



ISSN: 2230-9926

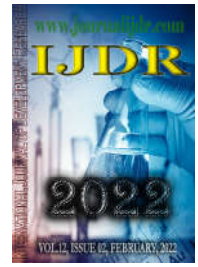
Available online at <http://www.journalijdr.com>

# IJDR

International Journal of Development Research

Vol. 12, Issue, 02, pp. 53684-53689, February, 2022

<https://doi.org/10.37118/ijdr.23839.02.2022>



RESEARCH ARTICLE

OPEN ACCESS

## VIDEOS AVAILABLE ON YOUTUBE™ SUPPORTING HOME EXERCISE DURING THE COVID-19 PANDEMIC

\*<sup>1,2</sup>Rafaela Cristina Araújo-Gomes, <sup>1</sup>Aldo Lopes da Costa Júnior, <sup>3</sup>Janaina Miranda Bezerra, <sup>1,3</sup>Ismália Cassandra Costa Maia Dias, <sup>4,5</sup>Claudio Joaquim Borba-Pinheiro and <sup>1,3</sup>Adriana Gomes Nogueira Ferreira

<sup>1</sup>Universidade Federal do Maranhão. Programa de Pós-Graduação em Saúde e Tecnologia (UFMA / PPGST). Imperatriz, Maranhão, Brasil; <sup>2</sup>Universidade Federal do Estado do Rio de Janeiro. Programa de Pós-Graduação em Enfermagem e Biociências (UNIRIO/PPGENFBIO). Rio de Janeiro, Rio de Janeiro, Brasil. <sup>3</sup>Universidade Federal do Maranhão. Centro de Ciências Sociais, Saúde e Tecnologia (UFMA / CCSST). Imperatriz, Maranhão, Brasil; <sup>4</sup>Universidade do Estado do Pará. Centro de Ciências Biológicas e Saúde (UEPA/CCBS). Tucuruí, Pará, Brasil; <sup>5</sup>Instituto Federal de Educação, Ciência e Tecnologia do Pará (IFPA). Tucuruí, Pará, Brasil

### ARTICLE INFO

#### Article History:

Received 20<sup>th</sup> November, 2021  
Received in revised form  
04<sup>th</sup> December, 2021  
Accepted 10<sup>th</sup> January, 2022  
Published online 20<sup>th</sup> February, 2022

#### Key Words:

Exercise.COVID-19.Social  
isolation.Instructional Film and Video.

#### \*Corresponding author:

Rafaela Cristina Araújo-Gomes

### ABSTRACT

**Objective:** To characterize videos with content supporting the practice of physical exercises performed at home during the quarantine period, available on the YouTube™ platform. **Method:** The search was performed using the terms: “Training Quarantine”, “Training Coronavirus”, and “Training COVID”, identifying videos published between March 20<sup>th</sup> and June 30<sup>th</sup>, 2020. **Results:** A total of 386 videos were analyzed; in March and April, there were a greater number of videos published (34.72% and 40.93%, respectively). The self-employed professional channels were the ones that posted the most (56.99%), and the average numbers of views, “likes” and “dislikes” were 9,084,350.47, 780,056.74 and 6.86, respectively. In addition, 92.49% of the authors of the videos were trained in Physical Education, 97.15% of the videos did not specify a target audience and 68.91% emphasized training for the whole body. The average durations of the short and long duration videos were 00:05:18 and 00:39:10, respectively. There was a very strong positive correlation between the number of views and the number of “likes”. There was a moderate positive correlation ( $p < 0.01$ ) for duration of short presentation videos vs. number of views and also for duration vs. “likes”. As for total duration, these videos showed a weak negative correlation between the duration and the number of views. **Conclusion:** Practicing exercises at home through YouTube™ videos is an adopted strategy that grew up during the quarantine and can help maintain an active life. However, it is necessary to be cautious, respect physical limitations and appreciate the use of reliable videos, posted by trained professionals, containing a complete demonstration of the exercises, including the number of sets and repetitions.

Copyright © 2022, Rafaela Cristina Araújo-Gomes et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Citation:** Rafaela Cristina Araújo-Gomes, Aldo Lopes da Costa Júnior, Janaina Miranda Bezerra, Ismália Cassandra Costa Maia Dias, Claudio Joaquim Borba-Pinheiro and Adriana Gomes Nogueira Ferreira. “Videos available on youtube™ supporting home exercise during the covid-19 pandemic”, *International Journal of Development Research*, 12, (02), 53684-53689.

## INTRODUCTION

COVID-19 is a highly contagious infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In Brazil, the first case of the disease was reported in February 2020, with the first death occurring one month later. Due to its rapid dissemination, by February 7, 2022, there were already 632,621 deaths (Brasil, 2022; Velavan & Meyer, 2020). A pandemic started to be directly influenced in people's daily lives, and in this context,

countries started to adopt measures of social distancing, since the Ministry of Health reported the presence of community transmission of the disease, initiating the prohibition of agglomerations throughout the national territory, such as events of all types, gyms, schools and others, and the recommendation to remain in isolation at home, preventing the rapid dissemination of the disease (Brasil, 2020a). In this sense, such measures had several consequences, including a difficulty in performing physical exercises. In several countries, the places where people normally exercise were temporarily closed,

which means that most of the active population stayed at home for long periods, making it a challenge to stay active (Hammami *et al.*, 2020; Nogueira *et al.*, 2021). Although it is essential to remain in social isolation to reduce the risk of virus infection, prolonged periods of staying at home can contribute to the adoption of sedentary behaviors, such as physical inactivity and weight gain, as well as psychological problems, such as anxiety and depression (Nogueira *et al.*, 2021; Chen *et al.*, 2020). However, due to the health benefits provided by physical exercise, with an emphasis on the cardiovascular/metabolic and immune system, it is essential to perform it even at home, especially to help reduce the possibility of contamination and the aggravation of COVID-19 symptoms (Alecirim, 2020a; Pitanga *et al.*, 2020). It is worth emphasizing that staying active within the home environment is a safe strategy during the pandemic crisis (Chen *et al.*, 2020). In addition, practitioners of physical exercise have to adapt to this new reality, practicing exercises in an adapted way at home. It is noteworthy that a portion of this population was even more affected, with the total prohibition of their practices as team sports, or where the practice of the sport depends on the environment, such as swimming (Souza & Graça, 2020). There are several reasons that make it difficult to practice exercises at home, where the main ones mentioned are lack of adequate space, lack of material and lack of motivation (Nogueira *et al.*, 2021; Souza & Graça, 2020; Cavalcante, 2020; Reis *et al.*, 2020). In this sense, it is recommended to adapt both the space and the materials with what is available in the residence (Ferreira *et al.*, 2020). Taking into account that this practice is important, even if it is performed at home, and with the use of social media and the internet in general, videos were posted on websites such as YouTube™, related to exercises during the period called quarantine. YouTube™ is the largest video sharing and distribution platform in the world, and is available to ordinary computer and smartphone users who want to publish their videos on the internet, being easy to create, publish and share content (Marôpo *et al.*, 2018). It is noteworthy that any practice of physical exercise must be guided by trained professionals to instruct correctly and safely, promoting actions and/or activities that can act to improve the quality of life of people (WHO, 2020). Therefore, it is necessary that the content of the videos be prepared by Physical Education or Physical Therapy professionals, considering the description of the execution of the movements, the periodization of the training and the specificities of the various target audiences, thus bringing benefits to the body and to the organism, without harming health. Given the above, the objective of this study was to characterize videos with content supporting the practice of physical exercises performed at home during the quarantine period, available on the YouTube™ platform, through a narrative literature review.

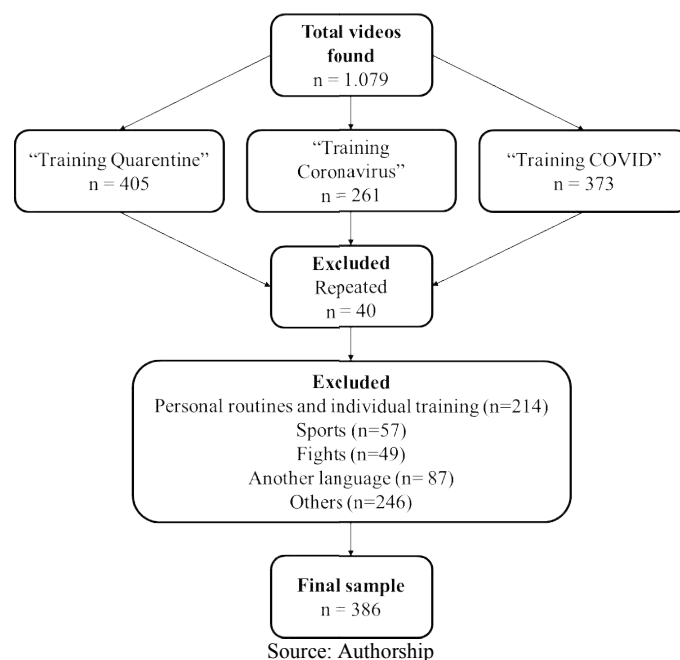
## METHODS

This is an exploratory and descriptive research with a quantitative approach, carried out through the characterization of videos selected on the online video sharing platform named YouTube™, available at the virtual website [www.youtube.com](http://www.youtube.com). As the platform is for entertainment, where the searches performed cross the words typed in the search field with the titles, descriptions and hashtag of the videos, it was chosen to use combinations of keywords. From this, three searches were performed, the first crossing the words “Training Quarantine”, the second “Training Coronavirus” and the third “Training COVID”. The collection of videos was carried out in July 2020, and the period collected, related to the date of publication of the videos, was from March 20<sup>th</sup> to June 30<sup>th</sup>, 2020. The initial search date is justified because it was when the essential services that could operate during the quarantine in Brazil were decreed, when the gyms were closed, according to Decree n° 10.282/2020 (Brasil, 2020b). In selecting the videos to compose the sample, the following criteria were defined, namely: inclusion criteria – presenting exercises to be performed at home in the quarantine, demonstrating the exercise performance and showing the number of sets and repetitions to be performed; and as exclusion criteria – repeated among the three searches, videos of sports, fights, personal routines and individual training, and in a language other than Brazilian Portuguese. The

process of including the videos in the sample was as follows: initially, a search was performed on the platform with the combined keywords, and then the filter was used to classify the order of the videos by date of publication. Subsequently, the videos were accessed one by one, as they appeared in the list, between March 20<sup>th</sup> and June 30<sup>th</sup>, where they were watched, until their inclusion or exclusion was confirmed according to the selection criteria. In this sense, when the video corresponded to the objective of the study and met the defined criteria, the access link was copied to a list created in Microsoft Office Word®. After completing the searches and listing the links to the videos, they were accessed again to collect the characterization data, such as: video author’s background, type of publication channel, target audience, training emphasis, date of publication, video time, number of views, number of signs of “like” and “dislike”. The information was organized in a Microsoft Office Excel® spreadsheet. Descriptive statistics with average, maximum, minimum, absolute and percentage numbers were used, which was also performed using Microsoft Office Excel®. The normality of the video duration data, number of views and number of “likes” was performed by the Kolmogorov-Smirnov test due to the n-sample being greater than 50, where it was found that the data were not parametric and, for this reason, Spearman bivariate correlation was used. The software used was BioEstat 5.3®, and the significance level adopted was  $p < 0.01$ . This research does not require the approval of an ethics committee because it uses information displayed in the public domain and does not directly involve people. Furthermore, the names of the authors of the videos and their respective channels were not mentioned.

## RESULTS

The following flowchart presents the selection of YouTube™ videos with content supporting the practice of physical exercise performed at home during the quarantine period.



**Figure 1. YouTube™ video selection flowchart with content supporting physical exercise performed at home during the quarantine period. It was accessed from the city of Imperatriz, Maranhão, Brazil**

Regarding information about the professional training of the authors of the selected videos, it was observed that 92.49% were Physical Education professionals and 1.29% Physical Therapy professionals. In 24 videos (6.22%), it was not possible to identify the author’s area of training. As for the target audience of the videos, it was found that the vast majority (97.15%) did not have this specification. In addition, the survey showed that nine videos (2.33%) were published for people with hearing loss, as the video was communicated in Brazilian Sign Language (LIBRAS, as per its Portuguese acronym), and two (0.52%) were aimed at addressing the elderly population. Other

information that characterized the included videos were extracted, such as the type of publication channel, where it was found that the channels of self-employed professionals were the ones that posted the most (56.99%) compared to private initiative channels, groups or reports (43.01%). In addition, the concentration of videos per month of publication was verified, as shown in Table 1.

**Table 1. Distribution by month of publication of YouTube™ videos with content supporting the practice of physical exercises performed at home during the quarantine period. It was accessed from the city of Imperatriz, Maranhão, Brazil**

Month of publication	Nº	%
March	134	34.72
April	158	40.93
May	54	13.99
June	40	10.36
TOTAL	386	100.00

Source: Authorship

Another variable analyzed was related to the training focus presented in the videos in relation to the musculature worked. It was possible to verify that most training sessions (68.91%) were directed to the whole body, followed by training for cardiorespiratory fitness (10.10%), abdominal muscles (3.63%), lower limbs (9.07%), upper limbs (5.44%), lower and abdominal limbs (2.33%), and upper and abdominal limbs (0.52%). The general data of the videos showed that the average number of views was 9,084,350.47, and the signs of "like" and "dislike" were 780,056.74 and 6.86, respectively. Regarding the duration of the videos (Table 2), they were divided into two categories, namely: presentation videos, which addressed only the demonstration of the exercises and indicated the number of repetitions and sets (short duration) (50.25%); and complete videos, which presented the complete training, where the author of the video performed all the exercises, repetitions and sets (long duration) (49.75%). Thus, the duration of the videos was directly rated as short duration (less than 15 minutes) and long duration (more than 15 minutes).

**Table 2. Time duration data for YouTube™ videos with content supporting physical exercise performed at home during the quarantine period. It was accessed from the city of Imperatriz, Maranhão, Brazil**

Variable	Average (s)	Nº minimum (s)	Nº maximum (s)
Short duration	00:05:18	00:00:42	00:14:56
Long duration	00:39:10	00:15:03	01:45:55

Subtitle: n° - number; s - seconds.

Source: Authorship

Table 3 presents the results for the bivariate correlation analysis of data regarding video duration (time in seconds); number of views and "likes" both for presentation videos (short) and complete videos (long). The analyses performed for these data showed correlation for all bivariate combinations.

**Table 3. Bivariate correlation analysis among duration, number of views and signs of "like" YouTube™ videos with content supporting physical exercise performed at home during the quarantine period. It was accessed from the city of Imperatriz, Maranhão, Brazil**

Variables (Presentation videos) n=194	r Spearman	p-value
Short duration (s) vs. Views (n°)	0.303	<0.0001
Short duration (s) vs. "Likes" (n°)	0.362	<0.0001
Views (n°) vs. "Likes" (n°)	0.848	<0.0001
Variables (Complete videos) n=192		
Long duration (s) vs. Views (n°)	-0.224	0.001
Long duration (s) vs. "Likes" (n°)	0.362	<0.0001
Views (n°) vs. "Likes" (n°)	0.946	<0.0001

Subtitle: s - seconds.

Source: Authorship

In checking for short presentation videos, there was a moderate positive correlation ( $p < 0.01$ ) for duration vs. views and also for duration vs. "likes". As for the verification of complete videos, there was a weak negative correlation between duration and number of views. There was also a moderate positive correlation between long duration vs. number of "likes". Furthermore, there was a very strong positive correlation between the number of views and the "likes" of both types of videos.

## DISCUSSION

One of the main spaces for physical exercise is the gym. Despite being a suitable place for the practice of physical exercises to ensure an active life for the population, the gym has limitations in its structure that can facilitate the spread of the coronavirus, such as the use of air conditioning, which favors the distribution of the virus in environment; the number of users it serves, especially at peak times; and the alternating flow of people on equipment that may be contaminated (Alecrim 2020b). Therefore, it was recommended that the activities be carried out in open areas, for example, the practice of running, walking and cycling are mentioned, without crowding, respecting the minimum distance, in addition to performing hygiene actions such as using masks and alcohol gel, bearing in mind that this practice will depend on the current local legislation. However, when adopting a more rigid social distancing strategy, the most appropriate was the adoption of practical activities that could be carried out at home, using in an adapted way the materials and spaces that are available, and carrying out this practice guided by a professional in the area (Nogueira et al., 2021; Alecrim, 2020a; Ferreira et al., 2020). Nevertheless, it was observed that, in a portion of the analyzed videos (6.22%), it was not possible to identify the professional training of the person in charge. It is important to consider that, on this video sharing platform, anyone, regardless of education, can make content available, which can compromise its safety and quality, favoring viewing by countless people (Oliveira, 2020). In addition, the exercises must be recommended by Physical Education or Physical Therapy professionals, with indication of the level of physical fitness, focus on posture and correct execution of the exercises (Souza & Graça, 2020).

Therefore, it is important that professionals who produce the content provide guidance on the need to verify the proper source of videos and other materials that are available on the internet, encouraging people to be critical and to research, for example, professional information about the person who is presenting the training to be performed at home, such as training and registration of the class council. Accordingly, the practice can be performed with greater safety (CONFEE, 2020). In addition, the biggest difference between a trained professional and a lay/ amateur person is knowledge. Therefore, the professional must use this to his/her advantage, showing his/her differential by including explanations about the reasons why he/she is recommending a certain exercise, the muscle groups that will be worked, as well as about the benefits it will bring to the body and the mind (CONFEE, 2020). It is noteworthy that the specification of the target audience is necessary, as it characterizes one of the most important principles of periodization of training, which is biological individuality, that is, each individual has his/her own particularities, whether referring to restrictions or specific stimuli (França et al., 2020). This detail was not observed in this research, since 97.15% of the videos did not contain this information clearly, leaving an important gap, allowing anyone, regardless of age, physical fitness, or with any health restriction, to perform the training proposed in the videos.

In addition, it is considered an unethical attitude for the professional to indicate the same training for everyone. It is necessary, first, to perform a physical assessment and pre-exercise anamnesis to verify the individuality of the student, and thus, later, to schedule a specific training (CONFEE, 2015). In the current scenario, these assessments can be performed by video call. Thus, the practice of physical exercise, in addition to improving the physical and cognitive abilities

of this individual, will also be performed safely, in order to reduce the risk of injuries (França et al., 2020). Therefore, there was also a gap in relation to other special populations (elderly people, children, pregnant women, people with disabilities, people with chronic or degenerative diseases) who are also practitioners of physical exercises and who need guidance to carry out training at home safely in these pandemic times. It is noteworthy that the work with these populations is more specific, being guided most of the time by a personal trainer; however, this is a commonly paid service and not everyone has the financial means to cover the expenses, which ends up leading people to use the videos made available, exposing themselves to an unsafe practice (Miguel et al., 2020). In pandemic times, it is not possible to make the pre-assessments in a judicious way. Therefore, it is recommended to look for videos where professionals indicate the target audience and who is contraindicated, also emphasizing that the population with experience in the practice of exercises is the most suitable for performing them at home; whereas, for the beginner population or those with restrictions, caution is required and limitations must be considered (Nogueira et al., 2021; WHO, 2020; CONFEE, 2020). As for the type of publication channel, it was observed that, although companies from private initiatives, such as gyms and consulting groups, for example, are the largest holders of students, the channels of self-employed professionals were the ones that posted the most videos (56.99%). In this sense, it is believed that professionals, faced with the pandemic, began to work more individually, guiding and instructing their students without the link they previously had with companies. Accordingly, they had to reinvent themselves and adopt new methodologies to continue working and promoting the health of their customers (Cavalcante, 2020). Regarding the month in which the videos were posted, it was found that March and April concentrated most of the publications (75.65%), which can be explained by the initial impact generated in relation to social isolation, where professionals found in the virtual environment a way to continue working and helping people fight Coronavirus in times of quarantine (Cavalcante, 2020; Filho & Tritany, 2020). The drop in the publication of videos in May and June (24.35%) is due to the flexibilization of social distancing and the decree that placed gyms as an essential service, authorizing their opening from May 11<sup>th</sup>, 2020 (Brasil, 2020c); however, it is likely that not everyone returned to the gyms, and some people may have given up.

Considering the time of the videos, the short videos were for presentation and demonstration, indicating the number of sets and repetitions to be performed, while the longer ones also had the execution of the complete training, where the author performed all the exercises, repetitions and sets. In this sense, it is believed that practicing exercises at home following the complete videos is safer, because, at all times the student will be able to observe the teacher and observe how the exercises are performed. In addition, following the presentation videos, you can get closer to the instructor's face-to-face service at the gym, the one that only demonstrates the exercise and indicates the repetitions and sets; and following the complete videos, it comes closer to the service provided by the personal trainer, one that accompanies the student individually throughout the training, which increases safety and reduces the risk of injuries, in addition to providing better results (Silva *et al.*, 2016). The training focus shown in the videos in relation to the musculature worked indicated that most of the exercises shown involved the muscles of the whole body, which is in line with the indications of the American College of Sports Medicine (ACSM, 2020) and the World Health Organization (WHO, 2020) about exercising the large muscle groups of the whole body as being optimal. Furthermore, the focus of training is normally divided into the days of the week in which the training is carried out, and it can be organized in different ways, depending on the professional who prepared the training sessions (França et al., 2020).

There was a discrepancy between the number of views and the number of user ratings. This is because these tools that show how many people liked and disliked the video were little used, when the average of these ratings was compared ("liked" - 780,056.74 and "disliked" - 6.86) with the average number of views (9,084,350.47).

However, there was a very strong positive correlation between these variables. In addition, in the bivariate correlation analysis, there was a moderate positive correlation ( $p < 0.01$ ) for duration of short videos vs. number of views and also for duration vs. signs of "like". This may mean that short videos can be more viewed and, consequently, have a higher number of signs of "like". As for the verification of long-duration complete videos, there was a weak negative correlation between the duration and the number of views, which may indicate that the longer the video, the less viewed it will be. Given the above, for this time of social isolation, it is recommended for the elderly citizens aged 65 years and older at least 150 minutes of moderate activities, such as stretching and exercises to strengthen the muscles, in order to ensure that they can be active and able to carry out their activities of daily living (Nogueira et al., 2021; Brasil, 2020d). For young people (5 to 17 years old), at least 60 minutes of moderate to high-intensity physical activity per day is recommended. The recommendation for adults between 18 and 64 years old is to perform at least 150 minutes of moderate physical activity (30 minutes, 5 times a week) or 75 minutes of intense physical activity per week (15 minutes, 5 times a week), and this practice routine is recommended during quarantine for individuals without Coronavirus symptoms (Nogueira et al., 2021; WHO, 2020). Thus, only the complete videos analyzed in this research are in compliance with this recommendation; however, as they are complete, they are longer and less viewed, as depicted. In addition, the WHO indicates the possibility of conducting free online classes via YouTube™, noting that if the person has no experience in performing the movements, he/she must be cautious and respect his/her limits (Nogueira et al., 2021; WHO, 2020). Moreover, the American College of Sports Medicine makes several online resources available, directing people to physical activity, from specific recommendations for the target audience to how to use materials available at home to assist in the practices. Thus, both Physical Education and Physical Therapy professionals, as well as the population, can use these resources to provide a safe practice, aiming at promoting, preventing and maintaining health in times of social isolation (Nogueira et al., 2021; Brasil, 2020d). It is emphasized the importance of individualized monitoring, in order to ensure greater safety in this practice and better results, working with health in general. In addition, it is recommended that professionals have the recommendations for the practice of physical exercise at home from official health agencies as bases in their training, subsidizing evidence-based safe practice and prioritizing the quality of the content of the exercise videos posted, as the WHO is indicating the use of YouTube™ for the population. It is worth remembering that there may be difficulty in adhering to the practice of physical exercises in this format, as it does not ensure individualized training with continuous monitoring, does not offer means to clarify doubts and/or does not make a professional available to correct the movements during the practice. In addition, despite the recommendations of official health agencies and the availability of these resources online, access to these materials and professionals has not been ensured for everyone, as there are socioeconomic and cultural conditions in the population that make it difficult to access this information. Furthermore, the responsibility for health related to the practice of physical activities during this pandemic time is entirely up to the individuals themselves (Knuth et al., 2020). However, during the COVID-19 pandemic, new demands will emerge to improve access to physical exercise, in order to fill the gaps related to socioeconomic and cultural conditions, thus ensuring that everyone has the opportunity to practice these activities safely, while respecting social distancing, hygiene protocols and quarantine (Middleton et al., 2020).

## CONCLUSION

From March 20<sup>th</sup> to June 30<sup>th</sup>, 2020, 386 videos were analyzed on Youtube™ demonstrating the practice of physical exercise being performed at home during quarantine. They were mostly authored by Physical Education professionals, without target audience, posted by self-employed professional channels, in greater numbers in March and April, demonstrating exercises with an emphasis on the

musculature of the whole body and in short videos that only featured exercises, repetitions and sets. It should be noted that it is necessary that the person be cautious, know and respect his/her limitations, and use videos with reliable content, posted by professionals trained in Physical Education or Physical therapy, containing a complete demonstration of the exercises, including the number of sets and repetitions to be performed, and that is adapted to his/her individuality. On the other hand, even the videos posted by Physical Education professionals did not bring fundamental data that respect scientific, assessment and planning principles for people with comorbidities, which can also be dangerous, as there is no effective monitoring. In this way, any dangerous situation during practice can be a risk for those who are alone at the moment. Therefore, although practicing exercises at home through YouTube™ videos has been an adopted strategy, the growth during the quarantine was verified and carried out in this research, possibly because it is a free tool available online, where videos are posted daily; and, according to this research, it can help maintain an active life, as long as there is professional monitoring, especially for people with chronic health problems. It is also recommended that further research be carried out to verify if the exercises in the videos were shown correctly, if people who are using these videos to practice exercise at home already performed physical exercises in their daily lives and if they suffered any injuries or acquired some pain from exercises performed at home. This study was funded by the Coordination for the Improvement of Higher Education Personnel- Brazil (CAPES) - Finance Code 001.

## REFERENCES

- Alecrim, JVC. (2020a). “Políticas públicas de esporte e lazer na promoção da saúde e covid-19: o que devemos aprender para o futuro?”. *Boletim de Conjuntura (BOCA)*. 2(5). [Accessed in 13/03/2021]. Available in: <https://revista.ufr.br/boca/article/view/Alecrim>
- Alecrim, JVC. (2020b). Uma análise sobre a essencialidade das academias e possíveis alternativas para prática de exercícios. *Boletim de Conjuntura (BOCA)*. 2(6). [Accessed in 12/02/2021]. Available in: <https://revista.ufr.br/boca/article/view/CostaAlecrim>
- American College Sports of Medicine (ACSM) 2020. Permanecendo fisicamente ativo durante a pandemia de COVID-19. [Accessed in 24/07/2020]. Available in: <https://www.acsm.org/read-research/newsroom/news-releases/news-detail/2020/03/16/staying-physically-active-during-covid-19-pandemic>
- Brasil (2020a). Ministério da Saúde. Ministério da Saúde declara transmissão comunitária nacional. Brasília (DF): Ministério da Saúde [Accessed in 20/11/2020]. Available in: <https://www.saude.gov.br/noticias/agencia-saude/46568-ministerio-da-saude-declaratransmissao-comunitaria-nacional>
- Brasil (2020b). Decreto Legislativo nº 10.282 de 20 de março de 2020. Regulamenta a Lei nº 13.979, de 6 de fevereiro de 2020, para definir os serviços públicos e as atividades essenciais. *Diário Oficial da União, Senado Federal*, 20 de março de 2020. [Accessed in 20/07/2020]. Available in: <https://www.in.gov.br/en/web/dou/-/republicacao-249098206>
- Brasil (2020c). Decreto Legislativo nº 10.344 de 11 de maio de 2020. Altera o Decreto nº 10.282, de 20 de março de 2020, que regulamenta a Lei nº 13.979, de 6 de fevereiro de 2020, para definir os serviços públicos e as atividades essenciais. *Diário Oficial da União, Senado Federal*, 11 maio de 2020. [Accessed in 05/08/2020]. Available in: <https://www.in.gov.br/en/web/dou/-/decreto-n-10.344-de-11-de-maio-de-2020-256165816>
- Brasil (2020d). Ministério da Saúde. Saúde Brasil. Como fica a prática de atividade física durante a pandemia de Coronavírus? [Accessed in 24/07/2020]. Available in: <https://saudebrasil.saude.gov.br/eu-quero-me-exercitar-mais/como-fica-a-pratica-de-atividade-fisica-durante-a-pandemia-de-coronavirus>
- Brasil (2022). Ministério da Saúde. Painel Coronavírus. [Accessed in 08/02/2022]. Available in: <https://covid.saude.gov.br/>
- Cavalcante FMR. (2020). Exercício Físico Durante a Pandemia da Covid-19: Dificuldades e Novas Possibilidades. Trabalho de Conclusão de Curso – Centro Universitário FAMETRO – Curso de Bacharelado em Educação Física, Fortaleza – CE. [Accessed in 09/03/2021]. Available in: [http://repositorio.unifametro.edu.br/bitstream/123456789/262/1/FRANCISCA%20MAYARA%20REIS%20CAVALCANTE\\_TCC.pdf](http://repositorio.unifametro.edu.br/bitstream/123456789/262/1/FRANCISCA%20MAYARA%20REIS%20CAVALCANTE_TCC.pdf)
- Chen P, Mao L, NassisGp, Harmer P, Ainsworth Be, Li F. (2020). “Coronavirus disease (COVID-19): The need to maintain regular physical activity while taking precautions”. *Journal of Sport Health Science*. 9(2): 103-104. <https://doi.org/10.1016/j.jshs.2020.02.001>
- Conselho Federal de Educação Física (CONFEF) (2015). Resolução CONFEF Nº. 307, de 9 de novembro de 2015. Dispõe sobre o Código de Ética dos Profissionais de Educação Física registrados no Sistema CONFEF/CREFs. Conselho Federal de Educação Física. [Accessed in 25/07/2020]. Available in: <https://www.confef.org.br/confef/resolucoes/res-pdf/381.pdf>
- Conselho Federal de Educação Física (CONFEF) (2020). RESILIÊNCIA E ADAPTAÇÃO: Veja Orientações Para o Trabalho Remoto em Educação Física. *Revista de Educação Física*. 74. [Accessed in 18/09/2020]. Available in: [https://www.confef.org.br/extra/revistaef/arquivos/2020/N74\\_MAR%3%87/O/07.pdf](https://www.confef.org.br/extra/revistaef/arquivos/2020/N74_MAR%3%87/O/07.pdf)
- Ferreira MJ, Irigoyen MC, Consolim-Colombo F, Saraiva JFK, De Angelis K. (2020). Vida Fisicamente ativa como medida de enfrentamento ao COVID-19. *ArqBrasCardiol*. 114(4): 601-602. <https://doi.org/10.36660/abc.20200235>
- Filho BABS, Tritany EF. (2020). COVID-19: importância das novas tecnologias para a prática de atividades físicas como estratégia de saúde pública. *Cad. Saúde Pública*. 36(5): e00054420. <https://doi.org/10.1590/0102-311x00054420>
- França EF, Miyake GM, Silva Júnior JP, Matsudo VKR, Martins RABL, Nascimento FD. (2020). COVID-19: Estratégias para se manter fisicamente ativo e seguro dentro de casa. *Pre-Publication Release of Accepted Article. InterAmerican Journal of Medicine and Health*. 3. <https://doi.org/10.31005/iajmh.v3i0.122>
- Hammami A, Harrabi B, Mohr M, Krusturup P. (2020). Physical activity and coronavirus disease 2019 (COVID-19): specific recommendations for home-based physical training. *Managing Sport and Leisure*. DOI: 10.1080/23750472.2020.1757494
- Knuth AG, Carvalho FFB, Freitas DD. (2020). Discursos de instituições de saúde brasileiras sobre atividade física no início da pandemia de COVID-19. *RevBrasAtivFis Saúde*. 25:e012. DOI: 10.12820/rbafs.25e0122
- Marôpo L, Sampaio IV, Miranda NP. (2018). Meninas no youtube. *Estudos em Comunicação*. 1: 175-195. DOI: 10.20287/ec.n26.v1.a10
- Middleton A, Simpson KN, Bettger JP, Bowden MG. (2020). COVID-19 Pandemic and Beyond: Considerations and Costs of Telehealth Exercise Programs for Older Adults With Functional Impairments Living at Home-Lessons Learned from a Pilot Case Study. *Physical Therapy*; pzaa089. doi: 10.1093/ptj/pzaa089
- Miguel H, Lima LEM, Campos MVA, Santos D. (2020). Impactos da Covid-19 sobre o PersonalTrainer. *InterAmerican Journal of Medicine and Health*. 3: e202003030. [Accessed in 24/07/2020]. Available in: <https://iajmh.com/iajmh/article/view/111/143>
- Nogueira CJ, Cortez ACL, Leal SMO, Dantas EHM (2021). Recomendações para a prática de exercício físico em face do COVID-19: uma revisão integrativa. *RevBrasFisiolExerc*. 20(1): 101-124. DOI: 10.33233/rbfex.v20i1.4254
- Oliveira ASS. (2020). Avaliação de conteúdos e acessos em tecnologia educativa para orientação do cateterismo intermitente limpo. Dissertação de Mestrado – Universidade Estadual Paulista “Júlio de Mesquita Filho” – Faculdade de Medicina de Botucatu. [Accessed in 24/07/2020]. Available in: [https://repositorio.unesp.br/bitstream/handle/11449/192187/oliveira\\_ass\\_me\\_bot.pdf?sequence=3&isAllowed=y](https://repositorio.unesp.br/bitstream/handle/11449/192187/oliveira_ass_me_bot.pdf?sequence=3&isAllowed=y)
- Pitanga FJG, Beck CC, Pitanga CPS. (2020). Atividade física e redução do comportamento sedentário durante a pandemia do Coronavírus. *Arquivos Brasileiros de Cardiologia*. (AHEAD). <https://doi.org/10.36660/abc.2020023>

- Reis VMN, Cruz LMC, Pires MM, Campos JA, Neves MFO, Nascimento CAC. (2020). Motivos Para A Não Adesão De Exercícios Físicos Em Casa Durante A Pandemia Do Novo Coronavírus. Anais do III Simpósio de Pesquisa em Educação Física. [Accessed in 09/03/2021]. Available in: <https://www.periodicos.unimontes.br/index.php/renef/article/view/3583/3394>
- Silva ML, Bossle CB, Fraga AB. (2016). Em companhia do PersonalTrainer: significados atribuídos pelos alunos ao atendimento personalizado. *Motrivivência*. 28(49): 26-37. <https://doi.org/10.5007/2175-8042.2016v28n49p26>
- Souza MC, Graça RL. (2020). Nível de Atividade Física de Praticantes de Exercício Físico do Sul de Santa Catarina Durante a Pandemia do Covid-19. Trabalho de Conclusão de Curso – Universidade do Sul de Santa Catarina (UNISUL) – Faculdade de Bacharelado em Educação Física, Santa Catarina. [Accessed in 11/03/2021]. Available in: <https://www.riuni.unisul.br/handle/12345/10717>
- Velavan TP, Meyer CG (2020). The COVID-19 epidemic. *Tropical medicine & international health*. 25(3): 278. <https://doi.org/10.1111/tmi.13383>
- World Health Organization (WHO) (2020). Stay physically active during self-quarantine. [Accessed in 24/07/2020]. Available in: <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/technical-guidance/stay-physically-active-during-self-quarantine>

\*\*\*\*\*