

## Google Trends during COVID-19: Raising awareness among physical education teachers

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### Abstract

The purpose of this study is to increase awareness among physical education teachers by analyzing the trends in reaching exercise programs on the Google platform during the coronavirus disease (COVID-19) pandemic. The exercise trends sought on the Google Trends platform between March 2020 and March 2021, when the pandemic was most intense, were examined. During this phase of the Covid-19 pandemic, it was observed that the most searched type of exercise on Google was strength training and fitness exercise. The previous exercise habits of individuals, the decisions taken by countries during the pandemic, and the technological methods applied may have been effective in searching for physical activities via Google. This study might contribute to physical education teachers in institutions that provide education for children and youths, to create the content of online or face-to-face exercise programs.

Keywords: COVID-19; Exercise; Physical Activity; Physical Education

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## 1. Introduction

The human body is designed for physical activity; however, exercise is not often considered a part of the average lifestyle. For years, exercise scientists and health/fitness experts have argued that regular physical exercise is the best defense against the prevention of many ailments and diseases such as cardiovascular diseases, musculoskeletal disorders, psychological disorders, lung diseases, metabolic disorders, and cancer (Heyward, 2006; Sawada, 2014). Physical education teachers make attempts to direct children and youths in school to physical exercise based on this direction. However, with the emergence of COVID-19 infection, some restrictions have arisen for children and youths who endeavor to do exercise due to regulations for mandatory quarantine and social distancing measures (Patiño-Lugo et al., 2020).

Studies show the negative effects of increased screen time; that is, time spent on devices such as computer, mobile phone, television, etc. (Biddle et al., 2011; Fang et al., 2019). Within the pandemic prevention measures, most events, including physical activities, had to be transferred to screens. In COVID-19 period, children and youths needed to use screens to access exercise programs in line with different suggestions.

The Digital Age's (2020) study demonstrates that the use of fitness and health applications has increased by 25% compared to pre-COVID-19, and 57% of the participants have viewed mobile devices as vital for sports and training. Grossmann, Backenköhler & Wolf, (2021) claim that quarantine restrictions reduced the spread of the pandemic. Also, it is foreseen that movement restriction measurements will also be introduced in the future; therefore, physical education teachers have been trying to develop exercise programs within the scope of distance education and offer them to children and youths over the Internet during the pandemic period. However, the intensity of these personal exercises cannot be much well-controlled in the programs prepared online during the COVID-19 outbreak.

### 1.1. Theoretical framework

When looking at the studies on COVID-19 and exercise that were carried out between March 2020-2021 are taken into account, it appears that the time devoted to exercise decreased as screen time for playing video games and watching television increased (Colley, Bushnik & Langlois, 2020). Nyenhuis et al. (2020) point out that people's stress levels and eating habits have increased during this period, so they should keep doing exercise to be able to cope up with the effect of the COVID-19 pandemic. Besides from these studies which have been conducted for illuminating the relevance between the COVID-19 pandemic and exercise, there are also studies that demonstrating the types of exercise that should be done during the pandemic. For example, Chagas et al. (2020) refers to the necessity of engaging in strength, flexibility, and balance exercises at least twice a week. In another study, Rodriguez, Crespo & Olmedillas (2020) suggest that individuals should improve cognitive activities as well as performing multi-component full-body programs that include aerobic, strength, balance, and flexibility exercises. Cognitive development is vital in children and young people. In this regard, combining cognitive activity with movement and exercise is an issue to be considered and planned especially during the COVID-19 outbreak.

The important thing to determine, in terms of health, is not only the preferences of children and youths tending to perform their physical activities online, but also the right content to be prepared in these areas. For instance, the mobile application prepared by Turkish Sport for All Federation offering personalized exercise programs and featuring 900 exercise videos were

downloaded by many people in 2019 (Turkish Sport for All Federation, 2020). In countries, these are of particular concern to both the federations and the ministerial institutions related to physical education and health. First, online applications should be developed by advisors in the health and sport field. Secondly, the content of such exercise programs prepared within the context of distance education is an area where physical education teachers should provide support as experts. Physical education teachers are offered at the same time an opportunity as they can pedagogically benefit from creating the course content. Exploring the content of physical activities sought on the Internet will help teachers in this task. In short, the objective of this study is to assess the searches made for exercise on the Google search engine worldwide and in Turkey between March 2020 and March 2021 when COVID-19 reached its peak all over the world.

## **2. Methods**

The research was realized using the quantitative research method. First, the relevant data was generated through Google Trends data source depending on search criteria associated with the content "Trends for Exercises Searched". Then, the findings were demonstrated both in the context of Turkey and the world.

### *2.1. Data collection tools*

During the COVID-19 pandemic, data sources on the Google Trends platform were used to determine the orientation of people in Turkey to exercise programs and to compare this with the situation worldwide. The search engine data on Google Trends was chosen because it offers a cross-country comparison option. The reason why the preference was worldwide is that it allows for viewing the average of all countries simultaneously and monitoring Google Trends queries all at once that were made on physical activities during COVID-19 throughout the world. The reason for the comparison with Turkey is to review the trends of physical activities worldwide and to specify the degree of people's orientations in Turkey in terms of similarity. Accordingly, this research focuses on the period between March 2020 and March 2020, when COVID-19 was at its peak across the world and in Turkey.

### *2.2. Data collection process*

For it can not be possible to separate between colloquially settled general searches and individuals seeking professional sports content professionally seeking sports content, it was agreed that the inquiry had to stay focused on general terms. Sports health scales were scanned worldwide in order to determine the object of the investigation (Davis, 2008; Thompson, 2010; 2017; 2019). Then, academicians in the field of Sports Health Sciences were consulted via interviews. After the names of physical activities that people could do at home during the COVID-19 pandemic were settled on, content analysis was handled. In agreement with the words obtained, a search was implemented on the Google Trends platform. While determining the criteria for word selection to be sought on the Google Trends platform, the inquiry into words/terms representing physical activities that the public would search under their main/basic names were taken into consideration.

### *2.3. Data analysis*

The collected data were downloaded on Microsoft Excel and transferred to SPSS Statistics. Via these programs, the averages of trends in sport types sought on Google worldwide and in Turkey, the distribution of sought-after sport types by countries and provinces, and the frequency of popularity

rates during the COVID-19 period were presented. In the popularity ratings offered on the Google Trends platform, a value of “100” indicates the highest popularity. Finally, the worth of “0” demonstrates that there was no sufficient data.

### 3. Results

**Table 1.** Averages of Trends for Type of Exercise Searched in the Worldwide and Turkey on Google Platform during the COVID-19 Pandemic Period (1.03.2020-31.03.2021)

Type of Exercise	Worldwide	Turkey
	$\bar{x}$	$\bar{x}$
Aerobic Exercise	70,12	63,40
Dumbell Exercise	49,49	47,61
Core Exercise	60,54	41,00
Dance	83,37	68,56
Balance Exercise	63,21	16,56
Flexibility Exercise	58,40	36,79
Fitness	63,00	69,33
Fitness Workout	63,89	46,56
Stretching Exercise	75,88	52,04
Strength Exercise	85,16	39,82
Pilates	71,51	50,49
Pilates Workout	48,56	37,79
Plyometric Exercise	52,53	16,47
Proprioception	58,07	16,81
Step Aerobic	53,93	30,89
Yoga	72,09	57,82
Yoga Workout	51,33	29,42

During the period between March 2020 and 2021, it was seen that the best-searched exercise type on Google was strength exercise worldwide whereas fitness was the best-searched type of sport in Turkey. On the other hand, pilates workouts were the least searched sport on Google worldwide during this phase of COVID-19. When we view Turkey, it is demonstrated that the least sought-after sport type was plyometric exercise. It is seen that more searches were conducted on flexibility and strength exercises worldwide and in Turkey. While balance exercise was searched at medium levels worldwide ( $\bar{x}$ : 63, 21), it is visible to be among the merest searched types in Turkey ( $\bar{x}$ :16, 56).

	Aerobic Exercise	Balance Exercise	Core Exercise	Dance	Dumbbell Exerc..	Fitness	Fitness Worko..	Flexibili ty Exer..	Pilates	Pilates Worko..	Plyomet ric Exe..	Propri..	Step Aerobic	Strengt h Exerc..	Stretchi ng Exe..	Yoga	Yoga W orkout
Australia		19,00	53,00		83,00	96,00	75,00	18,00	100,00	95,00	75,00	57,00					
Austria													54,00	42,00			
Belgium																	67,00
Benin				79,00													
Brasil									47,00				74,00				
Brazzaville				100,00													
Burkina Faso				4,00													
Cameroon				86,00													
Canada		11,00			94,00	77,00	81,00			61,00		47,00			38,00	86,00	100,00
Colombia	75,00																
Cypriot									47,00								
Czechia						52,00											
Côte d'Ivoire				70,00		100,00											
Denmark																	
Ecuador	86,00																
El Salvador	60,00																
Ethiopia								33,00						77,00			
France												100,00	81,00				
Gabonese				92,00													
Gana																	
Greece									44,00					63,00			
Haiti				79,00		49,00											
Holland																	
Honduras	56,00																
Hong Kong		15,00	38,00														
Hungary													42,00				
Jamaica														84,00			
Kinshasa				77,00													
Kosta Rica	59,00										48,00		42,00				
Lebanon												87,00			54,00		
Nepal																	
New Zealand		12,00	50,00		64,00	91,00	81,00	15,00	62,00	67,00	100,00				38,00	100,00	48,00
Niger				63,00													76,00
Nigeria														46,00			
Panama	68,00																
Paraguay	60,00												50,00				
Philippines	100,00	100,00	100,00		65,00	56,00	100,00	100,00		55,00	56,00			100,00	100,00		
Portuguese									47,00				98,00				
Qatar			31,00														
Singapore		21,00	66,00		86,00		56,00	16,00	42,00	45,00	67,00	41,00		56,00	44,00	94,00	81,00
South Africa		15,00			37,00		46,00	16,00		48,00				48,00			57,00
Spain	54,00								61,00				60,00				
Sri Lanka					61,00												
Switzerland						96,00			50,00				43,00				95,00
Togo				84,00													
Trinidad and Tob..								24,00					65,00	84,00			
Tunus												45,00	48,00				
Turkey									51,00								
USA		18,00	32,00		79,00	88,00	90,00	16,00		51,00		40,00		48,00	43,00		97,00
United Arab Emi..		12,00			56,00			15,00									49,00
United Kingdom		14,00	43,00		97,00	50,00	61,00			70,00	46,00	43,00			36,00	71,00	87,00
Venezuela	89,00										78,00						
India																100,00	
Ireland			72,00		100,00	59,00	66,00	15,00		100,00	100,00			57,00	39,00	86,00	80,00
Italia													100,00		59,00		

**Figure 1.** The popularity trend rates of exercise searched on the Google platform during the COVID-19 pandemic all over the Worldwide

Figure 1 shows that the popularity trend rates of exercise searched on the Google search engine between March 2020 and 2021 differed by country. Physical activities such as aerobic exercise, core exercise, balance exercise, flexibility exercise, fitness workout, stretching, and strength exercise gained high popularity in the Philippines. Additionally, dumbbell exercise, pilates exercise, and plyometric exercise enjoyed the highest popularity in Ireland. Apart from these types of exercise, dance in Brazzaville, fitness in Denmark, pilates in Australia, proprioception in France, step aerobics in Italy, yoga in India, and yoga in Canada gained more popularity than in other countries. From the comparison between the popularity trend rates of exercise worldwide, it can be understood that balance and flexibility exercises were preferred less.

	Aerobic Exercise	Balance Exercise	Core Exercise	Dance	Dumbbell Exercise	Fitness	Fitness Workout	Flexibility Exercise	Pilates	Pilates Workout	Plyometric Exercise	Proprioception	Step Aerobic	Strength Exercise	Stretching Exercise	Yoga	Yoga Workout
ANTALYA	100.00			87.00	56.00	100.00	100.00		76.00	88.00	87.00			82.00	78.00	22.00	91.00
İZMİR	97.00		73.00	97.00	60.00	80.00	80.00		67.00	100.00	100.00	100.00		86.00	32.00	85.00	94.00
BURSA	95.00			88.00	65.00	63.00	63.00			76.00	82.00			63.00	49.00	21.00	81.00
İSTANBUL	93.00	100.00	71.00	88.00	100.00	94.00	94.00	100.00	83.00	99.00	79.00	86.00	100.00	100.00	67.00	88.00	100.00
ADANA	83.00				48.00	87.00	87.00		81.00		70.00				100.00	13.00	69.00
ANKARA	76.00		69.00		71.00			96.00	79.00	84.00	66.00	63.00		70.00	90.00	100.00	90.00
KONYA	65.00				49.00												
ZONGULDAK			100.00														
VAN			81.00	88.00													
TEKİRDAĞ											84.00						
SAMSUN				88.00						71.00	90.00						
SAKARYA						84.00	84.00			83.00							59.00
MUĞLA					69.00									91.00			
MERSİN						78.00	78.00		100.00	84.00						24.00	81.00
MANİSA			79.00								85.00						
KOCAELİ	67.00	100.00													36.00		
KAYSERİ			69.00			77.00	77.00		100.00								
KAHRAMANMARAŞ						77.00	77.00										
HATAY														74.00			
GÖLCÜK				90.00													
GAZİANTEP					53.00				65.00								
ESKİŞEHİR									88.00	83.00				76.00			
DİYARBAKIR						64.00	64.00										
DENİZLİ									84.00	75.00							70.00
ÇANAKKALE			94.00		52.00												
BALIKESİR				86.00							87.00			60.00		35.00	
AYDIN			80.00	89.00										97.00			

**Figure 2.** The popularity trend rates of exercises searched on the google platform during the COVID-19 pandemic in Turkey

In Turkey, the popularity of exercise types sought on the Google platform during the COVID-19 peak this study examines differed according to province (Figure 2). The figure shows that Dumbbell exercise, balance exercise, flexibility exercise, stretching exercise, proprioception exercise, and yoga were highly popular in Istanbul. It is observed that pilates, pilates exercise, and plyometric exercises had the highest popularity in İzmir. Apart from these exercise types, in Antalya province, the rate of popularity was high in aerobic exercise and fitness exercise. Abdominal exercise in Zonguldak, dance in Kocaeli, fitness exercise in Adana, strength exercise in Mersin, step aerobics in Ankara, and yoga exercise in Muğla are observed to have higher popularity compared to other provinces. However, balance exercise, flexibility exercise, plyometric exercise, and proprioception were searched on Google in very few cities.

#### 4. Discussion

The impact of COVID-19 on social life continues in a global sense. However, different numbers of cases and different actions taken by different countries are leading to various interesting but unexplored effects on human behavior (Schmidt et al., 2020). The health benefits of exercise are known, but due to the concerns experienced during the COVID-19 pandemic, lifestyles are changing, and people are turning to activities in safe places away from the crowd to protect themselves from the disease.

Educational programs have also entered into new searches in this process. During distance education period, technological pedagogical knowledge degrees of teachers have developed (Akkaya, 2021). Teachers prepared course materials for an effective implementation of remote learning when

school closure measures were taken. Google platform have offered educators many advantages for distance education. Physical Education teachers have taken advantage of Google Trends for creating the right course content as well. In the research, key findings that balance exercise, which is important for individuals of all ages, was less sought after both worldwide and in Turkey. Then, it is clear that physical education teachers need to focus more on balance exercise because balance is an essential feature of normal motor development (Geuze, 2003). Also, balance exercise is critical for both the young and elderly (Dunsky, 2019).

When we evaluate the averages of the trends regarding the sport types searched in Turkey and worldwide on Google during the peak months the pandemic, strength exercise appears to be the most sought-after sport worldwide (See Table 1). This indicates people's effort not to decrease muscular strength when COVID-19 was at its peak. In the exercise and exercise pyramid, Gibson, Wagner & Heyward (2018) suggest individuals must move for at minimum 30 minutes every day and weight resistance exercises 3-5 days/week. This explains why people turned to body strengthening worldwide between March 2020 and March 2021. Kaur et al. (2020) claim that due to the risk of getting infected with COVID-19, individuals had a negative perception of going to fitness centers in quarantine and a lack of motivation for fitness exercise. However, as Kaur points out, there was a graded raise in the positive self-perception and motivation of individuals to continue their fitness exercise and regular fitness training at home during the quarantine, which helped them to overcome psychological problems and fitness concerns (Kaur et al., 2020). This might explain why people were positively motivated to initiate or maintain strength exercise globally in their own houses during the quarantine period.

The analysis of the averages of the trends regarding the sport types searched in Turkey on Google during peak phase of COVID-19, on the other hand, demonstrates fitness as the most searched exercise (See Table 1). This result sees that the sports activity Turkish people were most interested in did not change during peak phase, but it only experienced a change in place. It can also be inferred that COVID-19 may have made people in Turkey more inclined to fitness activities (Yüksel, 2004). In the research conducted by Kaya (2019), it is mentioned that the determining factors for sedentary individuals' regular participation in fitness centers, where they are registered members, are lack of time to do sports, distance from the fitness center, and economic matters. Kaya's research reveals that during the course of intense pandemic measures like school closures and social distancing, the public could spend time doing sports by staying at home and doing it through the Google platform without being obliged to visit the gym for appropriate exercise. All these restrictions may have led the people in Turkey to search for more fitness activities on Google search engine.

According to Google Trends data, aerobic exercise, core exercise, balance exercise, flexibility exercise, fitness exercise, stretching, and strength exercise were high in popularity in the Philippines (Figure 1). This can be due to decisions made by the Philippine Sports Commission Games and Entertainment Board Health Division to increase income-generating professional sporting events alongside physical activities during the COVID-19 pandemic provided they remained in compliance with risk-based public guidelines (Philippine Sports Commission Games and Entertainment Board Health, 2020). This commission has published a guideline that aims to regulate the conduct of exercise, sports, and other health-promoting physical activities in response COVID-19. With this regulation, while foregrounding the importance of exercise to ensure good physical and mental health, the key to achieve the goal of "increasing endurance" of the Ministry of Health's 5-point strategy in the fight against COVID-19, the inactivity of the public along with the livelihood and earnings of professional sports practitioners all over the country are emphasized. Accordingly, the



necessity of integrating health-promoting physical activities and sports into people's unnatural routines in the COVID-19 response is underlined, which targets fulfilling the first objective of the 5-point strategy of the Ministry of Health.

Physical activities such as dumbbell exercise, pilates workouts, and plyometric exercise had the highest popularity in Ireland, which can be because Irish people performed physical activities mostly through technology. Hurley (2021) points out in his research to the efforts of athletes to stay active and healthy, and to the efforts of health professionals working with these athletes in encouraging them to continue during COVID-19. He mentions the benefits of some online options for these sports people to apply in their trainings (Hurley, 2021). These include using video analytics technology, virtual reality technology, Global Positioning System (GPS) technology, and wearable applications that monitor various relevant exercise levels, sleep behaviours and calendar/scheduling features. The fact that athletes in Ireland continued their training via remote support may explain why some physical activities were more sought after in this country.

Apart from these physical activities, the Google Trends platform indicates a higher popularity of yoga in India compared to other countries, which may be the outcome of India's being the homeland of yoga. As a matter of fact, Newcombe (2017) states in her research that , yoga remains current in the context of India where it continues to be revived. It is also mentioned in the same study that yoga in India is a unique cultural resource with the potential to revitalize the Indian nation-state, and it is an example of the unique insights Indian traditions can offer to the world (Newcombe, 2017). As a result, it can be said that the people of India have embraced yoga, which was born from their homeland and has cultural importance, in response to COVID-19. In addition, since yoga aims at individual mental development, it appears to have offered an advantage as a type of exercise that the public could perform from their homes when quarantine restrictions were applied.

It is shown in Figure 2 that weight exercise, balance exercise, flexibility exercise, stretching exercise, proprioception exercise, and yoga activities were highly popular in İstanbul while pilates exercise and plyometric activities had the highest popularity in İzmir between March 2020 and March 2021. This may be due to the fact that these provinces are among the metropolitan cities in Turkey; therefore, the number of people and education level are higher than in other provinces (National Education Statistics, 2020). At the same time, because the provinces of İstanbul and İzmir offer the opportunity to do sports in all seasons, individuals who actively preferred gyms in these cities in the pre-pandemic period tended to continue their accustomed activities within their means.

## **5. Conclusion and recommendations**

This research, which aims to increase the awareness of physical education teachers in terms of physical exercises through an analysis of the search for physical activities made on the Google platform all over the world and in Turkey between March 2020 and March 2021, led us to the conclusion that physical activity trends on Google differed during the COVID-19 pandemic restrictions. This period offered individuals who had the habit of exercising in the pre-COVID-19 period an advantage of turning to physical activities during the pandemic as well, for the information they needed to optimize personal health was available on Google.. However, for individuals who did not have the habit of doing exercise or did not do any sports until this time, who thought that they were only inactive during the pandemic, and who tended to have regular exercise just in COVID-19 period, it may not be right to turn to these physical activities via Google. It is very important for such people to have information about their personal health and physical fitness level depending on the norms compatible with age and gender in their health-related physical fitness levels, which is essential for



optimizing individual health. The data presented by the Google Trends platform can assist in the development of exercise prescriptions with different forms of exercise training for all exercise components. On the basis of these interdependent factors, this study foregrounds the necessity of devising some general exercise recommendations and plans, which are in line with a person's special needs, to promote good health. The reason why the personalization of exercise plan is emphasized in this study is that the preferred exercise together with exercise frequency and exercise density may not be proper for a person in terms of health as it may bring forth some risk factors.

In this respect, it is recommended that children and youths who did not exercise at all and developed a sedentary lifestyle before the COVID-19 pandemic should carry out, together with the state's physical education teachers, some exercise programs that fundamentally initiate dynamic lifestyle activities. Thus, it is extremely important to determine the right exercise content for children and youths with the guidance of physical education teachers, not by these individuals themselves with random/arbitrary searches.

To this end, physical education teachers can develop ideal programs by following the most searched exercise programs on Google. If there are deficiencies and faulty exercise programs which are risky for students, they can improve their suitability. In short, focusing on the most searched exercise types on Google, physical education teachers can develop and present the best materials for their students.

Physical education teachers should search for new technologies, appropriate educational programs, and new ideas related to teaching. The necessity of adding these exercise programs to the curriculum of the students studying at the faculties of sports sciences emerges. Today, the development of mass media brings forth the necessity for teachers' following its orientation towards popular exercise programs rapidly, which are sought by society, as well as to the training they received during their university education. At this stage, physical education teachers need to be able to choose programs with the right content offered by online platforms. In this regard, the Google Trends platform provides them with the opportunity to learn about the exercise trends of their societies.

Following up-to-date approaches should be one of the goals of every teacher because it will enable them to determine the trends that the general population is curious about. Awareness of physical education teachers is also important in monitoring and creating safe physical education programs. Then, it becomes an important task for physical education teachers to implant the habit of leading a healthy life in their pupils. However, accomplishing this task during COVID-19 was not so easy as teachers were limited in terms of space and time, especially in their sports lessons, and these lessons could not be held effectively. The fact that people turned to the Google platform for accessing exercise programs during the pandemic provided us, as physical education teachers, with a solution to the problem we face in distance education. Viewing common exercise trends and programs via the Google trends in our research facilitated the key information about personal preferences which can be used in developing the right content for distanced physical education lessons. For healthy generations, it is indispensable to form long-term habits through physical activities that are proper for children and youths, which must be ensured by institutional education plans. Therefore, the experience physical education teachers underwent both in Turkey and worldwide during the COVID-19 outbreak provides us with a model for designing exercise programs, as precautions taken in advance against possible pandemics that might emerge in subsequent years, within the practices of the Ministry of Health and Ministry of Education.

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