Methods: This is a cross-sectional analytical study. The study included women using hormone therapy (Tamoxifen or Anastrozole) for breast cancer and complaining of arthralgia (at least 1 point on the Numerical Categorical Scale - NCS and 1 joint located on the Brief Pain Inventory - BPI). Women who had stage IV cancer, with the presence of lymphedema, limitation to answer questionnaires and women with tumor recurrence were excluded. Data distribution was evaluated using the Kolmogorov-Smirnov test. To determine the isolated contribution of Hormone Therapy Time (independent variable) to arthralgia (dependent variable) in women of hormone therapy for breast cancer, linear regression analyzes, and Spearman correlation coefficients were performed. The significance level was set at 5%. The correlation was classified according to the following criteria: weak (0.0 - 0.4), moderate (0.4 - 0.7) and strong (0.7 - 10).
Results: ninety-two women with a mean age of 53.68 years and a standard deviation of 9.53 participated in the study. The mean duration of hormone therapy use was 2.44 years, with a standard deviation of 1.45, and the mean duration of arthralgia was 5.38. with a standard deviation of 2.73. Arthralgia and duration of hormone therapy did not present a significant correlation (p=0.11; r=0.16).
Conclusion: no association was observed between the duration of hormone therapy and arthralgia in women undergoing treatment for breast cancer.
Implications: Although numerous studies report the presence of arthralgia in women who use hormone therapy in the treatment of breast cancer, the duration of hormone therapy does not seem to influence this complaint. However, prospective cohort studies are needed to confirm the effects of hormone therapy duration on arthralgia in women undergoing cancer treatment.
Keywords: Arthralgia, Hormone therapy, Association

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FLEXIBILITY AFTER 16 WEEKS OF PILATES EXERCISE IN WOMEN WITH ARTHRALGIA AFTER HORMONE THERAPY FOR BREAST CANCER

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Background: arthralgia is a common symptom after treatment with hormone therapy for breast cancer and can lead to several complications, including loss of flexibility. Studies have recommended performing the Pilates exercise to minimize morbidities resulting from cancer treatment.
Objectives: to evaluate flexibility after 16 weeks of Pilates exercise in women with arthralgia after hormone therapy for breast cancer.
Methods: observational study, carried out at the physiotherapy clinic of the High Complexity Oncology Unit. Women with complaints of arthralgia during hormone therapy and who participated in a Mat Pilates exercise program (twice a week for 16 weeks) were included, and women with active cancer or who did not complete the 16 weeks of exercise were excluded. Flexibility was evaluated through the "sit-and-reach test" using the SANNY Instant Unisex Pro Portable Wells Bench. Statistical analysis was performed using GraphPad Prism. The data were submitted to the Kolmogorov-Smirnov normality test, followed by the paired t-test (parametric data) or the Wilcoxon test for repeated measures (non-parametric data), considering a significance level of 5%.
Results: eight women with a mean age of 57.25±12.61 completed the 16 weeks of performing the Pilates exercise, 5 using hormone therapy with Tamoxifen and 3 using Anastrozole. The women had mean and standard deviation for flexibility of 18.12±5.66 at the beginning and 22.75±6.88 after 16 weeks of Pilates exercise (p=0.004). The group that used Tamoxifen presented flexibility of 16.7±4.99 before and 21.4±7.57 after Pilates (p=0.04) and the group using Anastrozole presented flexibility of 20.5± 7 before and 25±6.26 after Pilates (p=0.16).
Conclusion: There was greater flexibility in women after performing the Pilates exercise.
Implications: Pilates exercises have the potential to improve the flexibility of women undergoing cancer treatment. However, randomized controlled trials, with a significant sample, are needed for better scientific evidence of the effects of Pilates exercise on the flexibility of women with arthralgia.
Keywords: Arthralgia, Pilates, Pliability

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ELECTROMYOGRAPHIC PROFILE OF THE WRIST AND ELBOW FLEXORS DURING PNF MOTOR IRRADIATION

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Background: Proprioceptive Neuromuscular Facilitation (PNF) is a concept that has been applied to treating numerous disabling disorders. Among the basic PNF procedures, there is motor irradiation, in which resistance is applied to a body segment to generate muscle activation in another segment and thus obtain improvement in muscle strength. The generated muscular activation can be analyzed in several ways, one of them being Electromyography (EMG). Electromyographic analysis has suggested that target muscles of irradiation demonstrate electromyographic activity during irradiation in healthy individuals and in those with neurological disorders. Despite this, the neuromuscular activation profile (amplitude and temporality) resulting from the different stimuli and positions used in PNF has not yet been investigated.
Objectives: To analyze the neuromuscular activation profile of upper limb muscles in healthy individuals during the application of different PNF irradiation protocols.
Methods: This is a cross-sectional study in which 32 healthy individuals of both sexes, aged between 18 and 45 years. After signing the consent form, the handedness of a subject in activities of daily living, level of physical activity, and sociodemographic characteristics will be identified. First, the EMG signals of the upper limb muscles (biceps brachii, brachioradialis, flexor carpi radialis, and triceps) will be collected during a maximum voluntary contraction (3 repetitions held for 3s with an interval of 30s between contractions).

Then, the EMG signal of these muscles of the non-preferential limb will be collected, during 4 PNF irradiation techniques in a randomized order for each participant. Each irradiation will be applied 3 times, maintaining the contraction for 5s, with a 10s interval between them. After each irradiation will be checked the perceived exertion.
Results: The study is in the data collection phase.
Conclusion: It is expected through this study to verify if the applied irradiation techniques activate the musculatures described anecdotally in the clinical literature.
Implications: The study can generate an understanding of motor irradiation and the use of the technique to improve the strength of a body segment.
Keywords: Irradiation, Proprioceptive neuromuscular facilitation, Electromyography

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ASSOCIATION BETWEEN ENVIRONMENTAL FACTORS AND AFFORDANCES FOR THE NEUROPSYCHOMOTOR DEVELOPMENT: A CROSS-SECTIONAL STUDY

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Background: In the world, 1 billion children live in poverty. Regarding developing countries, Brazil has the highest rate of social inequality. Environmental factors may impact child development and, consequently, functionality.
Objectives: to analyze the association between environmental factors and affordances in the home environment of healthy infants exposed to low socioeconomic status (SES).
Methods: At 3 months old, 128 full-term healthy infants were divided into two groups: the exposed group (EG), infants classified as low SES, and the comparison group (CG), infants without low SES exposition; both according to the income-to-poverty ratio (PIR). The affordances in the home environment were measured by The Home Environment for Motor Development – Infant Scale (AHEMD-IS); physical space, variety of stimulation, gross-motor toys, fine-motor toys, and total score. It classified the affordances: as less than adequate (LTA), moderately adequate (MA), adequate (A), and excellent (E). In the SPSS 2.0, comparison tests and stepwise multiple linear regression were performed ($p < 0.05$).
Results: Infants of the EG had significantly the lowest mean in length at birth (p=0.03; Cohen's r= 0.157); PIR ($p<0.01$; Cohen's r= 0.351); maternal age ($p<0.01$; Cohen's r= 0.50); marital status of guardians ($p<0.01$; Cohen's r= 0.31); the number of children living in the household ($p<0.0001$; Cohen's r= 0.29); and maternal education ($p<0.01$; Cohen's r= 0.73). The home environment of the EG presented less affordances for child development in the dimensions of gross motor toys ($p<0.0001$; Cohen's r= 0.353; EG, md= 2.00 [1.00 – 3.00] vs GC, md 3.00 [2.00 – 4.50]); fine motor skills (p=0.0001 Cohen's r= 0.327; EG, md= 1.00 [0.00 – 2.00] vs GC, md 2.00 [1.00 – 4.00]); and the total score ($p<0.0001$; Cohen's r= 0.377; EG, md=15.00 [13.00 – 18.00] vs GC, md = 19.00 [16.00 – 22.00]). Maternal age was a protective factor for obtaining the LTA score (p = 0.043, OR: 0.829 [0.692 - 0.994]). Therefore, each additional year in maternal age decreases 17.01-fold the chance the affordances in the home environment score LTA.
Conclusion: The home environment of infants exposed to poverty presented less adequate affordances for neuropsychomotor development, mainly in the dimensions of gross motor toys, fine motor toys, and, consequently, total score. In contrast, the higher the maternal age, the better the results regarding the quantity and quality of affordances present in the home environment.
Implications: Knowledge about offering adequate affordances for neuropsychomotor development is essential for providing healthy child development. Basic kits of age-appropriate toys offered during the follow-up may be useful as palliative and low-cost tools.
Keywords: Low Socioeconomic Status, Maternal Age, Child Poverty

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NORMATIVE VALUES FOR ISOMETRIC MUSCLE STRENGTH OF HIP FLEXORS WITH HAND-HELD DYNAMOMETER IN UNIVERSITY ATHLETES

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Background: Establishing normative strength data can assist professionals in guiding post-injury rehabilitation and be a criterion for deciding discharge for sports return.
Objectives: To establish reference values for isometric hip flexor muscle strength in college athletes.
Methods: This was a cross-sectional observational study. The athletes were submitted to an isometric muscle strength evaluation of the hip flexors through a hand-held dynamometer (Medeor Medtech Tecnologia em Saúde Industria e Comercio Ltda). The athletes remained in dorsal decubitus position on a stretcher, with the tested leg flexed 10 cm above the surface to start the test. The dynamometer was positioned on the anterior part of the leg, above the talotibial joint line. The lever arm was defined as the distance, in meters (m), between the anterior superior iliac spine and the dynamometer application point. The athletes performed three isometric contractions of 5 seconds, with a rest interval of 30 seconds between repetitions. If there was a discrepancy greater than 10% in the first three