

patients. However, the correlation between pain and anxiety after PBM treatment remains poorly understood. This study aimed to investigate whether PBM laser auriculotherapy can alter the relationship between pain and anxiety in TMD patients.

Objectives: The study aimed to evaluate the correlation between pain and anxiety symptoms in TMD patients after PBM laser auriculotherapy.

Methods: This randomized, controlled crossover trial involved 22 TMD patients assigned to either the Experimental Group (EG) or Placebo Group (PG). PBM treatment was administered twice a week for 4 weeks. The EG received active PBM treatment, while the PG received sham treatment. Pain was assessed using the Chronic Pain Disability Scale (CPDS), and anxiety was evaluated using the Generalized Anxiety Disorder Scale (GAD-7). Data were analyzed using Spearman's correlation test.

Results: In the PG, there was a significant positive correlation between pain and anxiety symptoms ($r = 0.67$, $p = 0.01$). In contrast, no significant correlation was observed in the EG ($r = 0.34$, $p = 0.12$).

Conclusion: The results suggest that PBM laser auriculotherapy may reduce the correlation between pain and anxiety in TMD patients. The significant correlation in the placebo group supports this possibility, but further research is needed to confirm these findings.

Implications: These findings indicate that PBM laser auriculotherapy might help break the cycle of pain and anxiety in TMD patients. Additional studies are necessary to confirm the efficacy of PBM in managing both pain and anxiety.

Keywords: Anxiety, Rehabilitation, Laser Therapy

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EFFECTS OF BLOOD FLOW RESTRICTION ON PAIN IN PATIENTS WITH KNEE OSTEOARTHRITIS DURING ONE-MONTH INTERVENTION: A RANDOMIZED CLINICAL TRIAL

Camille Tainá Soares Serique Gato^a, Érick Augusto Pureza Teixeira^b, João Silvino Pereira Neto^c, Caio de Souza Nascimento^c, Tamara Silva de Sousa^d, Roger Andrey Carvalho Jardim^d, Areolino Pena Matos^e, Natália Iosimuta^f

^a Physiotherapy student, Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil

^b Master's student, Post-Graduation in Health Science, Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil

^c Master's, Post-Graduation in Health Science, Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil

^d Post-Graduation in Health Science, Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil

^e Physiotherapy Course, Universidade Federal do Pará (UFPA), Belém, PA, Brazil

^f Physiotherapy Course, Post-Graduation in Health Science, Universidade Federal do Amapá (UNIFAP), Macapá, AP, Brazil

Background: Physical exercises are strongly recommended for the treatment of knee osteoarthritis (KOA). However, when subjected to loads that overload the joint, these individuals may experience worsened symptoms and low adherence to treatment. Evidence shows that exercises combined with Blood Flow Restriction (BFR) allow for strength and muscle endurance gains using lighter loads. Therefore, it is necessary to investigate whether this method can

help patients reduce pain and joint discomfort as effectively as exercises with heavier loads.

Objectives: To assess the efficacy of 40% occlusion with blood flow restriction in improving pain in patients with knee osteoarthritis.

Methods: Clinical study with 16 patients (12 women, 4 men; average age $51.31 \pm (9.1)$ years), divided into three groups: 40% BFR + Rest ($n = 4$), 40% BFR + Low Load ($n = 6$), and HIRE (High Intensity Resistance Exercise) + Placebo ($n = 6$). Pain was assessed before and after one month using the Visual Analog Scale (VAS).

Results: Regarding the initial pain scale, the averages were: 3.5 ± 3.3 for the 40% BFR + Rest group, 6 ± 3.16 for the 40% BFR + Low Load group, and 3.83 ± 3.25 for the HIRE + Placebo group. Regarding the final pain scale, the averages were: 3 ± 3.4 for the 40% BFR + Rest group, 4 ± 3.87 for the 40% BFR + Low Load group, and 0.6 ± 1.21 for the HIRE + Placebo group. Thus, when evaluating pain levels before and after one month of treatment, the 40% BFR + Rest group showed a pain reduction of approximately 14% on average, while the 40% BFR + Low Load group demonstrated a reduction of around 33%, and the HIRE + Placebo group reduced the average by about 84%, indicating a greater improvement in pain compared to the 40% BFR + Rest and 40% BFR + Low Load groups.

Conclusion: Thus, it is concluded that all groups showed improvement in the investigated outcome, but the group using high loads (HIRE + Placebo) still appears to be more effective in reducing knee pain in patients with osteoarthritis.

Implications: It is expected that the results of this clinical study will clarify the applicability and implementation of 40% BFR in the rehabilitation of OA.

Keywords: Pain, Knee Osteoarthritis, Blood Flow Restriction Therapy

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ASSESSMENT OF EMOTIONAL ASPECTS, PAIN SELF-EFFICACY AND FUNCTIONAL PERFORMANCE IN VERTICAL JUMP IN WOMEN WITH PATELLOFEMORAL PAIN SYNDROME

Pablo Henrique Batista Dutra, Bárbara Letícia Costa Monteiro, Luana de Lima Caetano, Julia Maria dos Santos, Lilian Ramiro Felicio Universidade Federal de Uberlândia (UFU), Uberlândia, MG, Brazil

Background: Patellofemoral pain syndrome (PFPS) primarily affects females, characterized by intermittent episodes exacerbated during functional activities, particularly eccentric actions like jumping. Its etiology remains incompletely understood, but biomechanical alterations in the lower limbs, neuromuscular control deficits, and psychosocial influences such as kinesiophobia and hyperalgesia may contribute to symptom onset or intensification. Understanding factors beyond biomechanical aspects, including psychosocial characteristics of individuals with PFPS, could optimize physiotherapy assessment and intervention strategies.

Objectives: To compare aspects related to pain perception, self-efficacy, emotional states, and functional performance in subjects with and without patellofemoral pain syndrome.

Methods: This study is a cross-sectional study in which one hundred women aged 18 to 30 years, with and without anterior knee pain, were evaluated. Participants were divided into two groups: the

patellofemoral pain syndrome group (n = 50) and the asymptomatic control group (n = 50). All participants completed standardized questionnaires, including the Visual Analog Scale (VAS), Positive and Negative Affect Schedule (PANAS), and Pain Self-Efficacy Questionnaire (PSEQ-10). Functional clinical testing was performed using the Vertical Jump test. Mann-Whitney test was used for intergroup comparisons of patient perception and functional test variables due to non-normality (Shapiro-Wilk test), with a significance level of 5%.

Results: The PFPS group exhibited higher pain intensity (VAS: 4.0 [4.17; 5.1]) compared to the Control group (p = 0.001). Positive affect was 15% lower in the PFPS group (29.0 [26.2; 29.8]) compared to the Control group (34.0 [32.3; 35.9]), while negative affect was 35% higher (23.0 [20.8; 25.2]) vs. Control group (15.0 [14.5; 17.1]); p = 0.001). Pain self-efficacy was 23% lower in the PFPS group (46.0 [42.0; 47.9]) compared to the Control group (60.0 [59.5; 60.1]); p = 0.001). Functional performance (Vertical Jump test) was 28% lower in the PFPS group (17.4 cm [16.7; 19.0]) compared to the Control group (24.24 cm [23.9; 26.8]); p = 0.001).

Conclusion: Women with PFPS demonstrate higher negative emotions and lower positive emotions, as well as reduced pain self-efficacy, compared to women without PFPS. Additionally, women with PFPS exhibited poorer performance on the vertical jump test.

Implications: This study suggests that patients with patellofemoral pain syndrome exhibit more pessimistic cognitions, lower pain self-efficacy, and impaired functional performance compared to women without PFPS. These findings underscore the importance of considering emotional and psychosocial factors in the assessment and understanding of PFPS.

Keywords: Patellofemoral pain syndrome, Proms, Functionality

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IMPACT OF PHOTOBIMODULATION LASER AURICULOTHERAPY ON ANXIETY SYMPTOMS IN PATIENTS WITH TEMPOROMANDIBULAR DISORDER

Caroline Lima de Farias, Claudilene Pereira, Selma Fernandes de Cássia Moreira, Ana Gabrielle Marques Reis Bento, Natalia Sandi Gonçalves, Débora Carvalho De Souza, Adriana Teresa Silva Silva, Andreia Maria Silva Vilela Terra

Programa de Pós Graduação em Ciências da Reabilitação, Universidade Federal de Alfenas (UNIFAL), Alfenas, MG, Brazil

Background: Anxiety is common among TMD patients and often exacerbates pain and muscle tension. PBM laser auriculotherapy has been used to treat pain and may also help manage anxiety. This study aimed to investigate the impact of PBM laser auriculotherapy on anxiety symptoms in TMD patients.

Objectives: The primary objective was to assess the effect of PBM laser auriculotherapy on anxiety symptoms in TMD patients.

Methods: This randomized, controlled crossover trial included 22 TMD patients. Participants received PBM laser auriculotherapy twice a week for 4 weeks. The Generalized Anxiety Disorder Scale (GAD-7) was used to evaluate anxiety levels before and after the intervention. The experimental and placebo groups crossed over after a washout period.

Results: No significant difference in anxiety reduction was found between the EG and PG (p = 0.44).

Conclusion: The findings suggest that PBM laser auriculotherapy did not significantly reduce anxiety symptoms in TMD patients.

Implications: PBM laser auriculotherapy may not be effective for managing anxiety in TMD patients in the short term. Further research is required to assess the long-term effects and explore different treatment protocols.

Keywords: Anxiety, Rehabilitation, Laser Therapy

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PRESSURE PAIN THRESHOLD IN PATIENTS WITH CHRONIC POST-TRAUMATIC PAIN

Jéssica Xavier de Sá Morais, Laura Cecília Afonso, Andréa Licre Pessina Gasparini, Marco Aurelio Sertorio Grecco, Luciane Fernanda Rodrigues Martinho Fernandes, Denise Martineli Rossi

Laboratório de Desempenho Neuro-músculo-esquelético e Postura (LADENMP), Departamento de Fisioterapia Aplicada, Universidade Federal do Triângulo Mineiro (UFTM), Uberaba, MG, Brazil

Background: Musculoskeletal traumas have increased over time, raising healthcare costs. Chronic and neuropathic pain impact sleep and quality of life. Assessing the pressure pain threshold (PPT) is crucial for improving treatments and recovery outcomes.

Objectives: To investigate the correlation between PPT in patients three months after upper limb musculoskeletal trauma and sleep quality and neuropathic pain characteristics while still hospitalized.

Methods: This study included 18 adult patients of both sexes with acute musculoskeletal trauma in the upper limb three months prior. Sleep quality was assessed using The Pittsburgh Sleep Quality Index (PSQI), with a global score ranging from 0 to 21, where scores above 5 indicate moderately impaired sleep quality. Neuropathic pain was evaluated using The Leeds Assessment of Neuropathic Symptoms and Signs (LANSS), with scores ranging from 0 to 24, where scores above 12 indicate neuropathic pain. Both questionnaires were administered while patients were still hospitalized. The pressure pain threshold was measured using a digital algometer on the upper trapezius and tibialis anterior muscles bilaterally three months post-injury. Spearman's correlation test was used significance level 5%, with correlations classified as weak ($\rho = 0.10-0.30$).

Results: In this cross-sectional study, 18 patients were evaluated, with a mean age of 40.78 (15.32) years, predominantly male (66.7%) and female (33.3%). The causes of injuries were work-related accidents (44.44%), traffic accidents (44.44%), and domestic incidents (11.11%), including falls from height. Fractures were present in 88.90% of cases, with 11.10% involving injuries in multiple locations, distributed as follows: shoulder/scapular girdle (33.30%), arm (22.20%), elbow (11.10%), forearm (5.60%), wrist (11.10%), and hand (16.70%). The mean PSQI score was 9.7 (5.0), indicating moderately impaired sleep quality. The mean LANSS score was 7.7 (5.3), below the cutoff of 12, suggesting no significant neuropathic pain component on average. The mean pressure pain thresholds (PPT) and standard deviations varied across sites: affected-side upper trapezius 6.1 (4.4) kg/cm², contralateral upper trapezius 6.0 (4.6) kg/cm², affected-side tibialis anterior 7.9 (5.3) kg/cm², and contralateral tibialis anterior 8.0 (4.8) kg/cm². A moderate negative correlation was found between the PPT of the affected-side upper trapezius and sleep quality ($r = -0.5$, $p = 0.04$), indicating that worse