitions of national interest | 5 | 17.9% | 26.3% |
| Total | | 28 | 100.0% | 147.4% |

a. Dichotomy group tabulated at value 1.

Table 3 Teach/activities sports promote

The table 3 shows that almost 40% of respondents tried to cope with the constraints imposed by the health emergency through the use of the outdoor areas adjacent to their structure.

In your opinion, not being able to play sports as much as before, which categories have suffered the most?

| | | Responses | | Percent of Cases |
|---|-----------------------------|-----------|---------------|------------------|
| | | N | Percent | |
| In your opinion, not being able to play sports as much as before, which categories have suffered the most? ^a | Teenagers | 19 | 26.0% | 34.5% |
| | Adults | 4 | 5.5% | 7.3% |
| | Elderly | 4 | 5.5% | 7.3% |
| | Children | 24 | 32.9% | 43.6% |
| | I don't know/doesn't answer | 12 | 16.4% | 21.8% |
| | All | 10 | 13.7% | 18.2% |
| Total | | 73 | 100.0% | 132.7% |

a. Dichotomy group tabulated at value 1.

Table 4 Categories suffered

What emerges from table number 12 is that the categories that suffered most from the limits imposed by the restrictions of the pandemic were teenagers and children. In fact, almost half of the interviewees indicated children as the most penalized category.

What sports/sports events are you currently promoting?

| | | Responses | | Percent of Cases |
|--|-------------------------------|-----------|---------------|------------------|
| | | N | Percent | |
| What sports/sports events are you currently promoting? | Climbing | 1 | 4.5% | 5.9% |
| | Martial arts | 1 | 4.5% | 5.9% |
| | Athletics | 1 | 4.5% | 5.9% |
| | Basketball | 1 | 4.5% | 5.9% |
| | Body building/weight room | 2 | 9.1% | 11.8% |
| | Football/futsal | 5 | 22.7% | 29.4% |
| | Fitness/functional gymnastics | 2 | 9.1% | 11.8% |
| | Artistic/rhythmic gymnastics | 1 | 4.5% | 5.9% |
| | Does not answer | 2 | 9.1% | 11.8% |
| | Swimming | 1 | 4.5% | 5.9% |
| | Training course organizer | 1 | 4.5% | 5.9% |
| | Padel | 2 | 9.1% | 11.8% |
| | Rugby | 1 | 4.5% | 5.9% |
| | Tennis | 1 | 4.5% | 5.9% |
| Total | | 22 | 100.0% | 129.4% |

a. Dichotomy group tabulated at value 1.

Table 5 Events currently promoting

Currently, table 13 shows a drastic reduction in the offers proposed. For example, comparing the current table with the tab. 10, you can see a 4-fold reduction in the sports offer.

Why do/don't you feel that you have been able to meet the demands of your athletes so that they had been able to continue playing sports?

| | | Responses | | Percent of Cases |
|---|--|---------------|---------------|------------------|
| | | N | Percent | |
| Why do/don't you feel that you have been able to meet the demands of your athletes so that they had been able to continue playing sports? | I don't have the possibility, not organizing events of national interest | 14 | 21.2% | 23.3% |
| | My plant has no outdoor areas | 8 | 12.1% | 13.3% |
| | I have had no adhesions to the activities I promote | 6 | 9.1% | 10.0% |
| | No answer | 17 | 25.8% | 28.3% |
| | I prefer not to reopen until the pandemic is over | 5 | 7.6% | 8.3% |
| | I prefer not to reopen for fear that it is responsible for outbreaks | 7 | 10.6% | 11.7% |
| | I prefer not to reopen for fear of accruing further expenses | 2 | 3.0% | 3.3% |
| | I have been forced to close permanently | 7 | 10.6% | 11.7% |
| Total | 66 | 100.0% | 110.0% | |

a. Dichotomy group tabulated at value 1.

Table 6 Athletes that had been able to continue playing sports

Most of the respondents who responded (21.2%) failed to meet the requests of their members because they were unable to organize events of national interest.

In your opinion, the fact of dedicating less time to sports practice which aspect has mainly penalized?

| | | Responses | | Percent of Cases |
|--|------------------------------|-----------|---------------|------------------|
| | | N | Percent | |
| In your opinion, the fact of dedicating less time to sports practice which aspect has mainly penalized? ^a | Physical appearance | 14 | 15.9% | 23.3% |
| | Mental aspect | 37 | 42.0% | 61.7% |
| | Relational/behavioral aspect | 14 | 15.9% | 23.3% |
| | No answer | 11 | 12.5% | 18.3% |
| | On lifestyle | 12 | 13.6% | 20.0% |
| Total | | 88 | 100.0% | 146.7% |

a. Dichotomy group tabulated at value 1.

Table 7 Sports mainly penalized

The aspect that is highlighted in tab. 7, as the one most penalized by the pandemic and the limitations of access to motor activities is the mental one (42%). 61% of respondents reported it to be comorbid with other aspects.

Crosstabs

Crosstabs Sports / Investments

| | | | How much investment have you had to make to allow your athletes/members to continue practicing sports? | | | | | | Total |
|--------------|-----------------------|----------|--|--------------|-----------------|-----------------|-------------------|-----------|-------|
| | | | I no longer carried out any investment | up to 2.500€ | 2.501€ - 5.000€ | 5.001€ - 7.500€ | more than 10.000€ | no answer | |
| Sports | Climbing | Count | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Martial arts | Count | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Athletics | Count | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Basketball | Count | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| | Body building/weight | Count | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Football/futsal | Count | 1 | 4 | 1 | 0 | 0 | 0 | 6 |
| | Fitness/functional | Count | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| | Artistic/rhythmic | Count | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Not answer | Count | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| | Swimming | Count | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Organizer of training | Count | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Organizer of | Count | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Padel | Count | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Rugby | Count | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| | Tennis | Count | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | Count | 6 | 8 | 1 | 1 | 1 | 2 | 19 | |

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Crosstab 1 Sports/Investments

The crosstab (16) shows that most of the interviewees have invested, albeit little, in football and fitness. This figure was easily predictable from the fact that these sports were the ones with the greatest offer.

Crosstab Intervention / Perceived Satisfaction

| | | | What interventions have you had to carry out in order to be able to continue playing sports? | | | | | Total |
|---|--------------|-----------|--|-------------------------------|---|---|---|-------|
| | | | nothing done | no intervention was necessary | equip myself with appropriate communication devices for conducting online courses | move the equipment outdoors to the open-air locations of the facility | purchase new equipment to carry out new disciplines | |
| Do you feel that you have been able to meet the demands of your athletes so that they had been able to continue playing sports? | No | Count | 40 | 1 | 0 | 1 | 0 | 42 |
| | Yes | Count | 0 | 7 | 5 | 1 | 2 | 15 |
| | no answer | Count | 1 | 2 | 0 | 0 | 0 | 3 |
| Total | Count | 41 | 10 | 5 | 2 | 2 | 60 | |

Percentages and totals are based on respondents.

Crosstab 2 Intervention/Perceived Satisfaction

Most of the interviewees think they have not met the demands and needs of their athletes, although it should be emphasized that they have done nothing to allow the sporting activity to continue. Those who think they have satisfied the demands of their athletes have invested in online courses. A significant number think they have satisfied the needs of their athletes even without any type of intervention.

CrosTab Investment / Perceived Satisfaction

| | | How much investment have you had to make to allow your athletes/members to continue practicing sports? | | | | | | Total | |
|---|-----------|--|--------------|-----------------|-----------------|-------------------|-----------|-------|----|
| | | I no longer carried out any investment | up to 2.500€ | 2.501€ - 5.000€ | 5.001€ - 7.500€ | more than 10.000€ | no answer | | |
| Do you feel that you have been able to meet the demands of your athletes so that they had been able to continue playing sports? | Nb | Count | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| | Yes | Count | 5 | 8 | 1 | 0 | 1 | 0 | 15 |
| | no answer | Count | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Total | | Count | 6 | 8 | 1 | 1 | 1 | 2 | 19 |

Percentages and totals are based on respondents.

Crosstab 3 Investment/Perceived Satisfaction

In line with the previous answers, tab. 18 shows that little or no investments have been made even if the interviewees believe they have satisfied the athletes' demand regarding the continuation of sporting practice. It should be noted that one case, despite the almost € 7,500 invested, believes that it has not met the needs.

CrosTab Government measures satisfaction / private intervention

| | | What interventions have you had to carry out in order to be able to continue playing sports? | | | | | Total | |
|---|-----------|--|-------------------------------|---|---|---|-------|----|
| | | nothing done | no intervention was necessary | equip myself with appropriate communication devices for conducting online courses | move the equipment outdoors to the open-air locations of the facility | purchase new equipment to carry out new disciplines | | |
| Do you consider the measures taken by the government and the regions to support the economy and the sporting world in this period sufficient? | Nb | Count | 30 | 6 | 5 | 1 | 1 | 43 |
| | Yes | Count | 3 | 2 | 0 | 1 | 1 | 7 |
| | no answer | Count | 8 | 2 | 0 | 0 | 0 | 10 |
| Total | | Count | 41 | 10 | 5 | 2 | 2 | 60 |

Percentages and totals are based on respondents.

Crosstab 4 Government measures satisfaction/private intervention

Those who give a negative opinion to the measures taken by the government and the regions to support the economy of the sports sector have done nothing to allow the continuation of sporting activity.

CrosTab Events during the pandemic

| | | Events during the pandemic | | | | | | Total | |
|---|-------|----------------------------|--|--------------------------|--------------------------------------|---|---|-------|----|
| | | No answer | I organize events of national interest | Promoting online courses | Promoting activities in public parks | Using the outdoor areas of the facility | Using the halls of the plant because my athletes participate in competitions of national interest | | |
| In light of the new decrees, do you currently promote/teach sports activities/organize sports events? | Yes | Count | 1 | 6 | 3 | 2 | 11 | 5 | 19 |
| | Total | Count | 1 | 6 | 3 | 2 | 11 | 5 | 19 |

Percentages and totals are based on respondents.

Crosstab 5 Events during Pandemic/ proposed activities

In line with what has been said previously, it is clear that the external areas were the most exploited by those who tried to cope with the restrictions due to the pandemic.

Crosstab Aspects mainly penalized /

| | | | Aspects mainly penalized | | | | | Total |
|------------|----------------------|--------------|--------------------------|---------------|------------------------------|-----------|--------------|-----------|
| | | | Physical appearance | Mental aspect | Relational/behavioral aspect | No answer | On lifestyle | |
| Categories | Teenagers | Count | 8 | 17 | 6 | 0 | 3 | 19 |
| | Adults | Count | 1 | 2 | 1 | 0 | 2 | 4 |
| | Elderly | Count | 1 | 2 | 1 | 0 | 2 | 4 |
| | Children | Count | 7 | 18 | 7 | 0 | 7 | 24 |
| | All | Count | 1 | 8 | 4 | 2 | 0 | 10 |
| | I don't know/doesn't | Count | 1 | 1 | 0 | 9 | 2 | 12 |
| | Total | Count | 12 | 34 | 13 | 11 | 11 | 55 |

Percentages and totals are based on respondents.

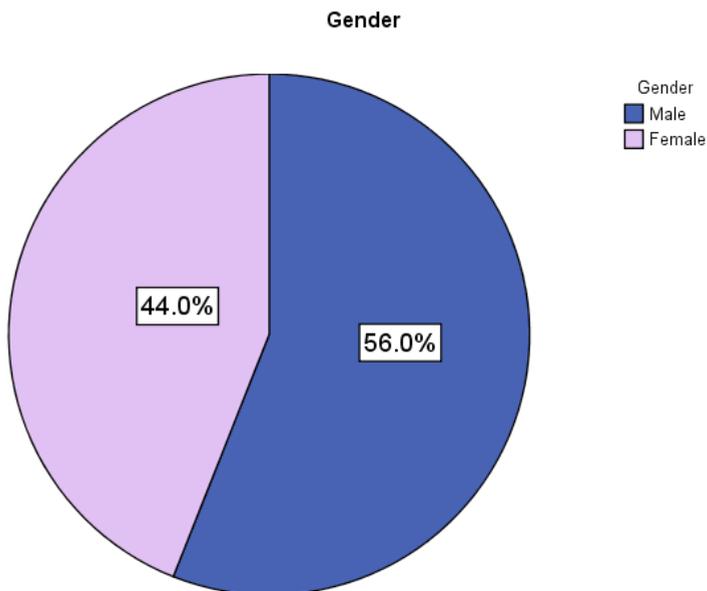
a. Dichotomy group tabulated at value 1.

Crosstab 6 Aspects mainly penalized/Categories

In confirmation of what has already been said, crosstab 6 highlights how the categories most penalized are those of teenagers and children, especially with regard to the mental aspect. In general, the impacts of the other aspects are equally distributed: physical, relational and related to lifestyle.

Level 2 Survey aimed at adults

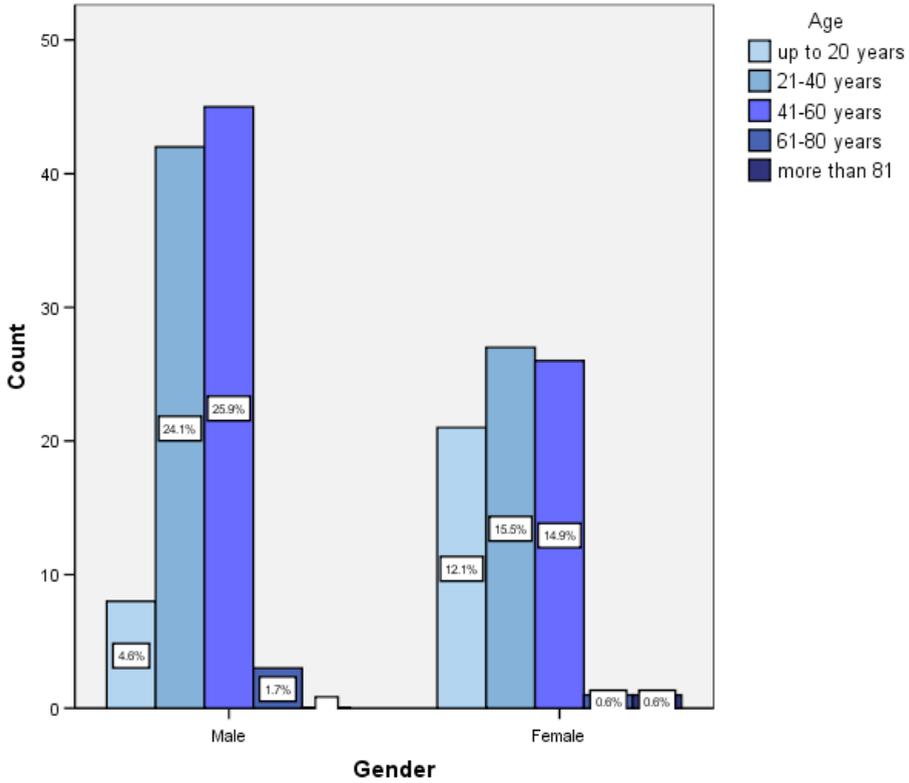
Sample analysis



Graph. 9 Gender

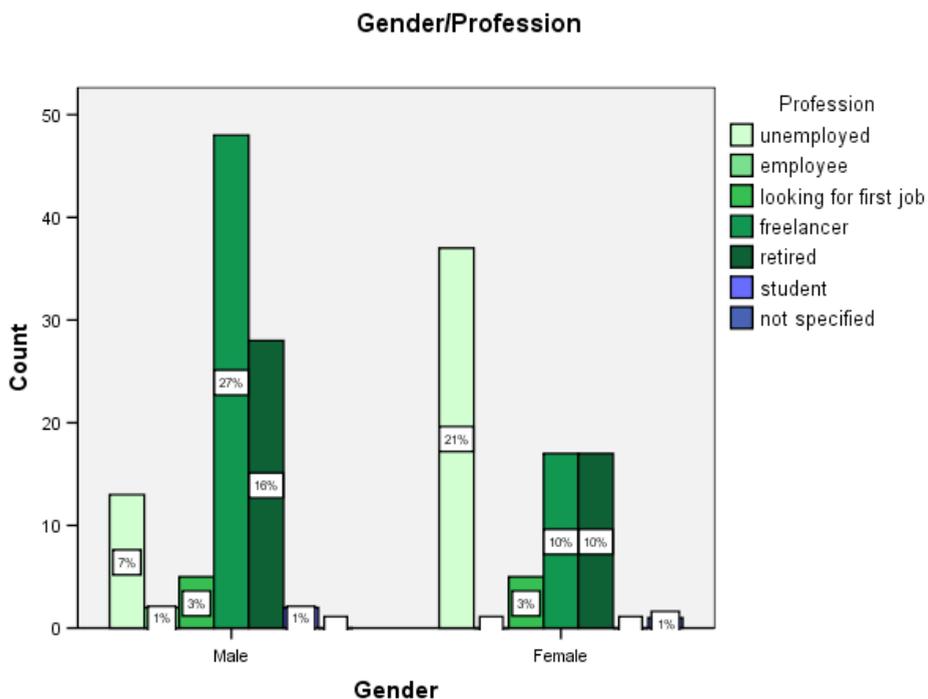
The pie chart (9) identifies a sample equally distributed between males and females with a slight preponderance of the former.

Gender/Age



Graph. 10 Gender

The graph 10 shows that as regards women there is a constant between the age groups, as regards men there is a clear disproportion between the younger category and the intermediate groups (21-60 years). Also in relation to longevity, the graph shows the participation in motor activities of women over 80 (0.8%).



Graph. 11 Profession/Gender

The graph shows that the categories that practice sport, with the highest values, are 21% unemployed for women, while 27% of men are self-employed. 26% of the total is made up of retired.

Frequencies

Sport Frequencies

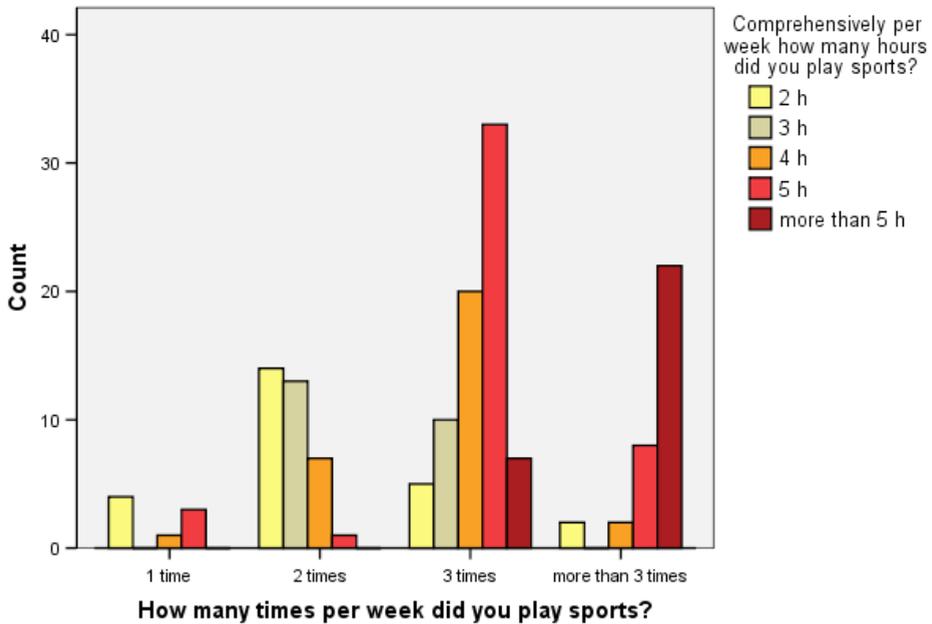
| | | Responses | | Percent of Cases |
|--------------------------------------|-------------------------------|------------|---------------|------------------|
| | | N | Percent | |
| Sport prior to pandemic ^a | rambling | 1 | .5% | .7% |
| | martial arts | 16 | 8.1% | 10.5% |
| | athletics | 15 | 7.6% | 9.8% |
| | basketball | 3 | 1.5% | 2.0% |
| | body building/weightlifting | 16 | 8.1% | 10.5% |
| | football/futsal | 25 | 12.6% | 16.3% |
| | sports/classical dance | 24 | 12.1% | 15.7% |
| | equitation | 2 | 1.0% | 1.3% |
| | fitness/functional gymnastics | 52 | 26.3% | 34.0% |
| | swimming | 15 | 7.6% | 9.8% |
| | padel | 10 | 5.1% | 6.5% |
| | volleyball | 3 | 1.5% | 2.0% |
| | prepunch/boxing | 3 | 1.5% | 2.0% |
| | rugby | 1 | .5% | .7% |
| | tennis | 3 | 1.5% | 2.0% |
| | unspecified | 9 | 4.5% | 5.9% |
| Total | | 198 | 100.0% | 129.4% |

a. Dichotomy group tabulated at value 1.

Crosstab 7 Sport frequencies/Sport prior to pandemic

The crosstab 7 shows that the most popular sport is fitness, followed by football and sports dance.

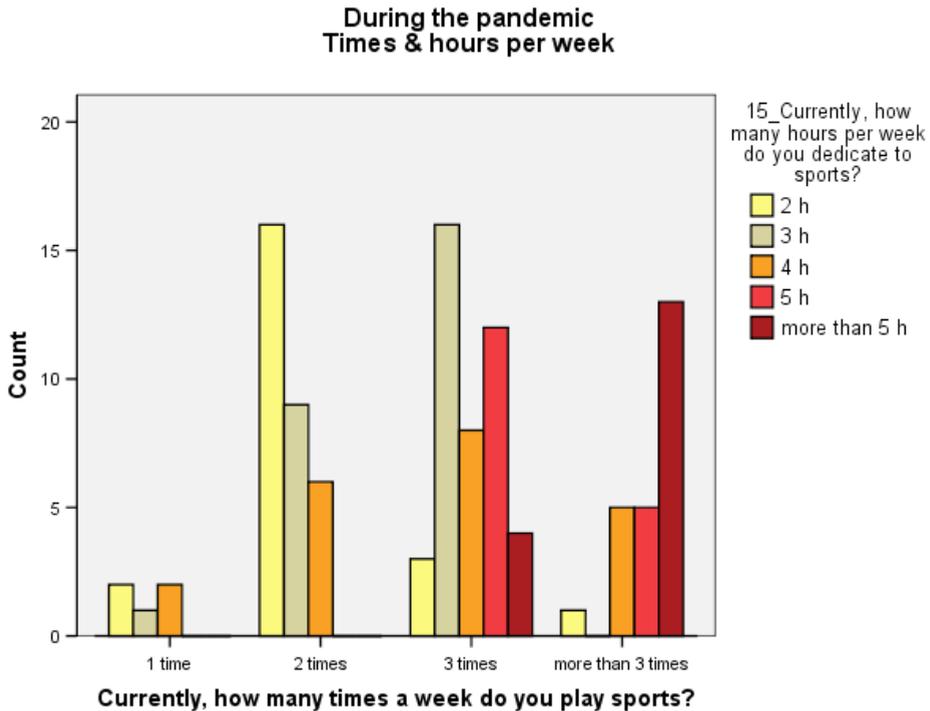
**Prior to pandemic
Times & hours per week**



Graph. 12 Prior to pandemic times and hour per week

The graph. 12 shows that before the pandemic the weekly training frequency of athletes was 3 or more. For those who trained 3 times a week the total hours dedicated to training were 4/5 h, while for those who trained more than 3 times a week the training hours exceeded 5.

With the pandemic there is a shift (graph. 13) downwards, with the loss of at least one training session. The category relating to more than three training sessions per week remains constant, probably because they are athletes who practice sports at levels of national interest.



Graph. 13 During the pandemic times and hours per week

Where did you play sport?

| | | Responses | | Percent of Cases |
|---------------------------|-------------|-----------|---------|------------------|
| | | N | Percent | |
| Where did you play sport? | at home | 14 | 8.3% | 10.0% |
| | sport club | 49 | 29.2% | 35.0% |
| | gym | 88 | 52.4% | 62.9% |
| | public park | 17 | 10.1% | 12.1% |
| Total | | 168 | 100.0% | 120.0% |

a. Dichotomy group tabulated at value 1.

Table 8 Where they played sports

More than half of the respondents played sports in the gym.

During the pandemic (table 9), as expected, there was a shift in activities at home or in public parks.

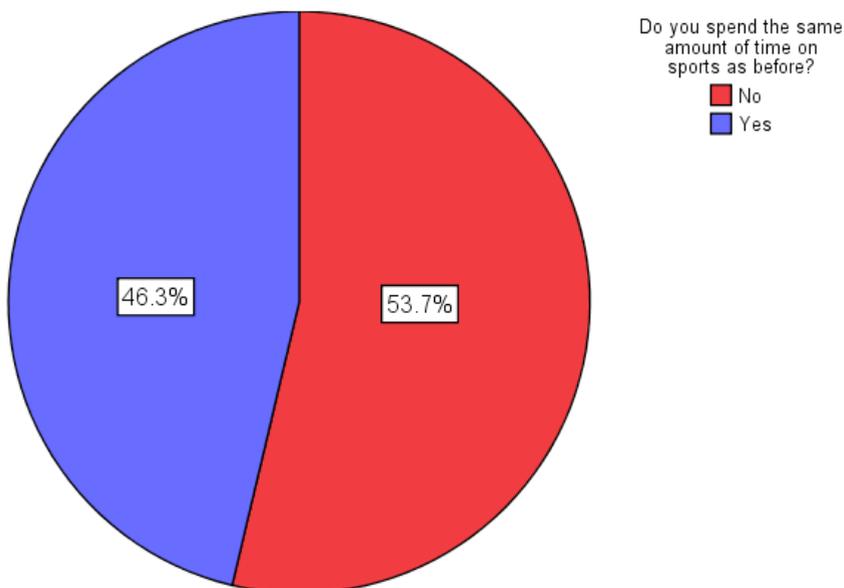
Currently where do you practice sport?

| | | Responses | | Percent of Cases |
|--|-------------|-----------|---------|------------------|
| | | N | Percent | |
| Currently where do you practice sport? | at home | 65 | 52.0% | 63.7% |
| | sport club | 15 | 12.0% | 14.7% |
| | gym | 14 | 11.2% | 13.7% |
| | public park | 31 | 24.8% | 30.4% |
| Total | | 125 | 100.0% | 122.5% |

a. Dichotomy group tabulated at value 1.

Table 9 Actually where they practice sport

Do you spend the same amount of time on sports as before?



Graph. 14 time dedicated to sport

As can be seen from the pie chart (n° 14), more than half of the interviewees had to reduce the time dedicated to sport (almost 54%).

How do you mainly spend the time that you no longer devote to sports?

| | | Responses | | Percent of Cases |
|---|------------------|-----------|---------|------------------|
| | | N | Percent | |
| How do you mainly spend the time that you no longer devote to sports? | doing my hobbies | 36 | 35.6% | 38.3% |
| | watching TV | 26 | 25.7% | 27.7% |
| | working more | 29 | 28.7% | 30.9% |
| | no answer | 10 | 9.9% | 10.6% |
| Total | | 101 | 100.0% | 107.4% |

a. Dichotomy group tabulated at value 1.

Table 10 Use of time taken from sport

The time taken from sport is mainly used in the performance of hobbies. The increase in work or TV also has a significant impact.

Crosstabs

In spite of the many difficulties, do you think that the sports centers have been able to respond to the requests to continue to practice sports, allowing you to participate in them with continuity?

| | | | In spite of the many difficulties, do you think that the sports centers have been able to respond to the requests to continue to practice sports, allowing you to participate in them with continuity? | | Total |
|---------------------------|-------------|-------|--|-----|-------|
| | | | No | Yes | |
| Where did you play sport? | at home | Count | 3 | 11 | 14 |
| | sport club | Count | 14 | 32 | 46 |
| | gym | Count | 22 | 62 | 84 |
| | public park | Count | 6 | 9 | 15 |
| Total | | Count | 37 | 96 | 133 |

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Crosstab 8 Satisfaction proposals

More than 70% of respondents are satisfied with the offer proposed by the centers where they practiced sports. This trend is noticeable for all structures.

In your opinion, has the fact of dedicating less time to sport had a negative effects on you?

| | In your opinion, has the fact of dedicating less time to sport had a negative effects on you? | | | | | | | Total | |
|---|---|---------------|------------------------------|-------------------------|----------------|-----------|---------------------------|-------|----|
| | physical aspect | mental aspect | relational/behavioral aspect | attention to work/study | healthy eating | lifestyle | don't know/doesn't answer | | |
| Why did you play sports? I aspire to become a champion in the discipline I practice | Count | 2 | 4 | 1 | 0 | 0 | 3 | 1 | 6 |
| It helps me to socialize with others | Count | 3 | 3 | 0 | 0 | 1 | 3 | 0 | 5 |
| I like the values conveyed by sport | Count | 15 | 12 | 4 | 0 | 3 | 10 | 0 | 22 |
| I enjoy it and it makes me feel good mentally and physically. | Count | 46 | 48 | 6 | 1 | 5 | 24 | 4 | 80 |
| Total | Count | 49 | 53 | 7 | 1 | 5 | 30 | 5 | 91 |

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Crosstab 9 Reasons to practice sport / Pandemic effects

The largest percentage of respondents practice sports to have physical as well as mental well-being. Consistently it is these two aspects that have suffered the greatest negative effect. It should be noted that lifestyle is also considered negatively impacted.

Centers be able

| | | Hpw? | | | | | Total | |
|--|-----|---|---------------------------|----------------------------|---------------------------|-----------|-------|-----|
| | | organizing outdoor activities, in public parks, in the open spaces of the sports facility | organizing online courses | organizing private lessons | promoting new disciplines | no answer | | |
| In spite of the many difficulties, do you think that the sports centers have been able to respond to the requests to continue to practice sports, allowing you to participate in them with continuity? | Yes | Count | 34 | 55 | 5 | 3 | 4 | 101 |
| Total | | Count | 34 | 55 | 5 | 3 | 4 | 101 |

Percentages and totals are based on respondents.

Crosstab 10 Offer satisfaction / Offer type

Those who consider that sports centres have responded positively to the needs of athletes believe that online courses have been the most useful modality.

Centers not be able

| | | How? | | | | | Total |
|--|-------------|---|-------------------------------|--------------------------------|-------------------------------|-----------|-------|
| | | not organizing outdoor activities, in public parks, in the open spaces of the sports facility | not organizing online courses | not organizing private lessons | not promoting new disciplines | no answer | |
| In spite of the many difficulties, do you think that the sports centers have been able to respond to the requests to continue to practice sports, allowing you to participate in them with continuity? | N6 Count | 23 | 6 | 1 | 2 | 7 | 39 |
| Total | Count | 23 | 6 | 1 | 2 | 7 | 39 |

Percentages and totals are based on respondents.

Crosstab 11 Dissatisfaction and need

On the other hand, those who are not satisfied with the offer proposed by sports centers believe that outdoor environments, such as parks or outdoor areas, have not been exploited.

Sport changing

| | | 13. Sport during the pandemic | | | | | | | | | | | | | | | |
|-------------------------|-------|-------------------------------|--------------|-----------|------------|----------------------------|-----------------|----------------------------|------------|-------------------------------|----------|-------|------------|-------|--------|------------|-------|
| | | climbing | marital arts | athletics | basketball | body building/w eight room | football/futsal | sport/cycling social dance | equestrian | fitness/functional gymnastics | swimming | padel | volleyball | rugby | tennis | n o answer | Total |
| Sport prior to pandemic | Count | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Count | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| | Count | 0 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | Count | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | Count | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 |
| | Count | 0 | 1 | 3 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 8 |
| | Count | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 15 |
| | Count | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Count | 0 | 3 | 1 | 0 | 3 | 0 | 3 | 0 | 4 | 0 | 4 | 1 | 0 | 0 | 0 | 18 |
| | Count | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| | Count | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 6 |
| | Count | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Count | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| | Count | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Count | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Count | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | Count | 2 | 8 | 5 | 1 | 10 | 7 | 10 | 1 | 20 | 4 | 8 | 1 | 1 | 0 | 0 | 110 |

Percentages and totals are based on respondents.
a. Dichotomy group tabulated at value 1.

The latest crosstab highlights how there has been a migratory trend towards other sports, probably, in order to continue practicing physical activity. In fact, fitness was the one that benefited most, being more easily practicable without particular structures.

4. Discussion

From data analysis we can see how entrepreneurship in sport (graph. 2) is still male dominated even if the trend leads to an increase in the female share thanks to the new generations.

As can be seen from the analysis, graph 3 shows a medium-high level of culture among those who manage sports facilities. It would be interesting to investigate, in the questionnaire, which qualifications the managers have and whether they are related to economic or sports management activities. The analysis of these variables would have been useful to understand the reasons why most of the interviewees made the choice to make no or very few investments (graph. 8). In fact, most of the interviewees think they have not met the demands and needs of their athletes, especially by investing in online courses. A significant number of respondents believe they have satisfied the needs of their athletes even without any type of intervention (cross table 2).

The cross table ... shows an expectation of intervention by those who govern, but without putting personal resources into play to allow the continuation of sporting activity. Absurdly there are critical cases against the authorities, but who believe that no interventions were necessary to meet the needs of their athletes.

These inconsistencies, detected between the type of response to some questions and the action demonstrated in others, demonstrate an incomplete preparation of the managers both from an economic and a sporting point of view.

It is agreed that those of children and adolescents (crosstab 6) were the categories most penalized by the pandemic, putting psychophysical well-being at risk. In fact, as shown in tab. 7, the aspect most penalized by the pandemic and the limitations of access to motor activities is the mental aspect (42%). 61% of respondents reported it as being comorbid with other factors. In general, the impacts of the other aspects are equally distributed: physical, relational and related to lifestyle (Crosstab 6)

In graph 10, we wanted to analyze the users active in motor activities. It is evident that with regard to women there is a constant between the age groups, while for men there is a clear disproportion between the younger category and the intermediate groups (21-60 years). Also in relation to longevity, the graph shows the participation in motor activities of women over the age of 80 (0.8%). The graph. 12 shows that before the pandemic the weekly frequency of training in many athletes was 3 or more. For those who trained 3 times a week the total hours dedicated to training were 4/5 h, while for those who trained more than 3 times a week the training hours exceeded 5. With the pandemic there is a shift (graph. 13) down, with the loss of at least one training session. The category relating to more than three training sessions per week remains constant, probably because they are athletes who practice sports at levels of national interest. It can be assumed that competitive athletes were less penalized than others, keeping the frequency and time unchanged. In general, those who consider that sports centers have responded positively to the needs of athletes believe that online courses have been the most useful modality. On the other hand, those who are not satisfied with the offer proposed by sports centers believe that outdoor environments, such as parks or outdoor areas, have not been exploited. In light of these observations, we can believe that the offer of online courses was not sufficient to meet the needs, because, according to users, it could have been integrated with outdoor activities. The different sports practices probably affect the offer, but also the level of satisfaction.

The latest crosstab highlights how there has been a migratory trend towards other sports, probably in order to continue practicing physical activity. In fact, fitness was the one that benefited most, being more easily practicable without particular structures. It should be noted, however, that those who failed to compensate for the motor activities carried out before the pandemic, have acquired a more sedentary lifestyle, giving more space to hobbies, working more and dedicating more time to television.

Conclusions

As claim Seifried et All (2021), the sport industry is comprised of various organisational settings offering a diverse range of employment opportunities (Sports industry statistics, 2019). As an example, sport takes place at “amateur” (e.g., Olympics and youth sport) and professional levels (e.g., horse racing, boxing, wrestling, and soccer) on local, regional, national, and/or international foundations” (Seifried, 2015, p. 20). Precisely because of the heterogeneity of the educational / sports offer and of the users to which it is addressed at all levels (beginners, amateurs, professionals and well-being), according to the authors it is of fundamental importance that the Academic Institutions offer paths of Sport Managing not only in the faculties of motor science, but also in economics and finance. Developing financial managing skills allowing sports managers to develop conscious and fluid investments to market demands would allow the sports sector to develop affiliation to the service by promoting training and quality offers, even in emergency contexts.

Furthermore, research from Towson University has shown how a training program adopted a problem-based approach to learning and linked new knowledge to students’ specific coaching context (Bagger Kjær, 2019).

In relation to training, several studies have found e-learning to be effective also for sports

training. Specifically a study from Universitas Jambi, Indonesia explored factors predicting the use of e-learning during lock down (Covid-19) among sport science education students In Indonesia Higher Education Institutions. The teaching was implemented with an extended Technology Acceptance Model (TAM) with facilitating condition. “The findings informed that: (1) the TAM-based proposed scale has been successfully explained factors predicting the use of e-learning among Indonesian sport science students during the pandemic; (2) the finding of significant relationships between facilitating condition and perceived ease of use and between facilitating condition and perceived usefulness was reported; and (3) the significant relationships among core components of TAM were found except for one, relationship between perceived usefulness and attitude” (Sukendro, Habibi, Khaeruddin, Indrayana, Syahrudin Makadada, Hakim, 2020). Based on the scientific evidence, therefore, we can assume that investments in specific software could overcome the difficulties of e-learning in the motor-sports field.

In light of the inconvenience caused to sports facilities, the possibility of affiliation between services, companies and schools should be enhanced, so that, even in conditions of limitation due to the pandemic situation, one can participate in sports or fitness activities, while maintaining the safety of the group of belonging and limiting the possibility of contagion. In support of this thesis, a research by... whose results provide important insights into how the sports industry has responded to the COVID-19 pandemic through the existence of entrepreneurial ecosystems. This highlights that in times of crisis, the sports industry can use its unique business ecosystem to encourage proactive collaboration leading to the co-creation of value (Ratten V., da Silva Braga VL, da Encarnação Marques CS, (2021) .

Indeed, as research reports despite the restrictions during the stay-at-home order, respondents did engage in sports and promoted their health. Nevertheless, it is still necessary to investigate the long-term effects of the COVID-19 crisis on sports and exercise behaviour as well as the extent to which sports policy measures may be able increase sports participation (Schnitzer M. , Schöttl S.E., Kopp M., Barth M., 2020). As widely discussed, well-being and motor activity are closely related. The subjects are not always able to carry out motor activities independently. It is therefore important to know how to calibrate the interventions so that a better offer can guarantee the continuation of motor activities even for non-competitive users.

References

- Al-Rabiaah, A., Temsah, M.-H., Al-Eyadhy, A. A., Hasan, G. M., Al-Zamil, F., Al-Subaie, S., Alsohime, F., Jamal, A., Alhaboob, A., Al-Saadi, B., & Somily, A. M. (2020). Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *Journal of Infection and Public Health*, 13(5), 687–691.
- Altıntaş, A., Aşçı, F. H., Kin-İşler, A., Güven-Karahan, B., Keleşek, S., Özkan, A., Yılmaz, A., & Kara, F. M. (2014). The role of physical activity, body mass index and maturity status in body-related perceptions and self-esteem of adolescents. *Annals of Human Biology*, 41(5), 395-402.
- Bagger J. K., (2019). The Professionalization of Sports Coaching: A case study of a graduate soccer coaching education program. *Journal of Hospitality, Leisure, Sport & Tourism Education*.
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., et al. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 395, 912–920. doi: 10.1016/S0140-6736(20)30460-8.
- Burke, C.A. (2009). Mindfulness-Based approaches with children and adolescents: a preliminary review of current research in an emergent field, *Journal of Child and Family Studies*, 12.
- Coombes, J.S., Law, J., Lancashire, B., Fassett, R.G. (2013). Exercise is medicine: curbing the burden of chronic disease and physical inactivity, *Asia Pac J Public Health*, Epub, 9.

- Fröberg, A. (2020). How children and young people can stay physically active during the novel coronavirus pandemic while take into account safety measures and precautions, *Health Promotion Perspectives*, 10, 4, 295-299.
- Gaddad, P., Pemde, H., Basu, S., Dhankar, M., & Rajendran, S. (2018). Relationship of physical activity with body image, self-esteem sedentary lifestyle, body mass index and eating attitude in adolescents: A cross-sectional observational study. *Journal of Family Medicine and Primary Care*, 7(4), 775.
- Harnett, P.H., Dawe, S. (2012). The contribution of Mindfulness-based therapies for children and families and proposed conceptual integration. *Child and Adolescent Mental Health*, 17, 195-208.
- Herbolsheimer, F., Ungar, N., & Peter, R. (2018). Why Is Social Isolation Among Older Adults Associated with Depressive Symptoms? The Mediating Role of Out-of-Home Physical Activity. *International Journal of Behavioral Medicine*, 25(6), 649–657.
- Huber, B.C., Steffen, J., Schlichtiger, J., Graupe, T., Deuster, E., et al. (2020). Alteration of physical activity during COVID-19 pandemic lockdown in young adults, *J Transl Med*, 18, 410.
- Liu X, Kakade M, Fuller CJ, et al. Depression after exposure to stressful events: lessons learned from the severe acute respiratory syndrome epidemic. *Compr Psychiatry* 2012; 53: 15–23.
- Mariani, A. M., Melchiori, F. M., & Marcolongo, F. (2020). The influence of physical activity in resilience and coping strategies in adulthood. *Giornale Italiano Di Educazione Alla Salute, Sport e Didattica Inclusiva*, 4, 1.
- Maugeri, G., Castrogiovanni, P., Battaglia, G., Pippi, R., D'Agata, V. et al. (2020). The impact of physical activity on psychological health during Covid-19 pandemic in Italy, *Heliyon*, 6, e04315.
- Moore, S.A., Faulkner, G., Rhodes, R.E., Brussoni, M., Chulak-Bozzer, T., Ferguson, L.J., et al. (2020). Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey. *Int J Behav Nutr Phys Act.*, 17, 1, 85. doi: 10.1186/s12966-020-00987-8.
- O'Reilly, A., Tibbs, M., Booth, A., Doyle, E., McKeague, B., & Moore, J. (2020). A rapid review investigating the potential impact of a pandemic on the mental health of young people aged 12–25 years. *Irish Journal of Psychological Medicine*, 1-16. doi:10.1017/ipm.2020.106.
- Piercy, K.L., Troiano, R.P., Ballard, R.M., Carlson, S.A., Fulton, J.E., Galuska, D.A., et al. (2018). The physical activity guidelines for Americans. *JAMA*, 320, 19, 2020-2028. doi: 10.1001/jama.2018.14854.
- Ratten V., da Silva Braga V. L., da Encarnação Marques C. S., (2021). Sport entrepreneurship and value co-creation in times of crisis: The covid-19 pandemic. *Journal of Business Research*, Volume 133, ISSN 0148-2963, <https://doi.org/10.1016/j.jbusres.2021.05.001>.
- Raw K., Sherry E., Schulenkorf N., (2020). Managing Sport for Development: An Investigation of Tensions and Paradox. *Sport Management Review*, ISSN 1441-3523, <https://doi.org/10.1016/j.smr.2020.09.002>.
- Schnitzer M., Schöttl S.E., Kopp M., Barth M., (2020). COVID-19 stay-at-home order in Tyrol, Austria: sports and exercise behaviour in change? *Public Health*, Volume 185, ISSN 0033-3506, <https://doi.org/10.1016/j.puhe.2020.06.042>.
- Schrempft, S., Jackowska, M., Hamer, M., & Steptoe, A. (2019). Associations between social isolation, loneliness, and objective physical activity in older men and women. *BMC Public Health*, 19(1), 74.
- Seifried C., Agyemang K., Walker N., Soebbing B., (2021). Sport management and business schools: A growing partnership in a changing higher education environment. *The International Journal of Management Education*.
- Smith, P.J., Potter, G.G., McLaren, M.M., Blumenthal, J.A. (2013). Impact of aerobic exercise on neurobehavioral outcomes, *Ment Health Phys Act.*, 139–153.
- Spinelli, M., Lionetti, F., Pastore, M., Fasolo, M. (2020). Parents' Stress and Children's Psy-

- chological Problems in Families Facing the COVID-19 Outbreak in Italy, *Front. Psychol*, 11,1713. doi: 10.3389/fpsyg.2020.01713.
- Stanton, R., Happel, B., Reaburn, P. (2014). The mental health benefits of regular physical activity, and its role in preventing future depressive illness, *Nursing Research and Reviews*, 4, 45-53.
- Sukendro S., Habibi A., Khaeruddin K., Indrayana B., Syahrudin S., Makadada F., A., Hakim H., (2020) Using an extended Technology Acceptance Model to understand students' use of e-learning during Covid-19: Indonesian sport science education context. *Heliyon* n° 6
- Warburton, D.E.R., Bredin, S..SD. (2017). Health benefits of physical activity: a systematic review of current systematic reviews. *Curr Opin Cardiol.*, 32, 541–556. doi: 10.1097/HCO.0000000000000437
- World Health Organization (2015). Global Recommendation on Physical Activity for Health, <http://www.who.int/dietphysicalactivity/publications/pa/en/>.
- Xiang, M., Zhang, Z., Kuwahara, K. (2020). Impact of COVID-19 pandemic on children and adolescents' lifestyle behavior larger than expected. *Prog Cardiovasc Dis.*, 63, 4, 531-532. doi: 10.1016/j.pcad.2020.04.013.
- Yoon, M.K., Kim, S.Y., Ko, H.S., Lee, M.S. (2016). System effectiveness of detection, brief intervention and refer to treatment for the people with post-traumatic emotional distress by MERS: a case report of community-based proactive intervention in South Korea, *Int J Ment Health Syst*, 10-51.