

Fast Brazil self-application instrument. An analysis was performed with the Shapiro-Wilk test, which showed that the data were non-parametric, and thus the data were presented descriptively by the median and interquartile range and the environmental data with nominal variables. significance level  $p < 0.05$  was adopted.

**Results:** 405 individuals were evaluated, 39.5% ( $n=160$ ) ( $p < 0.446$ ) characterized as fallers, so the sample of fallers consisted of 39% ( $n=113$ ) female ( $p < 0.882$ ), an aged median of 67 (63-73) years. It was observed that falls have a higher incidence with tripping 100% ( $n=67$ ) ( $p < 0.01$ ), slipping 100% ( $n=43$ ) ( $p < 0.01$ ), loss of balance 100% ( $n=37$ ) ( $p < 0.01$ ), acute pain 100% ( $n=2$ ) ( $p < 0.01$ ), leg weakness 100% ( $n=2$ ) ( $p < 0.01$ ), dizziness 100% ( $n=4$ ) ( $p < 0.01$ ), knees buckled 100% ( $n=5$ ) ( $p < 0.01$ ). Of the individuals who reported falls, the reasons were 45.83% ( $n=88$ ) due to the bathroom being slippery when wet ( $p < 0.03$ ), even if they had adaptations in their home such as a toilet of adequate size 38.15% ( $n=145$ ) ( $p < 0.04$ ) and grab bar in the bathroom in 47.91% ( $n=46$ ) ( $p < 0.04$ ).

**Conclusion:** We found that the incidence of falls was due to the bathroom being slippery due to the wet floor and that most have adaptations in their homes due to the fear of falling. This makes us reflect that even with adaptations, it gives a false sense of security.

**Implications:** With the knowledge of environmental risk factors such as wet bathrooms, it is necessary to supervise the hygiene of these older adults.

**Keywords:** Falls, Older Adults, Environmental Factors

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## ASSOCIATION BETWEEN SLEEP QUALITY AND MUSCULOSKELETAL PAIN IN HEALTH WORKERS – CROSS-SECTIONAL STUDY

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**Background:** Sleep is necessary for maintaining health and well-being. Work in the health area is organized in a shift system, which can interfere with workers' s circadian cycle, making them more susceptible to physical fatigue and musculoskeletal pain.

**Objectives:** To verify if there is an association between sleep quality and the number of regions with musculoskeletal pain in health workers linked to the Unified Health System (SUS).

**Methods:** A total of 125 health workers from different occupations who are part of the HEROES cohort were evaluated. Sleep quality was assessed by the Pittsburgh Sleep Quality Index (PSQI), considering the total score (ranging from zero to 21 points). The number of sites with musculoskeletal pain was assessed using the Nordic Musculoskeletal Symptoms Questionnaire (NMQ), ranging from zero to nine sites with pain. The factors age, gender, marital status, education, use of medication, tobacco, workplace, and hours worked were extracted from the sociodemographic questionnaire. Linear regression analysis was performed in the SPSS program with a significance level of 5%.

**Results:** The sample consisted of woman (83.2%), hospital workers (48.8) with a workload of more than 30 hours per week (71.2%). Linear regression analysis showed that sleep quality is associated with musculoskeletal pain ( $R^2 = 24.04\%$ ;  $p = 0.000$ ;  $CI = 1.05 - 2.90$ ). With each increase of one point in the PQSI, there is an increase of 0.22 in the number of sites with musculoskeletal pain; that is, the worse the quality of sleep (bad sleepers), the greater the probability of the worker reporting musculoskeletal pain in more than one region.

**Conclusion:** Sleep quality was associated with the number of sites of pain in healthcare workers.

**Implications:** The findings of study show that it is necessary to return actions to care for the quality of sleep-in health workers, as well as to rethink the organization of health work, with a view to enabling shift alternation or other worker protection measures.

**Keywords:** Physiotherapy, Nursing, Ergonomics

**Conflict of interest:** The authors declare no conflict of interest.

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**Ethics committee approval:** Research Ethics Committee of the Federal University of São Carlos, Brazil (certificate number: 39705320.9.0000.5504)

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## COMPARISON OF DIAGNOSTIC CRITERIA FOR SARCOPENIA IN OLDER PEOPLE: CROSS-SECTIONAL STUDY

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**Background:** Sarcopenia has been subject of study for some years, been defined by some international consensuses. A lack of pattern in ways to assess the syndrome, with a great variability of methods and cutoff points, used to make harder the data compilation in systematic reviews, with meta-analyses, and even in the clinical practice.

**Objective:** to compare the methods for evaluating sarcopenia in older people, demonstrating the relationship of each test with its peers for the same criteria diagnostic.

**Methods:** Cross-sectional study, where older people were assessed for: muscle strength, by handgrip and isokinetic dynamometers; body composition, by BIA, skinfolds, mid-arm and calf circumferences; physical performance by six-minute walk test, TUG and SPPB. The qualitative variables were expressed in absolute and relative frequency, the quantitative were presented in mean+SD, median and IQR. The correlations were assessed by Spearman's Correlation Coefficient, accepted as low when  $r > 0,1$ ; moderate when  $r > 0,3$ , and high when  $r > 0,5$ . The p-value  $< 0,05$  was adopted as significant.

**Results:** 78.31% were women, the average age was 67,85 +5,27 years. In strength assessments was found moderate correlation between Handgrip and quadriceps PT, and high with hamstrings PT. PT assessments showed high relation between them. SMM showed a high correlation with FFM, and a low correlation with CC and MAC. FFM showed high correlation with all body composition assessments. In physical performance, UGS had moderate correlation with SPPB and high with TUG. TUG showed low correlation with SPPB. UGS.

**Conclusion:** For strength, handgrip showed the best correlation, even needing more prospective studies. The chair stand test did not show relationship with other techniques, and it may be because of

other variables than strength only, as balance and power output. For body composition, BIA showed the best correlations, as expected. Skinfold, calf circumference and MAC could be a good choice for this criterion, because they have good correlation, low cost, and are fast to develop. For physical performance, UGS seems to be the best assessment, although SPPB and TUG showed some correlations. Is important to note that, for these criteria, the choice of assessment method may affect the result of sarcopenia severity.

**Implications:** Studies like this used to clarify the use of certain assessment and diagnostic techniques. With this study, for this sample, we were able to demonstrate the power of comparability of the instruments available for the diagnosis of sarcopenia in older people, thus facilitating the clinical practice of health professionals.

**Keywords:** Sarcopenia, Aged, Geriatric Assessment, Anthropometry, Kinanthropometry

**Conflict of interest:** The authors no conflicts of interest.

**Acknowledgment:** Not applicable.

**Ethics committee approval:** This study is part of a project approved by the UFCSPA Research Ethics Committee, under registration number 3.335.461.

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## EFFECT OF TWO PHYSICAL EXERCISE PROGRAMS ON STRENGTH, FUNCTIONALITY AND QUALITY OF LIFE IN OLDER PEOPLE: A RANDOMIZED CLINICAL TRIAL

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**Background:** The body of the elderly, in general, suffers impacts with the aging process, which may result in changes in the body as a whole, and exercise has been commonly used by health professionals as a form of intervention for the mitigation and prevention of changes in the aging process.

**Objective:** To compare the effect of two different exercise programs on strength, functionality, and quality of life in elderly people from Porto Alegre, Brazil

**Method:** This was a randomized, blinded, intent-to-treat clinical trial in which 31 elderly subjects participated, 16 in the strength training group (G1) and 15 in the Pilates solo training group (G2), with a duration of approximately 1 hour, and frequency of 3 times a week for 12 weeks, with evaluations every 4 weeks of training. To measure strength the handgrip test and the isokinetic dynamometer (Biodex) were used for knee flexion and extension strength. For functionality the TUG, SPPB, Berg and TC6 were evaluated and for quality of life the SF-36 questionnaire was used.

**Results:** Although the elderly gradually improved in the strength outcome, there was not statistically significant intragroup or intergroup difference. As for functionality, there was a statistically significant difference ( $p=0.010$ ) in the predicted percentage of the 6-minute walk test between the groups in evaluation 4, where G1 walked  $126.51 \pm 10.28\%$  and G2 walked  $112.11 \pm 5.99\%$ . As for quality of life, despite the improvement in all domains, only in the Emotional Aspects domain there was a statistically significant difference ( $p=0.017$ ), between groups G1 and G2 at Assessment 1 and Assessment 3, being respectively  $72.92 \pm 32.70$  and  $55.56 \pm 41.25$ , and  $77.78 \pm 28.87$  and  $100.00 \pm 0.0$ .

**Conclusion:** There was no significant difference in strength when comparing the groups. In functionality G1 presented a higher

predicted percentage of the 6-minute walk test when compared to G2. In quality of life, in the domain of emotional aspect G2 was able to overcome G1 even though initially G1 had significantly higher values.

**Implications:** this work brings important knowledge to the literature, demonstrating the impact of each modality of physical activity on certain health indicators of the elderly individual. We also reiterate that further work, with larger samples and different training models, should be conducted to deepen these results.

**Keywords:** Aging, Resistance training, Exercise movement techniques, Functional capacity, Quality of life

**Conflict of interest:** The authors declare no conflicts of interest.

**Acknowledgment:** Not applicable.

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## NEUROMUSCULAR PERFORMANCE OF WOMEN WITH KNEE OSTEOARTHRITIS

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**Background:** Knee osteoarthritis (KOA) is characterized by progressive degeneration of cartilage and periarticular tissue, resulting in narrowing of the joint space, formation of osteophytes and sclerosis of the subchondral bone. Compromised ability to generate muscle torque and power has been the most predominant symptom of KOA and may be related to the difficulty in performing the main activities of daily living. The muscle strength deficit in KOA affects the entire lower limb, being more pronounced in the knee extensors, 40% lower in relation to healthy individuals of the same age group. Strength together with quadriceps muscle power may be clinically more important to identify functional deficits in these patients, providing more accurate information about the neuromuscular system in relation to imaging exams.

**Objectives:** The aim of the study was to compare peak torque and rate of torque development of knee extensors in women with and without knee KOA.

**Methods:** 71 women participated in this study, divided into a group with Knee Osteoarthritis (GOAJ;  $n=39$ ) and a control group (GC;  $n=32$ ). For the GOAJ, the individuals had a radiological diagnosis of tibiofemoral OA and for the CG, the individuals did not have a history of alterations related to chronic-degenerative diseases in the lower limbs. To evaluate the knee extensor torque, the volunteers performed 3 maximum voluntary isometric contractions, for a period of 5 seconds, with an interval of 30 seconds between each contraction. Torque data were normalized by the volunteers' body mass. A load cell (Noraxon<sup>®</sup>), with a sampling frequency of 100 Hz, was coupled to the lever of the leg extension chair for the acquisition of joint torque data. Peak torque was determined by the highest torque value obtained after the onset of muscle contraction, and the average of the values of the three contractions performed was calculated. To calculate the torque development rate (TDT), the slope of the torque versus time curve was analyzed, in windows of 0-30 and 0-200ms. For statistical analysis, the T test for Independent Samples was used, considering the significance level of  $p < 0.05$ .

**Results:** The knee extensor torque of the GOAJ was 54% lower compared to the CG. Regarding DTT, there was a significant difference