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EXERCISE-INDUCED HYPOALGESIA FROM UPPER LIMB LATERAL RAISES: A PILOT STUDY ON INTRA-RATER RELIABILITY

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Background: Evidence suggests that physical exercise influences pain sensitivity through the modulation of the peripheral and central nervous systems in healthy individuals. The exercise-induced hypoalgesia (EIH) test was proposed to assess this effect and is widely used in literature. However, studies have shown low reliability of this test after aerobic and isometric exercise sessions. To date, there have been no investigations into the reliability of the EIH test in dynamic resistance exercises involving the upper limbs (UL) in this population.

Objectives: The aim is to investigate the intra-rater reliability, standard error of measurement (SEM), and minimal detectable change (MDC) of the EIH test for lateral elevation of the upper limbs (UL) in healthy individuals.

Methods: This is a pilot, observational, and cross-sectional study. Healthy individuals (18–45 years old, both sexes) participated. Individuals are advised not to exercise or consume nicotine, caffeine or analgesic medication 24 hours before the assessment. Assessments were conducted over two days. EIH was measured by the pressure pain threshold (PPT) and pain tolerance threshold (PTT), measured using a digital algometer at the following points: upper trapezius and quadriceps (remote), before and after exercise. The evaluator was blinded to the PPT and PTT results. Intra-rater reliability was analyzed using the Intraclass Correlation Coefficient (ICC) with a two-way random effects model for absolute agreement, using the Statistical Package for Social Sciences (SPSS), version 23.0. The SEM was calculated from the mean standard deviation of both days for each measure and location using the formula $SEM = SD\sqrt{1-ICC}$. The MDC was calculated using the formula $MDC = 1.96 \times \sqrt{2} \times SEM$.

Results: A total of 20 participants (60% female), with a mean age of 26 years and BMI of 25 kg/m², were included. The reliability for absolute changes was considered good for the PPT, both at the local and remote regions of the exercise (ICC = 0.77 and 0.79). The SEM was 91.15 kPa and 59.10 kPa, and the MDC was 26.46 kPa and 21.30 kPa, respectively. However, the reliability for relative change was weak at the local region (ICC = 0.47) and moderate at the remote region (ICC = 0.73), with SEM of 33.26% and 13.30%, and MDC of 15.98% and 10.10%, respectively. When evaluated by the PTT, the absolute reliability was low at the local region (ICC = 0.44) and moderate at the remote region (ICC = 0.56), with SEM of 131.09 kPa and 126.42 kPa, and MDC of 31.73 kPa and 31.16 kPa. In contrast, the relative reliability was weak (ICC = 0.25 and 0.46) with SEM of 20.99% and 16.50%, and MDC of 12.69% and 11.25%, respectively.

Conclusion: The EIH test for lateral elevation of the upper limbs showed good reliability between sessions for absolute changes in both regions, and moderate reliability for relative change in the quadriceps when using the PPT. The PTT showed weak reliability for both absolute and relative changes.

Implications: Results can be used to enhance the understanding of the effects of therapeutic exercise on pain processing.

Keywords: Reproducibility of Results, Pressure pain threshold, Hypoalgesia

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EVIDENCE-BASED EDUCATION AND COUNSELING IN LOW BACK PAIN MANAGEMENT IN PRIMARY HEALTH CARE: A CROSS-SECTIONAL STUDY

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Background: Low back pain (LBP) is a prevalent condition with substantial global and national burden, particularly within the scope of Primary Health Care (PHC). Evidence-based education and counseling are recommended strategies for LBP management; however, their implementation remains suboptimal. Identifying the frequency of these practices and the themes explored may contribute to understanding whether key messages recommended for LBP education and counseling are being addressed in primary care.

Objectives: This study aimed to investigate the frequency of education and/or counseling in the management of LBP in PHC and to identify the content provided to patients, assessing adherence to the recommended key messages.

Methods: A cross-sectional observational study was conducted with physicians and nurses working in PHC in Fortaleza, Brazil. Data were collected through in-person and online surveys using a RedCap-based form. Participants responded to two simulated clinical cases—one acute and one chronic—based on validated cases. The participant was asked about LBP management. If the response included education and counseling, the participant would respond about the themes covered from the options. Sociodemographic and professional data were collected. The survey also described adherence to recommended key messages and barriers to implementing education and/or counseling.

Results: A total of 140 professionals participated, with 74.29% being female and 59.29% being physicians. The mean age was 39.90 (± 11.27) years, and the mean time since graduation was 13.45 (± 10.88) years. Regarding qualifications, 51.43% held a specialization. Most professionals (51.43%) worked within the Family Health Strategy, and 42.86% had over 10 years of experience in PHC. Counseling was provided in 81.44% of cases, with a frequency of 84.62% in chronic LBP and 78.36% in acute LBP. Recommended key messages, such as guidance on exercise (65.26%) and home-based measures (72.77%), were frequently addressed. However, non-recommended messages, such as education about joint wear (56.81%) and limitation of household activities (40.38%), were also prevalent. The most frequently reported barriers included insufficient training (23.81%) and a limited perception of the educational role (23.81%).

Conclusion: Although educational and counseling were frequently employed in PHC, the content covered still includes many themes not recommended in evidence-based key messages. Implementing training programs for healthcare professionals could enhance alignment with scientific recommendations, ultimately improving LBP management within PHC settings.

Implications: These findings highlight the need for targeted interventions to enhance education and/or counseling in LBP management within PHC. Strengthening professional training in educational strategies and addressing identified barriers could improve a more effective and evidence-based approach to LBP management in PHC.

Keywords: Low back pain, Primary Health Care, Health Education

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RELATIONSHIP BETWEEN SOCIAL SUPPORT AND PHYSICAL ACTIVITY LEVEL IN INDIVIDUALS WITH CHRONIC LOW BACK PAIN: A CROSS-SECTIONAL STUDY

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Background: Chronic low back pain (CLBP) is disabling and often associated with modifiable socioeconomic and lifestyle factors, such as physical activity level, the latter being a key treatment component. Evidence suggests that social support (SS) may be a crucial health determinant in encouraging exercise and improving pain management, highlighting the importance of investigating this relationship in those with CLBP.

Objectives: To analyze the association between social support and physical activity level in adults with primary CLBP.

Methods: This cross-sectional study was conducted between August and December 2024 with volunteers recruited from a Primary Care Unit through active search or referred by health agents. Adults aged 18 to 60 years with primary CLBP lasting more than three months answered the following questionnaires: Sociodemographic form, Numerical Pain Scale (NPS), Medical Outcomes Study-Social Support Survey (MOS-SSS), and International Physical Activity Questionnaire (IPAQ-SF), with the aid of illustrated response cards. Data were analyzed using JAMOVI software for descriptive analysis and to assess the correlation between social support and physical activity.

Results: We included 54 participants (77.7% female), with a mean age of $48.9 \text{ years} \pm 9.26$. The mean pain intensity was 6.81 ± 2.25 , and the mean weekly physical activity was $4,153 \pm 3,476$ METs, with most participants reporting moderate to high physical activity levels. The mean perceived SS score was $72.2 \pm$ (standard deviation = 23), indicating a moderate level of social support perception. SS and physical activity levels were weakly and positively correlated ($\rho = 0.3$; $p < 0.03$).

Conclusion: There was a positive, albeit modest, relationship between SS and physical activity levels, suggesting that SS may contribute to physical activity status. However, the magnitude of the correlation highlights the need to consider other contextual factors, such as gender, financial barriers, workload, and health perception in individuals with primary CLBP. Although relevant, SS does not appear to be the main determinant of physical activity. This study reinforces the importance of future research, specifically on the role of general social support and its interactions with contextual factors affecting physical activity levels in this population.

Implications: The study points to the relationship between SS and physical activity level in adults with CLBP, highlighting the importance of investigating social support as a facilitator in promoting a more active lifestyle in individuals with CLBP.

Keywords: Chronic low back pain, social support, physical activity

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IMPACT OF DIFFERENT MANUAL THERAPY TECHNIQUES ON ANKLE DORSIFLEXION RANGE OF MOTION: PRELIMINARY DATA FOR SYSTEMATIC REVIEW WITH META-ANALYSIS

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Background: Reduced ankle dorsiflexion range of motion is associated with biomechanical and functional changes, impacting daily activities such as walking. Assessing and addressing this limitation is clinically relevant, highlighting the need to investigate the outcomes used in populations with this condition.

Objectives: This study aims to conduct systematic review and meta-analysis to evaluate and synthesize published randomized controlled trials (RCTs), providing conclusions on the short- and long-term efficacy of different manual therapy techniques on ankle dorsiflexion range of motion.

Methods: This systematic review and meta-analysis follow the PRISMA guidelines. Data were extracted from RCTs without language restrictions, identified through systematic searches in the following databases: MEDLINE/PubMed (via National Library of Medicine), Scopus (Elsevier), CINAHL (EBSCO), LILACS, EMBASE (Elsevier), and Web of Science (Clarivate Analytics). Statistical analysis will be conducted using R software. Random effects models with a 95% confidence interval (CI) will be estimated to analyze the study's outcome. Heterogeneity will be assessed using the I^2 index, and sensitivity analyses will be performed, whenever possible, in the presence of high heterogeneity ($I^2 > 40\%$). All statistical comparisons assume a significance level of $\alpha = 0.05$. Preliminary

Results: A total of 194 studies were identified through database searches, with no additional studies found from other sources. After removing duplicates, 114 articles remained. Following title and abstract screening, 102 studies were excluded. The 12 remaining studies were assessed for full-text review, and eight studies were excluded. Thus, four studies were included and are currently undergoing qualitative synthesis and meta-analysis, totaling 191 participants (M: 104 / F: 87), of whom 107 underwent the intervention and 84 were in the control group. The participants' mean age ranged from 22.3 to 72.6 years, and their mean body mass index varied between 22.46 and 28.47 kg/m^2 . Inclusion criteria included adults over 60 years old with dorsiflexion limitation below 35° measured by the weight-bearing lunge test, adults over 18 years old, with or without ankle injury, and those with asymmetric dorsiflexion stiffness during the weight-bearing lunge test; as well as students aged 18 to 35 years in good health. Exclusion criteria included neurological diseases, musculoskeletal conditions in the lower limb, musculoskeletal injury in the last three months, vestibular pathology, vascular disease, or a history of previous surgery in any lower extremity. Two clinical trials applied manual therapy to the ankle joint, while two used Mulligan mobilization with movement, with one of them associating a tibiofibular tape. The primary outcome assessed was the increase in dorsiflexion during the weight-bearing lunge test.