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

Ana Caroline de Brum Schneider, Luiz Fernando Approbato Selistre, Abigail Wilson Anderson, Giovanna Laura Neves Antonio Gaban, Rebecca Bianca Ramalho, Viviane Ribeiro Da Silva
Universidade Federal de São Carlos (UFSCar), São Carlos, SP, Brazil

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

Ana Vitoria Araujo Goes, Denis Maclean Cunha e Silva Junior, Fabianna Resende de Jesus Moraleida, Ana Carla Lima Nunes
Universidade Federal do Ceará (UFC), Fortaleza, CE, Brazil

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.