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IL SUPPORTO DELLE TECNOLOGIE COME RISORSA NELLA GESTIONE DELL'ATTIVITÀ MOTORIA E SPORTIVA IN EPOCA COVID-19

THE SUPPORT OF TECHNOLOGIES AS A RESOURCE IN THE MANAGEMENT OF MOTOR AND SPORTS ACTIVITIES DURING COVID-19

Lucia Martiniello
Telematic University "Pegaso"
lucia.martiniello@unipegaso.it

Giuseppe Madonna
University of Naples "Parthenope"
giuseppe.madonna1984@gmail.com

Abstract

The COVID-19 pandemic that has shocked the world since spring 2020 has inevitably also changed the practice of physical activity for billions of people around the globe. The consequences involved the basic sport above all, in many cases forcing practitioners into physical inactivity. This situation has increased exponentially the risk factors associated with inactivity. Therefore, now and for the future, it is very important, to develop methodologies for organizing motor activity which make sports practice possible, and safeguard the health of practitioners and technicians.

La pandemia da COVID-19 che ha sconvolto il mondo a partire dalla primavera 2020 ha inevitabilmente cambiato anche la pratica dell'attività motoria per miliardi di persone in tutto il globo. Le conseguenze hanno coinvolto soprattutto lo sport di base soprattutto, costringendo in molti casi all'inattività fisica i praticanti. Questa situazione ha aumentato in maniera esponenziale i fattori di rischio legati all'inattività. Pertanto adesso, ma anche per il futuro, risulta molto importante sviluppare delle metodologie di organizzazione dell'attività motoria che rendano possibile la pratica sportiva. e allo stesso tempo salvaguardino la salute dei praticanti e dei tecnici.

Keywords

Sports; Technologies; Health, COVID-19.
Sport; Tecnologia; Salute; COVID-19.

Introduction

The impact of the COVID-19 pandemic on human lives has been of great significance. According to the World Health Organization, there are currently over 110 million confirmed cases worldwide, and more than 2.5 million deaths (W.H.O. 2021).

This situation is having strong repercussions on the practice of motor and sports activities, in many cases forcing practitioners to inactivity, with particular reference to those practicing amateur-level sports. Social isolation has been one of the most used means to contain the pandemic: this factor has caused very negative consequences, increasing the cases of sedentary behavior and physical inactivity; an aspect that, for many authors, is already a pandemic in itself (Reis et al. 2020). Furthermore, the lack of technical support and comparison with other practitioners represents a problem in maintaining a high level of concentration and motivation to exercise (Marcus & Forsyth 2009).

Furthermore, motor inactivity also has negative effects on health in the short and long term (Lee et al. 2012), as well as worsening the immune response to infections (Campbell & Turner 2018). Physical inactivity also impacts negatively on the mental and physical health of children and young adults with physical or mental disabilities (Theis et al. 2021, Fitzgerald et al. 2020).

To reduce the negative effects resulting from physical inactivity, and to allow practitioners to play sports safely, the efforts of the scientific community are multiplying; in particular, new technologies can help both prevent the risk of contagion in places where sports are practiced, and offer alternative solutions for the practice of certain sports.

1. Objective

The aim of this paper is to establish the evolution of studies on Sport and Technology. In particular, the focus is on how much the number of studies on the subject has increased during the COVID-19 pandemic.

2. Methods

In this study, bibliometric methodology was applied using Scopus, the largest abstract and citation database of peer-reviewed literature. The keywords used in this study were "Technology", "Sports", "Health" and "Training". Studies from 1999 to today were taken into consideration. The search string was (TITLE-ABS-KEY (sports) AND TITLE-ABS-KEY (technology) AND TITLE-ABS-KEY (health) AND TITLE-ABS-KEY (training)) AND PUBYEAR > 1999.

3. Results

In total, 407 documents discussing about sport, technology, health and training were retrieved. Of these, 193 were produced from 2018 onwards, with a clear increase in 2020, the year in which the COVID-19 pandemic began (Fig. 1).

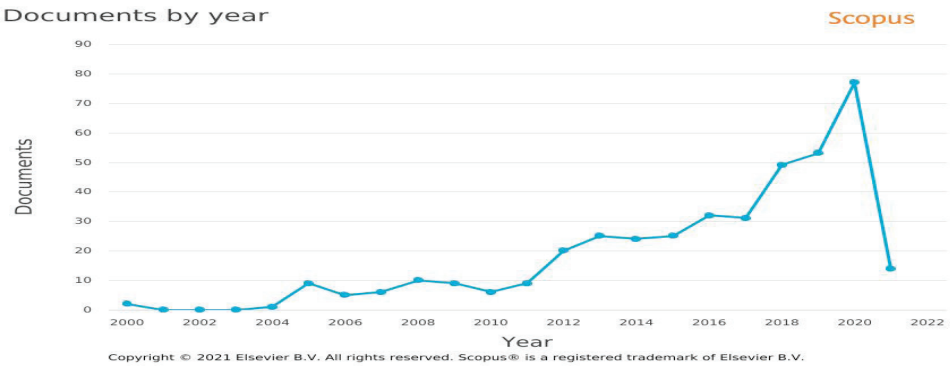

Fig. 1

More than half of the scientific contributions (60.9%) were articles; 20.9% were Conference Papers (fig. 2)

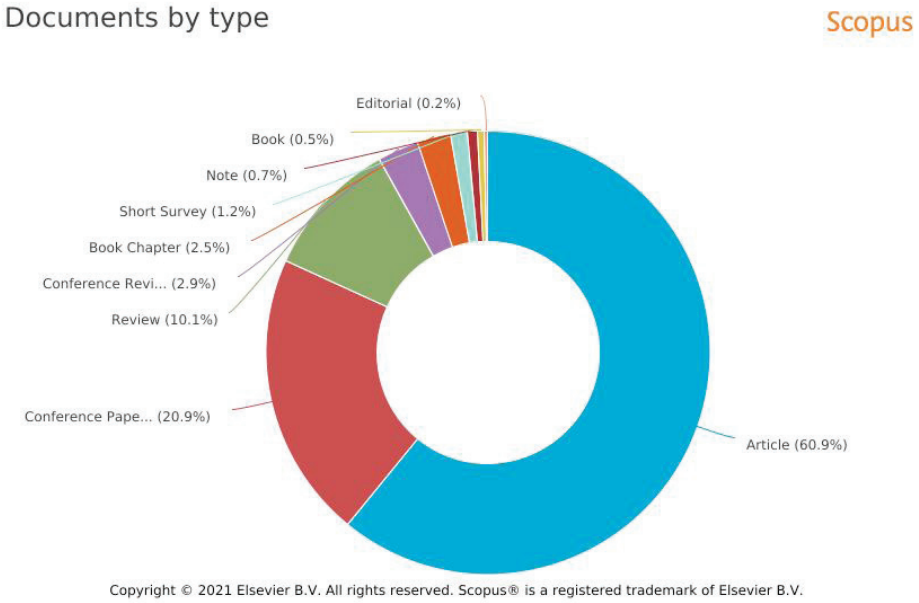

Fig. 2

The main countries that explored the topic were Russia, USA and China, among the most affected by the COVID-19 pandemic.

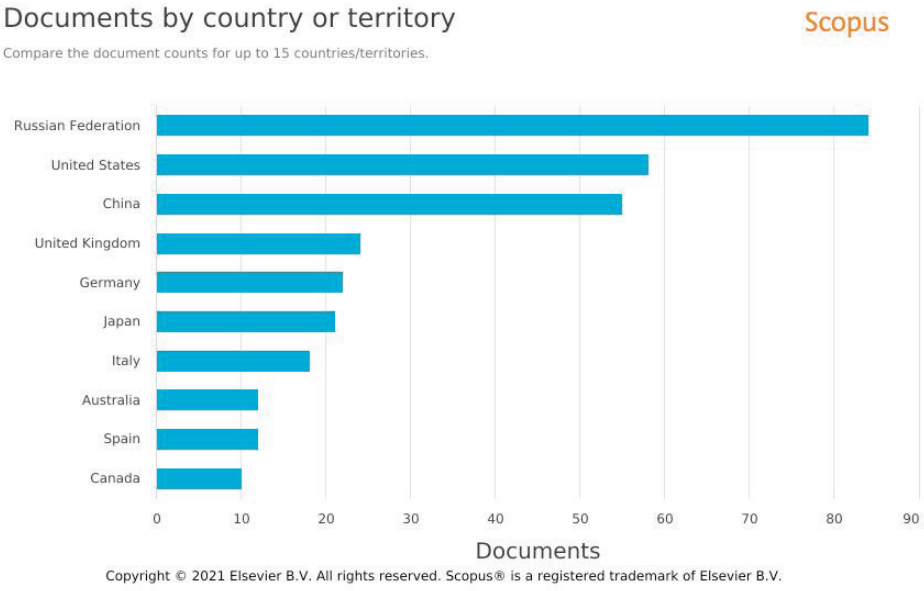

Fig. 3

4. Discussion

The theme of technologies as a support to physical and motor activities in recent years has had an increasingly greater development in a physiological way, but the COVID-19 pandemic has speeded up this process. The study perspectives in the field are still wide, and it is very likely that, in the years to come, studies will be intensified to enhance the tools and methodologies available to practitioners and technicians. The indications coming from the national sports political institutions push in this direction too. An example of this is the "Guidelines. Methods of carrying out training for team sports", issued in Italy pursuant to the Decree of the President of the Council of Ministers dated May 17, 2020.

In this document of the Italian Government, among other things, we can read that "As part of one' s own organization, it is necessary to evaluate the sports and support activities that can be carried out remotely (in distance learning or teleworking mode) and, therefore [...] to use technological instruments suitable for performing sports and support activities outside the sports facility".

As for the activities that cannot be carried out remotely, and therefore need to be carried out in the sports facility, it is necessary to "evaluate the possibility of reorganizing them with the aim of reducing the number of sports operators (and / or accompanying persons) present simultaneously: it needs to assess whether it is possible to reorganize the tasks / activities in order to reduce their number, in compliance with any constraints required by the specific sports discipline / sports body / sports organization or technology, tools and operational limits, given the need to train in the very short term"; and "guarantee the detection of the presence of athletes, practitioners and other personnel in the places where sports, motor or physical activities are carried out, with a register or other solution, including of technological nature".

According to the Italian Government, it is clear that the use of technologies is a preferred path in the prevention and organization of sports activities. The digital technologies currently available offer numerous possibilities for carrying out risk assessment and mitigation, prevention, protection and surveillance / monitoring actions, with different methods and levels of invasiveness. Certainly, the sports field places very different constraints and specifications compared to other situations, such as those related to the use of these technologies in the workplace. In fact, it is necessary to distinguish between applications that increase safety in accessing and attending a sports facility, and those aimed at protecting athletes who practice sports at the facility. In the first case, the feasible approaches mainly concern position monitoring, access control and contact tracing. The systems that pursue these purposes mainly exploit the functionalities of personal communication devices (for example, mobile phones, smartphones, tablets), with which most of the users of the systems are equipped. The main objective, in this case, is to report to the athletes and technicians present in the facility, with appropriate alert messages, the situations in which the criterion of social distancing is likely to fail due to the type of training exercises being performed. As an example, we propose the case in which, during a workout based on the repetition of fundamentals in volleyball (such as dunks) carried out in the gym, which would fall into high-risk classes, some of the athletes do not notice that the distance from those who are before or alongside them has fallen below the allowable levels.

The adaptability of this type of solution depends very much on the type of sport practiced (the lower the dynamics required of the athletes, the greater the results obtainable), the type of activity envisaged (training, competition), the number of athletes simultaneously involved in the activity and present on the playing field. In modern training systems, the use of simulation tools and devices, based on virtual reality technologies aimed at modeling and virtual reproduction of gestures, movements and attitudes typical of a sport, is spreading. In fact, these tools allow an athlete to develop and strengthen technical and / or tactical skills and abilities in particularly important sports situations, contributing to a potential increase in the athlete's competitive performance.

In the current contingency, in which the performance of certain sports activities may not be practicable as they are characterized by high-risk classes, we suggest the integration of

simulations with the use of sports equipment, both reconstructed as a gym tool (for example, treadmills for running, stationary bicycles), and as an original tool for the sport practiced (such as the "iron" in golf, and the racket in tennis).

Conclusions

The COVID-19 pandemic has accelerated a study trend that had already been growing in recent years, namely that of research on technologies applicable to sports and physical activity. In a difficult era for practitioners and sports technicians, we can say that the concept of sport is taking on important dimensions, and the advent of new technologies can only strengthen this link between sport and health. In this context, the national governments are also pushing for technologies to support physical activity and sports, for a safe and increasingly engaging practice.

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