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THE TREATMENT OF NON-ALCOHOLIC FATTY LIVER DISEASE THROUGH PHYSIOTHERAPY REHABILITATION

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Background: One focus of non-alcoholic fatty liver disease (NAFLD) treatment is physical exercise. Resistance training (ET) has become a viable option for initial physical activity for patients with NAFLD, due to the low cardiorespiratory fitness and sedentary lifestyle found in most of these patients. The physiotherapist, on the other hand, has the competence to rehabilitate individuals who have intercurrent functional kinetic disorders in organs and systems of the human body, generated by genetic alterations, trauma and acquired diseases. Considering that the association between NAFLD and physiotherapeutic rehabilitation is in constant development, clear definitions and more research are needed to help improve the understanding of the subject. Therefore, considering the growing number of individuals affected by NAFLD and the need to provide practical data to help prevent and control this pathology, it was important to carry out a systematic review on the subject, since this could lead to interventions additional and potential therapies in the management of individuals diagnosed with NAFLD.

Objective: To analyze the effect of physiotherapeutic rehabilitation, through resistance training on the clinical markers of individuals diagnosed with NAFLD.

Methods: It is a Systematic Review study with Randomized Clinical Trials (RCTs), formatted in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis Statement (PRISMA Statement) and registered in PROSPERO27 N° CRD4202236638. Searches were carried out in Medline (accessed by PubMed), Lilacs, Embase, Cochrane, and Scielo databases, in addition to manual searches, from January/2011 to December/2022. Studies with individuals who were not diagnosed with NAFLD through imaging or biopsy were excluded. The ROB 2.0(30) tool was used to assess the risk of bias in the eligible studies. A summary guide without meta-analysis (SWiM) was applied for data analysis and outcomes.

Results: A total of six studies were included, totaling 232 adult participants diagnosed with NAFLD. Hepatic fat (GH) showed a significant reduction ($p \leq 0.05$) when comparing the beginning and end of the intervention, in the groups that were only submitted to resistance training. Already, the resistance training groups associated with dietary intervention, showed a reduction in GH (11.8%) between the beginning and end of the intervention, as well as a relative reduction of 212.6% (95% CI) of GH, in the same period. The groups that used the resistance training protocol showed improvement in insulin sensitivity and insulin resistance (IR) in the comparison between the initial and final period of the intervention.

Conclusion: The resistance training protocol can play an important role in physical therapy rehabilitation in individuals with NAFLD, as it reduces liver fat and improves insulin sensitivity and resistance in these individuals. Furthermore, it is possible to consider that the practice of resistance training is an easily accepted and consistent

option for individuals with NAFLD, even when there is dietary intervention.

Implications: The articles in this systematic review showed heterogeneity in the intervention protocols and in the diagnostic criteria and outcomes of NAFLD, therefore, these points were observed as limiting aspects for this study.

Keywords: Nafld, Physiotherapy Rehabilitation, Strength Training

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PROFILE OF SLEEP PARAMETERS AND LEVEL OF PHYSICAL ACTIVITY OF PATIENTS POST-COVID-1

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Background: The COVID-19 pandemic has had cardiorespiratory, musculoskeletal and life habits repercussions, such as sleep and physical activity, both in the acute phase and after the disease. Thus, it is important to identify these changes in these patients to structure prevention and rehabilitation measures in clinical practice.

Objective: To profile sleep parameters and physical activity level in post-COVID-19 patients.

Method: This is a cross-sectional study, carried out from November 2022 to March 2023, at the Cardiopulmonary Rehabilitation Laboratory of the Physiotherapy Department of the Federal University of Pernambuco. Patients aged 18 and over, of both sexes, with a diagnosis of COVID-19 confirmed through a positive result in molecular and serological tests between 3-12 months of diagnosis were included. And excluded, patients who make use of sleep-inducing medication, who have cardiometabolic diseases such as grade III obesity, as well as decompensated chronic degenerative diseases, neuromuscular or some cognitive impairment that makes it difficult to understand how the evaluations will be carried out and who have osteopathies -joints that make it impossible to perform during the physical assessment protocol. Sleep efficiency, total sleep time, number of awakenings and sleep latency were evaluated using actigraphy and the Pittsburg Sleep Quality Index (PSQI), in addition to sleep quality. The level of physical activity was also assessed using the International Physical Activity Questionnaire - IPAQ. The descriptive analysis of the data was presented as mean and standard deviation.

Results: Eighteen patients were selected, predominantly female (74.3%), aged 46.4 ± 12.9 years. On the actigraphy data, a total sleep time of 8.0 ± 5.6 hours was verified, the sleep efficiency was $75.3 \pm 10.0\%$, the number of awakenings was 7.5 ± 4 , 9 times and a sleep latency of 4.5 ± 2.9 minutes. The PSQI showed poor sleep quality with an average of 6.4 ± 3.2 points. In addition, a total sleep time of 9 ± 4.6 hours, sleep efficiency of $68.3 \pm 7.6\%$, number of awakenings of 4.2 ± 2.8 times and sleep latency of 6.5 ± 2.8 minutes. Regarding the level of physical activity, it was observed that 50.3% of the sample was insufficiently active, 23.4% active and 26.3% sedentary.

Conclusion: The results showed poor sleep quality by PSQI, moderate sleep efficiency, lower sleep latency and good total sleep time. Regarding the level of physical activity, it was demonstrated that most of these patients were insufficiently active.

Implications: Identifying these changes in these patients will imply the structuring of measures to prevent further complications of the disease and rehabilitation of these repercussions in clinical practice.

Keywords: COVID-19, Sleep parameters, Level of Physical Activity

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CAN MUSCLE POWER TRAINING AID THE BIOMECHANICAL AND PHYSIOLOGICAL ADAPTATIONS IN ENDURANCE RUNNERS?

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Background: The performance of long-distance runners is predicted by the interaction between physical variables, and plyometric and endurance training can change the interaction between these variables. In this way, it becomes necessary to investigate these promoted adaptations and how their transfer to performance occurs.

Objectives: The study aimed to verify the combined effect of plyometric and endurance training on performance variables in long-distance runners.

Methods: The sample consisted of 23 male runners between 18 and 50 years old, athletes of 10km races and divided into two experimental groups: combined training (CT; Plyometric + endurance training; n = 11) and isolated training (ET; endurance training only; n = 12). The volunteers were submitted to two moments of evaluation, performed before and after the experimental protocol, consisting of anthropometric evaluations, muscle power, running economy, biomechanical test, maximum progressive test, and 10-km performance. For the experimental protocol, the volunteers were divided into pairs into the ET or CT groups according to the result obtained in the 10-kilometer test performed before the start of training. At the end of the experimental protocol (8 weeks), the athletes were reassessed, and the tests used were the same as those used in the initial assessment.

Results: In muscle power tests, a significant increase in jumps (CMJ and SJ) was reported at the end of training, regardless of the evaluated group. In the biomechanical variables, an increase in contact time with the ground and vertical oscillation was found, in addition to a decrease in stride frequency and leg stiffness at the end of the training protocol, in both analyzed groups. Regarding the physiological variables, an increase in running economy, respiratory compensation points and peak velocity on treadmill was found, but $\dot{V}O_{2max}$ remained stable after the experimental protocol. Finally, the final performance in the 10km did not show a significant effect, but the race strategy (initial phase) and peak velocity increased in both groups.

Conclusion: CT (endurance + plyometrics) elicited similar changes in muscle power, biomechanical, physiological and performance variables, when compared to runners who performed ET.

Implications: Even with the lowest volume of running in the CT group, the effects were similar to the group that only performed ET, a relevant finding when considering that a high volume of running training can lead to injuries due to stress or repetition. Based on our findings, it is recommended to include neuromuscular training in weekly training routines, with the insertion of activities aimed at improving contact with the ground, technical efficiency and energy use of the muscle stretching-shortening cycle. It is also suggested that the neuromuscular training load is established according to the periodization and is frequently controlled from the optimal height of the vertical jump. Finally, plyometric activities should be included in specific periods of the training routine, in which the main objective is to improve muscular power.

Keywords: Sport, Strength training, Runners, Performance

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WORK-RELATED INJURIES AND PHYSIOTHERAPIES: A BIBLIOMETRIC ANALYSIS

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Background: Every year, millions of workers are affected by repetitive strain injury (RSI) and work-related musculoskeletal disorders (WMSDs), which affect muscles, nerves, ligaments, and tendons due to repetitive strain and overuse. Through bibliometric analysis on RSI/WMSD, it is possible to identify knowledge gaps, expanding areas of research, and emerging trends that may guide future studies and contribute to the advancement of the field.

Objective: Conduct a bibliometric analysis of primary studies on RSI/WMSDs at work and physiotherapies.

Methods: The Boolean search strategy ("Occupational Repetitive Strain Injuries" OR "Work-related Musculoskeletal Disorders" OR "WMSDs" OR "work-related injuries" OR "Occupational injuries" OR "Repetitive Strain Injury" AND "Physiotherapy" OR "Physiotherapy") was performed in March and May 2023 in the Web of Science and Scopus databases, applying a filter for original articles. The records were saved in Plain Text and BibTeX format and analyzed in R (version 4.2.2) using the "bibliometrix" package (version 4.1.2).

Results: We identified 4.543 articles in the Web of Science and 634 articles in Scopus, with a total of 12.041 authors involved, published between 1952 and 2023. The growth rate was 6,53% per year, with an exponential increase from 1994 onward. The studies were published in 1093 scientific journals, with *American Journal of Industrial Medicine* magazine standing out (n = 368). Barbara Silverstein, from the University of Michigan, EUA, had the highest number of publications (n=37), being recognized as a reference in the areas of worker health and work safety. The article entitled "*Comparison of Selfreport Video Observation and Direct Measurement Methods for Upper Extremity Musculoskeletal Disorder Physical Risk Factors*" by Silverstein et al. (2001) had the highest number of citations (n = 213). The study compared three methods of assessing exposure