

## HOW HAS THE PRACTICE OF PHYSICAL ACTIVITY CHANGED DURING THE COVID-19 QUARANTINE? A PRELIMINARY SURVEY

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### Abstract

**Research purpose.** The present study aims to examine the changes in physical activity levels during the lockdown due to COVID-19 in Italy. In particular, it aims to assess whether people have continued to exercise at home, how much the home environment has influenced the desire to train and what people think about Smart-fitness and sport in general.

**Materials and methods.** A sample of 268 people from the province of Salerno participated in the study, with an average age of 26 years. To achieve the tasks set, the study relied on the following methods: analysis of scientific literature, formulation and administration of a questionnaire and data analysis through methods of mathematical statistics. A structured questionnaire was prepared, disseminated through social networks. To analyze the data, the Social Sciences Statistical Package (SPSS) and descriptive statistics were used to calculate the demographic variables. The factor analysis was also calculated to verify the characteristics of the sport considered important by the participants.

**Results.** The results obtained made it possible to understand the main type of physical activity carried out during the quarantine (aerobic activity 35 %, functional training 27 %, anaerobic activity 19 %), the time dedicated to each session (52.8 % practice for 1 hour) and the weekly frequency of the same (42.9 % practice physical activity continuously more than ¾ times a week). It was also understood the reasons that prompted the interviewees to train, the way they planned their session and the equipment used. Finally, it was shown that the majority of the sample (64.17%) knew smart fitness considering it an interesting activity, and the influence attributed to the home environment by a scale of values from 1 to 5. Furthermore, the factor analysis shows us the most relevant aspects which respondents attributed to sport. More frequently, respondents place greater importance on being loyal and correct, on the contrary, lower values are attributed to the importance of earning money, and not to disappoint others.

**Conclusions.** The study found that COVID-19 did not stop athletes, who quickly adapted to the new situation. The home environment has proved to be very influential on the desire to train, despite this, they hope to return to the gym as soon as possible.

**Keywords:** COVID-19, Health, Smart-fitness, Home-fitness, Quarantine, Sport.

### Introduction

In Italy with the advent of the lockdown on 9 March 2020, due to Covid-19, the fitness centers and gyms have been forced to stop their business, sending the fitness-addicted into crisis, who have had to reorganize their daily routine (Maugeri, Castrogiovanni, Battaglia, Pippi, D'Agata, Palma, Di Rosa, & Musumeci, 2020). However, physical activity did not go on stand-by. On the contrary, it has evolved, giving life to the phenomenon of "home fitness", thanks to

the spirit of initiative of instructors of various disciplines who have proposed to offer free lessons to the people, using social networks (Jiménez-Pavón, Carbonell-Baeza, & Lavie, 2020; Hall, Laddu, Phillips, Lavie, & Arena, 2020). From the gyms, fitness has moved to the virtual platform. Hence the name «Smart fitness». Consequently, the owners of the various sports centers have adapted to this new situation, offering training prepared by their instructors and publishing them on their web pages, so as not to abandon customers, especially the most loyal ones (Hammami, Harrabi, Mohr, & Krustup, 2020). Smart fitness offers workouts of any discipline, from aerobic activity to yoga, from functional to dance

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courses: it is possible to find entire lessons lasting about 40/50 minutes, video tutorials of circuits, that can be performed both using of small tools, either, through bodyweight, or even simple training instructions suitable for everyone (Jung, Kwak, Park, & Lee, 2017). In short, from this point of view, fitness seems to be well organized and having much more free time, people could easily practice physical activity at no cost and, perhaps, become passionate about some new discipline (Sayed, Walsh, & Sheikh, 2020). As amply demonstrated, it is very important to practice physical activity for your health (Raiola, 2015; D'Isanto, 2016), both mental and physical (Altavilla, 2016), and above all to prevent the risk of diseases (Tiziana, Antonetta, & Gaetano, 2017). The home environment, however, may not be motivating, especially for those who are not passionate about fitness, or for those who prefer to train in company (Nyenhuis, Greiwe, Zeiger, Nanda, & Cooke, 2020). Many could abandon the practice of training for poor motivation (Yanguas, Dominguez, Ferrer, Florit, Mourtabib, & Rodas, 2020). Although some are using exercise to manage the stress of the pandemic, there are many people who are managing their stress with food (Gallo, Gallo, Young, Moritz, & Akison, 2020). Overeating and binge-eating can lead to regret, physical discomfort, and weight gain (Ceciliani, 2018; Gaetano, 2016; Schwendinger & Pocecco, 2020). It is important to acknowledging the difficult emotions they may have felt during the pandemic that led to the weight gain and providing encouragement that they can start fresh now without judgment may help people reestablish their prepandemic eating patterns (Di Tore, Raiola, & D'Isanto, 2018).

*Purpose of the research* – this study aims to verify whether, during the first two months of quarantine, March and April, people continued to exercise at home, to verify how much the home environment influenced the desire to train and what people think of Smart-fitness and sports in general.

## Materials and methods

### Study participants

The study was attended by 268 samples belonging to the province of Salerno, of different gender and age, with an average age of 26 years. Experimental procedures, discomforts, and benefits were fully explained to all boys and parents/guardians prior to participation. Signed informative consent forms were provided by subjects' parents and/or legal guardians. The substantial number and the significant representation of the sample means that it can be subject to professional discussion as well as scientific discussion.

### Study organization

After choosing the reference application and carrying out the sampling plan, there was a need to use an information-gathering technique to meet the objectives set out, taking into account both the methodological implications, as well as the economic and human resources available. On this basis, it was decided to use a quantitative approach by adopting as a survey tool a structured questionnaire, the drafting of which was based on the conceptual dimensions and related indicators identified during the definition of the objectives.

Questionnaire was prepared with Google Forms, distributed through sharing on social networks. It is aimed at the

inhabitants of the province of Salerno, Campania. Sampling was random. In order to assess the goodness of the instrument, and, more precisely, the fidelity of the data collected with it, a pre-test was carried out prior to administration on subjects with characteristics similar to those of the selected analysis unit. The research group's focus on the pre-testing phase made it possible to assess the effectiveness of the tool by identifying any distortions arising from the articulation of the questionnaire, the operational definition of the questions, and estimating the average duration of an interview. Some indicators have been reviewed, eliminating redundant or invalid indicators from the indicated size. The questions in the questionnaire are all closed-ended. The final questionnaire consists of several thematic sections. The first section concerned the gender and sport practice of subjects during quarantine. Specifically, the questions were aimed at investigating the type of activity practiced, the duration of the training sessions and the weekly frequency of the same. Alongside this information, it was also sought to identify the motivations that led respondents to play sports during quarantine, based on what they planned their training and the type of tools used. The second section of the questionnaire, instead, is dedicated to smart fitness by investigating the knowledge of the subjects about this practice, and the influence that the home environment has had on physical activity.

The third and final section of the questionnaire, on the other hand, is dedicated to the survey of the values that the subjects interviewee associate with sport. More precisely, the type of attitude they declare towards sport was noted: for example, if instrumental and more competitive, or mainly oriented towards peer socialization and psycho-physical well-being. This section also includes a question to see if there were preferred samples among the interviews and which adjectives were most frequently associated with them. These last questions were asked in order to understand also the dynamics of identification of the children interviewed.

### Statistical analysis

To analyze the data, the statistical package for social sciences (SPSS) and descriptive statistics were used to calculate demographic variables. Factorial analysis was calculated to verify the characteristics of the sport considered important by the participants. The procedure adopted here is the two-stage procedure; this approach avoids some problems such as reification of axes, the constraint of orthogonality and semantic complications related to the interpretation of factors.

## Results

With regard to gender distribution, 59.7 % of respondents are girls compared to 40.4 % of boys. The prevailing age is between 25 and 26 years old. The data show from the outset that 82.1 % of those surveyed practiced sports during quarantine compared to 17.9 % who did not practice it. The most practiced activity was aerobics (35 %), followed by functional training (26 %), anaerobic training (19 %), dance (11 %) gymnastics (0.9 %). Also interesting is the time spent on the activity. 52.8 % of respondents said they train for 1 hour, 24.2 % for 30 minutes, 20.2 % for more than 1.5 hours and 2.8 % for more than 2 hours. The same recording is recorded relatively for the frequency of workouts during the

week: 42.9 % exercised continuously three to four times a week, 39.1 % two to three times a week, 12.7 % once/twice a week and 5.3 % occasionally. Compared to the reasons given, it is clear that the subjects choose sport for aesthetic purposes (40.8 %), for pleasure and passion (32.2 %), for health (9 %), stress (8.1 %), finally there are those who claim to have a lot of free time (6.9 %) or does it for leisure (3.1 %). With regard to the planning of the training session, 36.9 % of respondents said they took their cue from the video tutorials on the web, 33.9 % planned it based on their experience, 27 % asked for the opinion of a gym instructor. Less significantly, 15.9 % continued to do the same exercises they did before the lockdown and 7.2 % planned it themselves as instructors. The last question for the first section was the equipment used: 34.9 % have small gym equipment such as bands, small dumbbells. 23.7 % do not have them and would like to have them, 20.7 % gave themselves to DIY, building weights with crates of water and sticks, 11.5 % do not have them because they are not needed for their training, 9.2 % have a real home gym with high loads.

About the knowledge of smart fitness 64.7 % find this new mode of fitness through virtual indications interesting, 18.7 % know this new mode, but they are not interested, 9.9 % did not know it, but they are interested, 6.7 % are not and are not interested. On the other hand, the influence that the home environment has had on physical activity, as shown in Figure 1: the majority (32 %) gave an average 3/5 rating, 30.2 % gave 4/5, 26.3 % gave 5/5, 6.7 % 2/5 and finally 4.9 % 1/5.

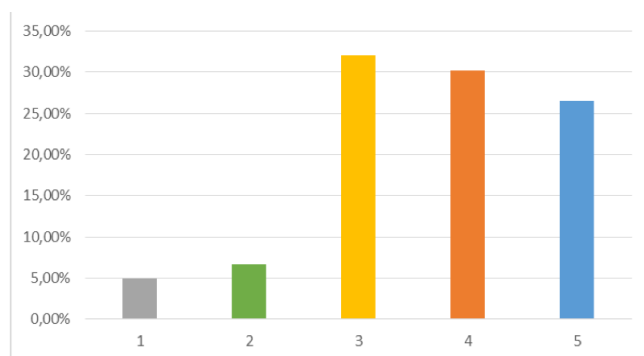


Fig. 1. Influence of the home environment on physical activity

Finally, the last question dedicated to the recognition of the values that respondents associate with sport. Table 1 shows us the most relevant aspects attributed to sport through factor analysis. More frequently, respondents attach greater importance to being fair and fair, conversely, lower values are attached to the importance of earning money and don't disappoint others.

## Discussion

Athletes were not influenced by the quarantine, continuing to practice indoor physical activity. Among those who do not practice, the majority seem to feel a sense of unease given by the home environment, which seems to negatively influence the desire to train. The current WHO recommendations on physical activity for the health of the adult population recommend that, during the week, a minimum of 150 minutes of moderate intensity aerobic physical activity, or a minimum

Table 1. Factorial analysis

Indicator	Rotation components matrix			
	Component			
	1	2	3	4
Be fair and correct	.013	.702	.226	.130
Be constant in training	.337	.073	.673	-.085
Help others when they need it	.013	.384	.412	.526
Being with friends	.043	.153	-.012	.898
Do not use doping substances	-.324	.128	.501	.022
Improve the results	.491	.216	.649	-.010
Accept defeats	.101	.138	.565	.302
Avoid getting hurt	.071	.804	.019	.020
Avoid hurting others	.107	.838	.130	.179
To win	.865	.126	.178	-.042
Follow a sporty model	.653	-.108	.425	.282
Earn money	.789	.119	-.046	-.141
Don't disappoint others	.854	.033	.080	.233

of 75 minutes of vigorous activity, more strengthening exercises for the major muscle groups, two or more times a week. Sportsmen seem to follow these guidelines in a great way, in fact the majority train for about an hour per session 3/4 times a week. The most practiced physical activity is aerobic activity, probably because it is an easy activity to do at home, which does not need specific equipment or skills (D'Isanto, 2016; Altavilla, 2016; Valentini, Bernardini, Beretta, & Raiola, 2018a). Cardio training is perfect for weight loss, toning and improving body efficiency (Altavilla, D'Elia, & Raiola, 2018), objectives among other things stated by the majority of participants. After aerobic activity, functional, simple, and effective training takes place, which is based on free-body exercises to be performed, with and without, using tools. It allows to improve natural body movements, have a correct posture and be more agile and coordinated (Raiola, 2020). It can be performed both outdoors and at home but requires a minimum of experience. Next, there is anaerobic training, which aims to strengthen and define the muscles. However, it is difficult to perform at home when there are no loads to lift. To solve this problem, Smart fitness intervenes, which offers advice on how to build a set of homemade weights, for those who are used to training in the gym with overloads. An example is building a barbell with a stick stuck between two crates of water, use water bottles as dumbbells, or even fill a backpack to make the sandbag, widely used in the functional. Many followed this advice, while others already had tools, albeit light, such as elastic bands or small dumbbells. Finally, other highly practiced activities at home are dance and gymnastics, which require only the movement of your body. Most practice physical activity to keep fit. Keeping fit in this period is very difficult: restrictions on movements and social relationships can cause excessive and unbalanced nutrition, and sedentary lifestyle, putting a strain on everyone's weight (Raiola, 2016). For this, you need to move as much as possible and adjust the



power. Those who practice for passion, however, will face this possible problem with more pleasure. Regular, low-intensity physical activity brings significant health benefits, while a sedentary lifestyle and other risk factors contribute to the development of chronic degenerative diseases, cardiovascular diseases (Altavilla, Mazzeo, D'Elia, & Raiola, 2018a). Smart fitness seems to be of great help in helping people to move, given that most rely on the video tutorials on social networks. However, one must be careful in carrying out the exercises because an incorrect performance can cause serious damage to different parts of the body (D'Isanto, D'Elia, Raiola, & Altavilla, 2019). Not being supervised, it is preferable not to exaggerate and rely on competent instructors, distrusting those who improvise instructors on the network. There are also those who follow the cards/video tutorials proposed by their trusted instructor, and this means that the instructors have not abandoned their students, adapting to the new situation, and following the trend of the moment (Lister, West, Cannon, Sax, & Brodegard, 2014). Another good part plans it alone, based on their experience. In this case people did not turn to online advice. Most train on their own, while only someone involves a member of their family, strengthening family relationships. Some have not given up on training in the company of a friend in a video call and only a small part of them train with a «live» instructor on social networks. The latest initiative seems not to have been very successful, perhaps due to an incompatibility of schedule between lessons and personal commitments. Even if the population is very active, one cannot help but notice that most believe that the home environment influences the desire to train (Lesser & Nienhuis, 2020). Especially the younger ones seem to suffer (D'Elia, Mazzeo, & Raiola, 2018). A greater sense of discomfort could be felt when the age decreases, on the contrary, as the age increases it seems that the home environment less influences the desire to train. The poor motivation due to the home environment is a sign of unease, but it has not caused the abandonment of physical practice. Most prefer to train in the gym and once the quarantine is over, they will return to train in their trusted gym. Online fitness was unable to replace the gym location. The gym, compared to home training is more motivating, for a number of factors: the cheerful and socializing environment, the presence of an instructor who encourages not giving up, the company of a friend, the commitment to have paid a monthly (Giustino, Parroco, Gennaro, Musumeci, Palma, & Battaglia, 2020). Training at home, on the other hand, requires assiduous willpower: without it, it would not last long. However, training at home also has advantages such as saving time, being able to train at any time of the day, saving money and feeling free to train, without being judged. It does not matter where; the important thing is to move (Oliver, Morton, Baldwin, & Datta, 2019). In the questionnaire a battery of thirteen sentences was inserted, on each of which the interviewees had to declare the degree of importance from a minimum of zero to a maximum of ten, in order to identify which were the most relevant aspects of sport. More frequently, respondents place greater importance on being fair and correct, on the contrary, lower values are attributed to the importance of earning money and not to disappoint others. Four dimensions have been identified, characterized by as many groups of values. Characteristics of the first dimension are improving results, winning, following a sports model, making money and not disappointing others.

In this case, we are dealing with an idea of sport focused on competition, both towards ourselves and towards others, and a sport that is also instrumental to the improvement of the socio-economic condition of the athlete, therefore oriented towards result and performance. On the second dimension, we find ourselves being loyal and correct, avoiding hurting ourselves, and avoiding hurting others. These are therefore valuing attributable to fair play (D'Elia & Raiola, 2019) and mainly detached from achieving a result in terms of sporting victories. In the third dimension, we find ourselves being constant in training, helping others when they need them, not using doping substances (Raiola, D'Elia, & Altavilla, 2018), improving results, accepting defeats, and following a sporting model. In this case, sport is lived in a healthy perspective, training with a set goal without resorting to improprieties (Mazzeo, D'Elia, & Raiola, 2018). Being constant is the most important element to obtain good results in terms of performance. Finally, in the fourth dimension we find ourselves staying with friends and helping others when they need it. In this case, sport is experienced as a place of socialization, in a purely relational non-competitive perspective.

## Conclusions

The investigation showed that the COVID-19 did not stop the sportsmen, who immediately adapted to the new situation. It is very important to practice physical activity to bring benefits to both the body and the mind: it can reduce high blood pressure, help control weight and reduce the risk of heart disease, stroke, type 2 diabetes and various types of cancer, all conditions that may increase susceptibility to COVID-19. The fitness revolution has affected many people, but only momentarily, dictated by necessity: despite accompanying athletes for two months, the latter always prefer training in the gym. The home environment has proved very influential on the desire to train, not surprisingly, most hope to return to the gym as soon as possible.

## Conflict of interest

The authors declare that there is no conflict of interest.

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## ЯК ЗМІНИЛАСЯ ПРАКТИКА ФІЗИЧНОЇ АКТИВНОСТІ ПІД ЧАС КАРАНТИНУ COVID-19? ПОПЕРЕДНЄ ОПИТУВАННЯ

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Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; Е – збір коштів

Реферат. Стаття: 6 с., 1 табл., 1 рис., 31 джерело

**Мета дослідження.** Дане дослідження має на меті вивчити зміни рівня фізичної активності під час блокування через COVID-19 в Італії. Зокрема, оцінити вплив фізичних вправ на психологічне здоров'я, наскільки домашнє середовище впливає на бажання тренуватися та що люди думають про Smart-fitness та спорт загалом.

**Матеріали та методи.** У дослідженні брали участь 268 людей із провінції Салерно, середній вік яких становив 26 років. Для досягнення поставлених завдань дослідження спиралося на такі методи: аналіз наукової літератури, анкетування та аналіз даних за допомогою методів математичної статистики. Була підготовлена структурована анкета, яка поширювалася через соціальні мережі. Для аналізу даних, обчислення демографічних змінних використовувались Статистичний пакет для соціальних наук (SPSS) та описова статистика. Факторний аналіз також був здійснений для перевірки характеристик виду спорту, який учасники вважають важливим.

**Результати.** Отримані результати дали змогу зрозуміти основний вид фізичних навантажень, що проводяться під час карантину (аеробна активність 35 %, функціональна підготовка 27 %, анаеробна активність 19 %), час, приділе-

ний кожному заняттю (52,8 % практики протягом 1 години) і щотижневу їх частоту (42,9 % практикують фізичні навантаження постійно більше  $\frac{3}{4}$  разів на тиждень). Також було встановлено причини, що спонукали респондентів тренуватися, спосіб планування занять та використовуване обладнання. Нарешті, було показано, що більшість вибірки (64,17 %) знали про розумний фітнес, вважали його цікавою діяльністю, і вплив, який приписують домашньому середовищу за шкалою значень від 1 до 5. Крім того, факторний аналіз показав найбільш релевантні аспекти, які респонденти приписують спорту. Частіше респонденти надають більше значення лояльності та коректності, навпаки, нижчі цінності приписуються важливості заробітку грошей і бажанню не розчарувати інших.

**Висновки.** Дослідження показало, що COVID-19 не зупиняв спортсменів, які швидко адаптувались до нової ситуації. Домашнє середовище виявилось дуже впливовим на бажання тренуватися, незважаючи на це, вони сподіваються якнайшвидше повернутися до спортзалу.

**Ключові слова:** COVID-19, здоров'я, розумний фітнес, домашній фітнес, карантин, спорт.

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