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## DIFFERENCE IN ACCESS TO SPORT DURING COVID-19 PANDEMIA

### DIFFERENZA DI ACCESSO ALLO SPORT DURANTE LA PANDEMIA DI COVID-19

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#### **Abstract**

*Purpose.* Practicing a regular physical activity is important for the prevention and treatment of cardiovascular and metabolic diseases. Favoring the access to sports is fundamental to promote a general well-being. The aim of the present study is to investigate how the COVID-19 Pandemia influenced sport practices, by considering the medical certificate requested in public medical centers on the period from 2018 to 2020 in the population in the province of Modena, Italy.

*Methods.* We analyzed 30.353 medical certification requests stratified for age (<18 years, 18-40 years, and >40 years) and for sport disciplines.

*Results.* Medical certification requests in 2020 were 67.60 % compared the year 2019. The percentage of sport certification requests reduction in the year 2020 is greater than the expected one after correlating it in relation to the period of closure of the Sport Medicine Department imposed by the covid-19 emergency.

*Conclusions.* The lockdown periods has determined a reduction in the sport certification requests and, thus, probably in competitive sport practice in young athletes in Modena, possibly leading to negative consequence on future cardiovascular e metabolic risk profile.

Scopo. Praticare una regolare attività fisica è importante per la prevenzione e il trattamento delle malattie cardiovascolari e metaboliche. Favorire l'accesso allo sport è fondamentale per promuovere un benessere generale. Lo scopo del presente studio è quello di indagare come la pandemia COVID-19 abbia influenzato le pratiche sportive, considerando le visite per certificati medici richieste nei centri medici pubblici nel periodo dal 2018 al 2020 nella popolazione della provincia di Modena, Italia.

Metodi. Abbiamo analizzato 30.353 richieste di certificazione medica stratificate per età (<18 anni, 18-40 anni e >40 anni) e per discipline sportive.

Risultati. Le richieste di certificazione medica nel 2020 sono state il 67,60 % rispetto all'anno 2019. La percentuale di riduzione delle richieste di certificazione sportiva nell'anno 2020 è maggiore di quella attesa dopo averla posta in correlazione al periodo di chiusura del Dipartimento di Medicina dello Sport imposto dall'emergenza covid-19.

Conclusioni. Il periodo di chiusura ha determinato una riduzione delle richieste di certificazione sportiva e, quindi, probabilmente della pratica sportiva agonistica nei giovani atleti modenesi, con possibili conseguenze negative sul futuro profilo di rischio cardiovascolare e metabolico.

#### **Keywords**

Sport medicine, Covid-19, Coronavirus, Physical Activity, Youth Sport  
Medicina sportiva, Covid-19, Coronavirus, Attività Fisica, Sport Giovanile

## Introduction

In December 2019, a new coronavirus, defined “SARS-CoV-2”, announced by the World Health Organization (WHO) has been responsible for the outbreak of COVID-19 [1]. The first case of an unidentified form of viral pneumonia was reported in Wuhan city, Hubei province, China, in December 2019 [2]. On the 24<sup>th</sup> of January 2021, the COVID-19 syndrome caused 98.280.844 infections and 2.112.750 confirmed deaths, while on the 27<sup>th</sup> of January 2021, it has caused 85.418 confirmed deaths in Italy [3]. The pandemic has led to containment measures and had a significant impact on the Italian lifestyle, overwhelming and changing lifestyles, work, leisure time and habits. The lockdown due to the COVID-19 emergency was a critical moment with a strong impact, representing a real traumatic event for mental health [3]. Furthermore, the majority of people reduced their physical activity during lockdown [4], as a result of the multiple sport centers closures [5]. In 2020 WHO (World Health Organization) disclosed new recommendations about physical activity: 60 minutes per day, from moderate to vigorous intensity activity for people in the range 5-17, with a strengthening muscles and bones training for three times for week, and at least 300 minutes of moderate intensity or at least 150 minutes of vigorous intensity activity with a training two times a week of all major muscle for the range 18-64 years [6]. Physical activity represents the better intervention to reduce incurring diseases like cardiovascular diseases, diabetes and obesity [6]. Italy is athletes are required to perform a medical examination to exclude the presence of contraindications before starting competitive sport activity. For more than 30 years, a systematic participation screening, based on 12-lead ECG at rest and after exercise in addition to history and physical examination, urine test and spirometry, has been practiced in Italy. Preparticipation screening at the Center for Sports Medicine in Padua showed that the annual incidence of sudden cardiovascular death in athletes decreased approximately by 90% [7]. However, COVID-19 pandemic reduces the possibility to practice physical activity for all population.

The aim of the present study is to investigate how COVID-19 pandemic reduced the practice of different sports, by taking a picture of the medical certificate request for sports in the population between 2018, 2019 and 2020 in the province of Modena, Italy.

## Methods

This is a retrospective and anonymous observational study; aggregate data were collected from public clinics in the province of Modena (Italy), during the years 2018, 2019 and 2020. We have collected data from the public clinics that have examined subjects practicing sports. All data were rigorously aggregate in an anonymous way. We have no access to clinical data, just to age, sex, and sport discipline (Table 1, Table 2 and Table 3). Inclusion criteria was having a clinical certificate related to sport request. In this study, we analyzed the medical certification requests for different sport disciplines: athletics, football, biking, swimming, basketball, volleyball, tennis, other team sports, other individual sports, and disabled sports. In the tables below, the requests are stratified for sex and age: <18 years, from 18 to 40 years, and >40 years.

## Results

Table 1 shows the number of medical certification requests stratified for age (<18, 18-40, and >40 years), sex (males and females), and for different sport disciplines in 2018, Table 2 shows the same in 2019 and Table 3 in 2020. The medical certification requests were 30.353, 11.728 in 2018, 11.113 in 2019 and 7.512 in 2020. Males are 61.28 % of the total in 2018, 60.39 % in 2019 and 58.13 % in 2020. People younger 18 years get a free visit, so there are a great percentage of total respect elder (87.72 % in 2018, 88.02 % in 2019 and 89.70 % in 2020). In 2020 67.60 % of visits of 2019 were made (64.05 % respect 2018). Soccer in males and volleyball in females are the most popular sports. Team sports in younger 18 people are the 81.06 % of total of males (80.96 % in 2019 and 81.71 % in 2018) and 45.59 % of females (47.40 % in 2019 and 51.15 % in 2018).

Table 1: Medical certificate requested in public medical centers in Province of Modena in 2018

Sports	Total					
	Males			Females		
	< 18 y	18 < 40 y	≥ 40 y	< 18 y	18 < 40 y	≥ 40 y
Athletics	238	79	86	269	35	21
Soccer	3.228	321	38	85	13	4
Biking	41	18	68	10	0	5
Swimming	237	38	13	247	30	3
Basketball	765	21	2	123	5	0
Volleyball	485	41	8	1.749	125	4
Tennis	220	25	18	107	12	1
Other teams sports	529	24	4	171	2	1
Other individual sports	371	120	68	1.393	90	6
Disabled sports	14	48	19	6	18	7
<b>Total</b>	<b>6.128</b>	<b>735</b>	<b>324</b>	<b>4.160</b>	<b>329</b>	<b>52</b>

Table 2: Medical certificate requested in public medical centers in Province of Modena in 2019

Sports	Total					
	Males			Females		
	< 18 y	18 < 40 y	≥ 40 y	< 18 y	18 < 40 y	≥ 40 y
Athletics	217	70	81	252	31	33
Soccer	2.916	220	30	87	10	0
Biking	37	20	64	6	3	4
Swimming	208	32	14	237	14	7
Basketball	741	30	4	146	3	0
Volleyball	478	22	13	1.635	119	8
Tennis	217	29	23	88	7	1
Other teams sports	531	31	3	37	5	0

Other individual sports	398	99	43	1.521	75	13
Disabled sports	22	87	33	10	35	15
<b>Total</b>	<b>5.763</b>	<b>640</b>	<b>308</b>	<b>4.019</b>	<b>302</b>	<b>81</b>

Table 3: Medical certificate requested in public medical centers in Province of Modena in 2020

Sports	Total					
	Males			Females		
	< 18 y	18 < 40 y ^1	≥ 40 y	< 18 y	18 < 40 y ^1	≥ 40 y
Athletics	122	24	51	151	12	13
Soccer	1.936	104	9	52	6	1
Biking	32	11	31	7	2	5
Swimming	142	17	10	160	9	3
Basketball	534	17	3	77	5	0
Volleyball	321	21	7	1.164	77	2
Tennis	166	11	21	84	3	4
Other teams sports	308	19	3	36	8	0
Other individual sports	247	69	37	1.177	44	4
Disabled sports	15	53	26	7	22	10
<b>Total</b>	<b>3.823</b>	<b>346</b>	<b>198</b>	<b>2.915</b>	<b>188</b>	<b>42</b>

## Discussion

In 24 October 2020 the new guidelines defined by the Italian Council of Minister have been planned an immediate closure of gyms, swimming pools and team sports. Only individual training and competitions with national relevance were allowed, with a reduction of activity for many youth sport societies and amateurs. On the 26<sup>th</sup> of April 2021 outdoors team sports were been permitted, just in the regions with a low infection rate. On the 15<sup>th</sup> may 2021 outdoors swimming pools has been open again, on the 24<sup>th</sup> of May 2021 it has been the turn of gyms and on the 1<sup>th</sup> of July 2021 for indoors swimming pools. The medical certification requests for physical activity varies by age and through the decisions of sport federation: usually team sports require at least 11 years, while individual sports like artistic gymnastics require 8 years; younger people can practice team sports only with noncompetitive medical certificate.

The public centers of Sports Medicine in the province of Modena are been closed from 9<sup>th</sup> March 2020 to 15<sup>th</sup> June 2020, but the reduction of requested medical certificates in percentage (higher 33 %) is greater than the closure period (little more three months, approximately 27 % of the year). The subsequent periods of similar lockdown with the closure or limitations of sport activities for people in Italy have determined a reduction in the visit requests, with a consequent reduction in sport practice. In fact, 2020 lockdowns reduced physical activity for young people [8], and the future consequences could manifest in younger in the next few years. It has been demonstrated that there are more females that requested medical certification. Individual sports

increase in females younger 18 significantly and progressively, while remain constant in males, despite the limitations in team sports. The study is presented to an active population that practice physical activity normally.

### Conclusions

This study shows a reduction of medical certification requests for competitive sport activity in young people in 2020 in Modena in comparison to previous years. We assume that this reduction in medical certification demand may reflect a corresponding reduction in sporting practice among the general population. Health issues related to physical inactivity are well known and, although measures to prevent COVID-19 spread are still needed, a return to pre COVID-19 levels of physical activity is a goal objective to pursue, in order to avoid future health problems.

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