

Motivation and Anxiety in adult strength training practitioners during the Covid-19 pandemic

Motivação e Ansiedade em adultos praticantes de treinamento de força durante a pandemia de Covid-19

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Carlos Gilberto de Freitas-Junior

Doutorando em Educação Física

Institution: Universidade Federal da Paraíba (UFPB)

Address: Campus I Lot. Cidade Universitária, João Pessoa - PB, CEP: 58051-900

E-mail: cfvolei@yahoo.com.br

Heloiana Faro

Doutorando em Educação Física

Institution: Universidade Federal da Paraíba (UFPB)

Address: Campus I Lot. Cidade Universitária, João Pessoa - PB, CEP: 58051-900

E-mail: heloianafaro@gmail.com

Leonardo de Sousa Fortes

Doutor em Psicologia pela Universidade Federal de Juiz de Fora (UFJF)

Institution: Universidade Federal da Paraíba (UFPB)

Address: Campus I Lot. Cidade Universitária, João Pessoa - PB, CEP: 58051-900

E-mail: leodesousafortes@hotmail.com

ABSTRACT

The objective of this study was to analyze which motivational factors influenced the search for the practice of strength training (ST) and its relationship with anxiety in adults during the new coronavirus (COVID-19) pandemic. Forty-three ST practitioners analyzed their motivational factors using the Exercise Motivations Inventory - 2 (EMI-2) and their anxiety level using the Depression and Stress Anxiety Scale (DASS-21). Friedman's tests were used to compare motivational factors, and Spearman's tests were used to relate the EMI-2 results with the DASS-21 anxiety subscale. The main motivational factors for the practice of ST were physical condition, disease prevention, fun and well-being, and stress control. Anxiety levels showed a negative relationship with the affiliation factor for older ST practitioners (≥ 26 years). It is concluded that health care is the biggest motivational aspect for the practice of ST during the Covid-19 Pandemic.

Keywords: Coronavirus, physical activity, motivation, Anxiety, strength training.

RESUMO

O objetivo desse estudo foi analisar quais os fatores motivacionais influenciaram a busca pela prática do treinamento resistido (TR) e suas relações com a ansiedade em adultos durante a pandemia do novo coronavírus (COVID-19). Quarenta e três praticantes de TR tiveram seus fatores motivacionais analisados através do *Exercise Motivations Inventory - 2* (EMI-2) e seu nível de ansiedade através da Escala de Ansiedade, Depressão e Stress (EADS-21). Utilizou-se

os testes de *Friedman* para comparação entre os fatores motivacionais e *Spearman* para relação dos resultado do EMI-2 com a subescala ansiedade do EADS-21. Os principais fatores motivacionais para a prática do treinamento resistido, foram, condição física, prevenção de doenças, diversão e bem estar e controle do estresse. Os níveis de ansiedade apresentaram relação negativa com o fator motivacional afiliação para os praticantes de TR mais velhos (≥ 26 anos). Conclui-se que os cuidados com a saúde são os maiores aspectos motivacionais para a prática do TR durante a Pandemia do Covid-19.

Palavras-chave: Coronavírus, atividade física, motivação, Ansiedade, treinamento de força.

1 INTRODUCTION

When analyzing the scenario of the COVID-19 pandemic, one can observe a risk factor for the increase in cases of chronic diseases that affect the body, whether physically or emotionally^{1,2}. Inadequate nutrition, the tension related to hygiene care, fear of contamination, and lack of physical exercise become more apparent and significantly compromise the quality of life³. In addition, complacency, forms of fun and work that do not require bodily movements, such as the indiscriminate use of social networks, smartphones, TV, digital games, and the home office, have been during the pandemic most adopted by most companies^{4,5}. Likewise, classes in digital formats were adhered to by educational institutions. These conditions favor the organism's state of inertia, making the population susceptible to a sedentary lifestyle.

The World Health Organization (WHO)⁶ estimates that up to 5 million deaths a year could be avoided if the world population were more active. The WHO released guidelines that recommend between 150 and 300 minutes of physical activity for such a scenario not to worsen during the COVID-19 pandemic. The practice of a regular physical activity is essential for the prevention and control of chronic diseases such as heart disease, diabetes, and cancer and, at the same time, contributes to the reduction of symptoms of depression and anxiety and the improvement of cognitive and memory capacities⁶. Thus, we can observe its benefits in both the biological and psychological aspects, pointing to improvements in the cardiorespiratory system, increased life expectancy, improved self-esteem and observation of self-image, and reduced stress levels⁷.

In this sense, strength training gyms are a viable option, since they are physical exercise centers where evaluation, prescription, and guidance of physical exercises are performed under the direct supervision of physical education professionals⁸, making them a place of great importance in health care. Strength training (ST) is a form of physical exercise that predominates strength training⁹. The improvements provided by ST in neuromuscular (strength increase), anthropometric (fat percentage reduction), and metabolic (such as increased basal

metabolism) aspects directly influence psychological aspects, such as increased self-esteem and motivation to practice exercise¹⁰⁻¹². This motivation for the practice of ST can influence practitioners' frequency and permanence of practitioners^{7,13}, and understanding what makes people practice this activity can provide support for professionals who accompany ST practitioners in gyms.

According to Ryan and Deci¹⁴, motivation is a state in which a person is moved to do something. It can be differentiated in terms of level and orientation (intrinsic or extrinsic motivation). Intrinsic motivation is related to pleasure in the activity, which is the energy base that moves a person to seek personal satisfaction actively¹⁴. On the other hand, extrinsic motivation involves a result from the action itself, being the search for rewards or the avoidance of punishments¹⁴. In this sense, some authors have pointed out the possible relationships between motivational factors and the practice of ST. Studies such as those by Legnani et al.¹² and Liz et al.¹⁴, which deal with motivational factors and physical exercise, found that the main factors for the practice of ST are health care, physical conditioning, and well-being, being these increased care in people with more advanced ages.

The ST can collaborate to reduce negative emotional aspects that may be exacerbated¹⁵, such as anxiety. According to Castillo et al.¹⁶, anxiety is a vague and unpleasant feeling of fear, apprehension, characterized by tension or discomfort derived from the anticipation of danger, something unknown or strange. In the literature, studies have shown that physical exercise plays an important role in reducing anxiety symptoms^{17,18}. Such changes occur in the physiological scope due to the production and release of beneficial substances to the body during physical practice¹⁸.

As anxiety levels can be altered during the COVID-19 pandemic¹⁹, ST practice can be influenced by several reasons. In this way, knowing the motivational factors that lead to the practice of ST and understanding its relationship with anxiety can support the work of gym professionals in monitoring their clients in this scenario. Therefore, this study aimed to verify the motivational factors for the practice of ST and to analyze their relationship with anxiety levels during the COVID-19 pandemic in adults. As a hypothesis, it was expected that the motivational factor of disease prevention would have a more significant influence on ST, and practitioners would present a relationship of lower anxiety levels.

2 METHODS

2.1 PARTICIPANTS

A cross-sectional study with a quantitative approach was performed. Participants were selected non-probabilistic, recruiting 43 adults of both sexes (24 men, 19 women) ST practitioners from a private gym in the city of João Pessoa, northeastern Brazil (Table 1). Participants could not have suffered an injury in the last two months and must be attending the same gym to be included in the study. Anyone who did not complete the questionnaire would be excluded from the study. During the collection, the participants were asked to answer two questionnaires referring to the motivational factors for the practice of ST and anxiety.

Table 1. Characterization of participants.

Variable	Mean (SD)	Min	Max
Age (years)	29.46 (\pm 8.60)	19	49
Height (cm)	167.53 (\pm 10.10)	149	189
Body mass (kg)	71.44 (\pm 16.08)	48	110
ST practice (years)	4.02 (\pm 5.17)	0,16	26

Note: SD= standard deviation; min= minimum value; máx= maximum value.

Participants were informed about the research objectives, risks, benefits, and procedures and signed an informed consent form. The Ethics Committee of the Federal University of Paraíba approved the research under the number 4,736,206. It was in accordance with Resolution No. 466/12 of the National Health Council. Before completing the questionnaires, information on gender, age, height, body mass, and time of ST practice was collected. Participants had as much time as they thought necessary to answer the questionnaires applied in a gym room. A maximum of two people could be present, maintaining social distance, wearing masks, and sanitizing hands with gel alcohol.

2.2 PROCEDURES

To analyze motivation, the Exercise Motivations Inventory-2 (EMI-2)²⁰ translated into Portuguese by Guedes et al.¹³ was used, which measures the level of importance related to motivating factors for the practice of physical exercise. This questionnaire contains 44 objective questions, distributed in 10 factors, namely: Factor 1= Fun and Well-being; Factor 2= Stress Control; Factor 3= Social Recognition; Factor 4= Affiliation; Factor 5= Competition; Factor 6= Health Rehabilitation; Factor 7= Disease Prevention; Factor 8= Body Weight Control; Factor 9= Physical Appearance and Factor 10= Physical Condition. The answers are listed according to the Likert scale, with values from 0 to 5, where the minimum value represents "not at all true," and the maximum is "very true". To score, the median of the values in each factor was

calculated. Translation and validation showed satisfactory internal consistency reliability values for the ten factors, ranging from 0.738 (Physical Appearance) to 0.918 (Competition)¹³.

Anxiety levels were verified using DASS-21²¹, translated and validated into Portuguese by Vignola & Tucci²². The questions are divided into three subscales, with questions 1, 6, 8, 11, 12, 14, and 18 composing the stress subscale; questions 2, 4, 7, 9, 15, 19, and 20 composing the anxiety subscale and questions 3, 5, 10, 13, 16, 17 and 21 composing the depression subscale. The questionnaire has its answers evaluated on the Likert scale from 0 to 3 points, where zero corresponds to "it did not apply to me at all," and three corresponds to "it applied to me most of the time", referring to the last week. To obtain the final score, the values of each subscale are added and multiplied by two. The classification is given as follows, for stress: 0-10= normal; 11-18=light; 19-26=moderate; 27-34=severe and 35-42=extremely severe. For anxiety symptoms: 0-6= normal; 7-9= light; 10-14=moderate; 15-19=severe; 20-42=extremely severe. The classification of symptoms of depression: 0-9= normal; 10-12= light; 13-20=moderate; 21-27=severe and 28-42=extremely severe. According to Vignola & Tucci²², the DASS-21 has a reliability of 0.95 and internal consistency values of 0.86 for the anxiety subscale.

2.3 STATISTICAL ANALYSIS

The Shapiro-Wilks test was used to verify the normality of the data. Friedman's nonparametric test was used to compare the motivational factors of the EMI-2, with subsequent use of the Sidack test to detect the differences between them. The relationships between the EMI-2 factors and the anxiety subscale of the DASS-21 were performed using the Spearman correlation test, taking into account both the total number of participants and age, older and younger (division performed by the median). Effect magnitudes for correlations were based on the following scale: trivial = <0.10 ; small = $0.10-0.29$; moderate = $0.30-0.49$; large = $0.50-0.69$; very large = $0.70-0.89$ and almost perfect = >0.90 ²³.

3 RESULTS

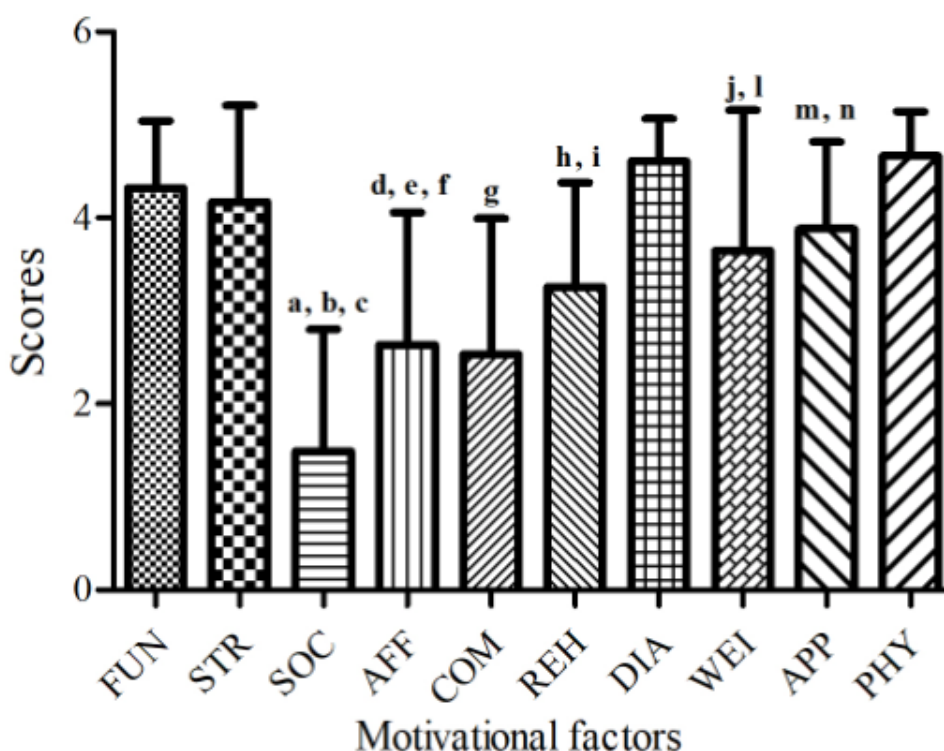
Table 2 shows the results of the EMI-2 responses and their respective values, in hierarchical order of importance pointed out by the participants.

Table 2. Motivational factors for ST practice in order of importance.

Motivational factors	Median	Standard error	Minimum	Maximum
Physical conditioning	5.00	0.47	3.25	5.00
Disease prevention	4.66	0.46	3.33	5.00
Fun and well-being	4.50	0.72	1.83	5.00
Stress management	4.50	1.03	0.00	5.00
Appearance	4.00	0.94	1.75	5.00
Weight control	4.25	1.51	0.00	5.00
Rehabilitation	3.33	1.12	1.66	5.00
Affiliation	3.00	1.42	0.00	5.00
Competition	2.40	1.46	0.00	5.00
Social recognition	1.25	1.31	0.00	4.50

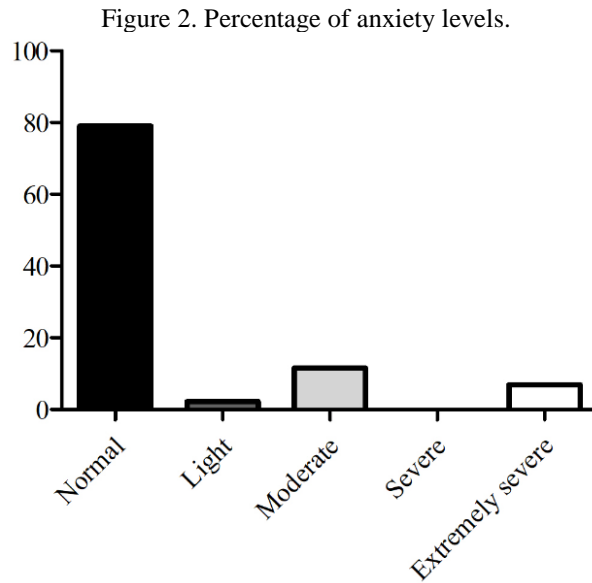
Figure 1 reports the comparison between the motivational factors. The physical condition, disease prevention, fun, and stress control did not show significant differences. However, only the physical condition and disease prevention factors were more significant than the physical appearance. It should also be noted that the social recognition factor was lower than all other factors.

Figure 1. Comparison of motivational factors.



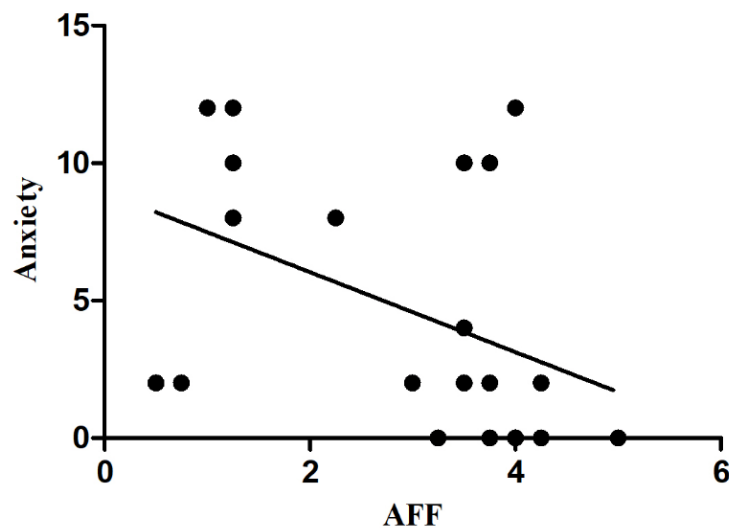
Note: FUN=fun and well-being, STR=stress management, SOC=social recognition, AFF=affiliation, COM=competition, REH=rehabilitation, DIS=disease prevention, WEI=weight control, APP=appearance, PHY=Physical conditioning, a= different from FUN, STR, REH, DIS, WEI, APP and PHY (<0.001), b= different from AFF (0.001), c= different from COM (0.009), d= different from FUN, DIS, APP and PHY (<0.001), e= different from WEI (0.001), f= different from STR (0.009), g= different from FUN, STR, DIS, WEI, APP and PHY (<0.001), h= different of FUN, DIS and COM (<0.001), i= different from STR (0.003), j= different from PHY (0.001), l= different from DIS (0.003), m= different from PHY (<0.001), n= different from DIS (0.003).

According to the analysis of the anxiety subscale of the DASS-21, most ST practitioners had levels considered normal, representing almost 80% of the participants (Figure 2).



No significant relationships were found between the anxiety subscale of the DASS-21 and the motivational factors of the EMI-2. However, when dividing the participants by age, through the median (26 years), a great negative correlation of anxiety with the affiliation factor ($r = -0.46$; $p = 0.03$) was found for the eldest people (Figure 3).

Figure 3. Correlation between the affiliation factor and the anxiety dimension of the DASS-21 for older ST practitioners in relation to age.



Note: AFF= affiliation, DASS-21= Depression and Stress Anxiety Scale.

4 DISCUSSION

The study's objective was to identify the motivational factors associated with the practice of ST and their possible correlations with the levels of anxiety of the practitioners. It was observed that the main factors related to the practice of ST in the period of the COVID-19 pandemic for the analyzed individuals were physical condition, disease prevention, fun, and stress control, in the respective order of importance. In addition, there was no relationship between motivational factors and anxiety. However, when participants were separated by age, there was a correlation between anxiety and the affiliation factor for older ST participants. Thus, the study's hypothesis was partially met, with the disease prevention factor having the second-highest average but with the highest percentage of motivation, 20.9% of the participants. Despite the hierarchical order, physical condition, disease prevention, entertainment, and stress control factors, showed no statistical differences (Figure 1). On the other hand, the social recognition factor was lower than all other factors. Thus, it is possible to indicate that, during the pandemic period, the subjects were more interested in self-care than practicing ST to obtain muscle gains or to show off to others.

The present study's findings are close to the results of other studies^{10,13,24}. For example, Guedes et al.¹³ aimed to identify the reasons for the practice of physical exercise in university students, according to sex, age, and economic class, in a study that included 2380 subjects aged between 18 and 35 years. It was found that the main factors were disease prevention and physical condition¹³. When the comparison was performed as a function of age, the disease prevention factor was the most important, followed by the physical condition factor for individuals up to 24 years. For participants aged between 25 and 30 years, weight control was the second biggest factor in order of importance¹³.

Similarly, Liz et al.¹⁰ aimed to relate the reasons for the practice of ST with the age of the practitioners, noting that the disease prevention factor was the most present, followed by the physical condition factor. The authors also observed that advancing age increased disease prevention, weight control, and stress management factors. In another study, this time to analyze the reasons for dropping out, Liz & Andrade²⁴ found that the main adherence factors were well-being and health improvement. The main reasons for dropping out were lack of time and disqualification of care. The aforementioned study had 21 participants with a mean age of 37 years²⁴.

The present research findings indicate that, during the pandemic period, people have sought to improve their physical conditions. Perhaps, this scenario is due to the dissemination of studies that reinforce the fact that better physically conditioned people tend to have less risk

of acquiring the severe form of COVID-19, as supported by the study by Jakobsson et al.²⁵. Thus, the possible reduction in the presence of risk factors, which aggravates the disease, may be associated with the motivational aspect of disease prevention. Physical exercise, including ST, should be prescribed with analysis and balance variables, such as volume and intensity. The general intensity is moderate to promote a stimulus and improve the immune system, whether for groups risk or not²⁶. Considering the ST methods, it is possible that the motivational factors do not present differences, a situation analyzed by Lira²⁷, who did not find differences between the motivational factors when comparing three training methods, multisets, clustering, and supersets.

The present study's findings showed no correlation between anxiety and motivational factors. In a previous study with 250 older adults who practice physical exercises, Meurer et al.²⁸ did not find associations between motivational factors and depressive symptoms. The research findings mentioned above reinforce the results found in the present research since the internal dynamics of depression and anxiety are similar²⁹. However, in the present study, anxiety negatively correlated with the affiliation factor for people aged 26 years or older. (Figure 3).

According to Liz et al.¹⁰, the affiliation factor is related to socializing and relationships with other people, which may have been a stimulus for the practice of ST among older people. The greater the socializing and connection with other people, the lower the chances of developing an anxiety condition. This situation was confirmed in the study by Oliveira et al.³⁰, who, in a literature review, analyzed the impacts of social isolation on the mental health of the elderly during the COVID-19 pandemic. The authors identified that prolonged social isolation affected crises of anxiety, depression, suicidal ideation, and even actual suicide³⁰.

Corrêa et al.¹⁷ also analyzed anxiety levels in 213 yoga practitioners during the COVID-19 pandemic. According to the results, the frequency of weekly practice and adherence are factors associated with less severe anxiety symptoms¹⁷. In this way, it can be said, with the findings of the present study, that the individual who has a better relationship in the environment in which he practices the ST is less likely to develop some symptom or even anxiety disorder, thus increasing favoritism of practice for the benefit of the emotional aspect.

From a practical point of view, the performance of professionals in gyms can be reinforced with information from the present study regarding the main motivational factors leading people to practice ST during this period of the COVID-19 pandemic. Thus, these professionals will be able to plan the training more precisely, taking into account the motivational factors most present in their clients, thus enabling greater adherence and frequency

to the practice of ST. As limitation of this study, one can consider the scarcity of research on the topic addressed, the number of participants interviewed, and the lack of analysis of aspects such as weekly frequency, adherence levels, or even neuromuscular performance.

5 CONCLUSION

According to the results, it is possible to conclude that the main motivational factors for ST in the analyzed people encompass, as a priority, the search for improvements in physical condition, disease prevention, entertainment, and stress control. This demonstrates the concern of the practitioners analyzed with care about health. And related to anxiety and motivational factors, it was found that older people (≥ 26 years) have lower anxiety levels when they have a better relationship with people in the ST practice environment. However, we cannot elevate this result to a general view of the entire population, as this differs for each subject. It is up to professionals to understand and evaluate these factors to carry out better planning and care.

REFERÊNCIAS

1. Malta DC. The COVID-19 Pandemic and changes in adult Brazilian lifestyles: A cross-sectional study. *Epidemiologia e serviços de saúde: revista do Sistema Unico de Saúde do Brasil*. V. 29, e2020407. 2020. DOI: <https://doi.org/10.1590/S1679-49742020000400026>.
2. Faro A., *et al.* COVID-19 e saúde mental: a emergência do cuidado. *Estudos de Psicologia (Campinas)*. V. 37, e200074. 2020. DOI: <https://doi.org/10.1590/1982-0275202037e200074>.
3. Portella D. L. Atividade física e alimentação: como a pandemia pode ter impactado a população? *Revista de Atenção à Saúde*. V. 18, n. 66, pag. 1-2. 2020. DOI: <https://doi.org/10.13037/ras.vol18n66.7611>.
4. Mazzafera B. L., *et al.* Hábitos Digitais de Alunos do Ensino Superior no Período da Pandemia de Covid-19. *EaD em Foco*. v. 11, n. 2. Link: <https://eademfoco.cecierj.edu.br/index.php/Revista/article/view/1381>.
5. Brunetti A. A. A pandemia: home office, conferences e os desafios profissionais. *Revista Ubiquidade*. v. 3, n. 2, pag. 51-60. 2020.
6. Organização Mundial de Saúde. Novas diretrizes sobre atividade física e comportamento sedentário. Link: <https://www.paho.org/pt/noticias/26-11-2020-oms-lanca-novas-diretrizes-sobre-atividade-fisica-e-comportamento-sedentario>.
7. Tahara A. K., Schwartz G. M., Silva K. A. Aderência e manutenção da prática de exercícios em academias. *Revista Brasileira de Ciência e Movimento*. v. 11, p. 4. Pag. 7-12. 2003. DOI: <https://doi.org/10.18511/rbcm.v11i4.519>.
8. Toscano J. J. O. Academia de ginástica: um serviço de saúde latente. *Revista Brasileira de Ciência e Movimento*. v. 9, n. 1, pag. 40-42. 2008. DOI: <https://doi.org/10.18511/rbcm.v9i1.381>.
9. Simões C. S. M., *et al.* Análise da qualidade de vida de professores e alunos de musculação: um estudo comparativo. *Revista Brasileira de Atividade Física e Saúde*. v. 16, n. 2, pag. 107-112. 2011. DOI: <https://doi.org/10.12820/rbafs.v.16n2p107-112>.
10. Liz C. M., *et al.* Os motivos da prática de treinamento de força diferem em relação à idade do praticante. *Cadernos de Educação e Física e Esporte*. v. 13, n. 1, pag. 61-67. 2015. DOI: <https://e-revista.unioeste.br/index.php/cadernoedfisica/article/view/13530>.
11. Malinski M. P., Voser R. C. Motivação para a prática de atividade física em academias de Porto Alegre: um estudo descritivo e exploratório. *EFDeportes.com*, revista digital. 2012. Link: <https://www.efdeportes.com/efd175/motivacao-para-atividade-fisica-em-academias.htm>.
12. Legnani R. F. S., *et al.* Fatores motivacionais associados à prática de exercício físico em estudantes universitários. *Revista Brasileira de Ciências do Esporte*. v. 33, n. 3, pag. 761-772. 2011. DOI: <https://doi.org/10.1590/S0101-32892011000300016>.

13. Guedes D. P., Legnani R. F. S., Legnani E. Motivos para a prática de exercício físico em universitários e fatores associados. *Revista Brasileira de Ciências do Esporte*. v. 26, n. 4, pag. 679-689. 2012. DOI: <https://doi.org/10.1590/S1807-55092012000400012>.
14. Ryan R. M., Deci E. L. Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*. v. 25, n. 1, pag. 54-67. 2000. DOI: <https://doi.org/10.1006/ceps.1999.1020>.
15. Lima I. A. S., Ribeiro L. C. G., Prieto A. V. Efeitos do exercício físico nos sintomas de Depressão, Ansiedade e Estresse em mulheres adultas do Distrito Federal. *Brazilina Journal of Health Review*. v. 6, n. 1, pag. 1479-1494. 2023. DOI: <https://doi.org/10.34119/bjhrv6n1-116>.
16. Castillo A. R. G. L., *et al.* Transtornos de ansiedade. *Revista Brasileira de Psiquiatria*. v. 22, n. 2, pag. 20-23. 2000. DOI: <https://doi.org/10.1590/S1516-44462000000600006>.
17. Corrêa C. A. *et al.* Níveis de estresse, ansiedade, depressão e fatores associados durante a pandemia de COVID-19 em praticantes de Yoga. *Revista Brasileira de Atividade Física e Saúde*. v. 25, pag. 1-7. 2020. DOI: <https://doi.org/10.12820/rbafs.25e0118>.
18. Lino G. S., Oliveira R. B., Ribeiro T. O. Transtornos de Humor em Praticantes de Crossfit. *Revista Brasileira de Reabilitação e Atividade Física*. v. 9, n. 2, pag. 56-62. 2020. DOI: <https://www.revista.ueg.br/index.php/movimenta/article/view/8463>.
19. Governo Federal, Ministério da Saúde, Brasil. Ministério da Saúde divulga resultados preliminares de pesquisa sobre saúde mental na pandemia. Link: <https://www.antigo.saude.gov.br/noticias/agencia-saude/47527-ministerio-da-saude-divulga-resultados-preliminares-de-pesquisa-sobre-saude-mental-na-pandemia>.
20. Markland D., Ingledew D. K. The measurement of exercise motives: factorial validity and invariance across gender of a revised Exercise Motivations Inventory. *British Journal of Health Psychology*. v. 2, pag. 361-376. 1997. DOI: <https://doi.org/10.1111/j.2044-8287.1997.tb00549.x>.
21. Lovibond P. F., Lovibond S. H. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*. v. 33, n. 3, pag. 335-343. 1995. DOI: [https://doi.org/10.1016/0005-7967\(94\)00075-U](https://doi.org/10.1016/0005-7967(94)00075-U).
22. Vignola R. C., Tucci A. M. Adaptation and validation of the depression, anxiety and stress scale (DASS) to Brazilian Portuguese. *Journal of Affective Disorders*. v. 155, pag. 104-109. 2014. DOI: <https://doi.org/10.1016/j.jad.2013.10.031>.
23. Hopkins W. *et al.* Progressive statistics for studies in sports medicine and exercise science. *Medicine and Science in Sports and Exercise*. v. 41, n. 1, pag. 3-13. 2009. DOI: <https://doi.org/10.1249/MSS.0b013e31818cb278>.
24. Liz C. M., Andrade A. Análise qualitativa dos motivos de adesão e desistência da musculação em academias. *Revista Brasileira de Ciências do Esporte*. v. 38, n. 3, pag. 267-274. 2016. DOI: <https://doi.org/10.1016/j.rbce.2015.11.005>.

25. Jakobsson J., *et al.* Physical Activity During the Coronavirus (COVID-19) Pandemic: Prevention of a Decline in Metabolic and Immunological Functions. *Frontiers in Sports and Active Living*. v. 2, n. 57. 2020. DOI: <https://doi.org/10.3389/fspor.2020.00057>.
26. Joy L. Staying Active During COVID-19. American College of Sports Medicine. 2020. Link: https://www.exerciseismedicine.org/support_page.php/stories/?b=892.
27. Lira H. A. A. S. Afetividade, motivação e percepção subjetiva do esforço após 8 sessões de treinamento resistido nos sistemas multisets, supersets e cluster: um estudo comparativo. 70 f. Dissertação (Mestrado em Educação Física) - Universidade Federal de Pernambuco, Recife, 2019.
28. Meurer S. T., *et al.* Associação entre sintomas depressivos, motivação e autoestima de idosos praticantes de exercícios físicos. *Revista Brasileira de Ciências do Esporte*. v. 34, n. 3, pag. 683-695. 2012. DOI: <https://doi.org/10.1590/S0101-32892012000300011>.
29. Alves S. M. A relação entre capacidades empáticas, depressão e ansiedade em jovens. 143 f. Dissertação (Mestrado em Psicologia Social) - Universidade Federal da Paraíba, João Pessoa, 2012.
30. Oliveira VT, Oliveira LV Rocha MR, Leite IA, Lisboa RS, Andrade KCL. Impactos do isolamento social na saúde mental de idosos durante a pandemia pela Covid-19. *Brazilian Journal of Health Review*. v. 4, n. 1, pag. 3718-3727. 2021. DOI: <https://doi/10.34119/bjhrv4n1-294>.