Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: The authors thank all research participants. To FAPEMIG for research funding (EDITAL 001/2021 - DEMANDA UNIVERSAL APQ 00444-21).
Ethics committee approval: Research Ethics Committee of the Federal University of Triângulo Mineiro (CAAE: 45528821.6.0000.5154).

https://doi.org/10.1016/j.bjpt.2024.100746

150

SHOULDER MUSCLE STRENGTH AND AVOIDANCE BEHAVIOR IN PEOPLE WITH CHRONIC SHOULDER PAIN

Giovanna Dutra Scaglione[1], Denise Martineli Rossi[2], Marcela Camargo Tozzo[1], Ana Carolina C Vendramim[1], Mirella Cuaglio Sampaio[1], Anamaria Siriani de Oliveira[1]
[1] *Ribeirão Preto Medical School, University of São Paulo (USP), Ribeirão Preto, São Paulo, Brazil*
[2] *Federal University of Triângulo Mineiro (UFTM), Uberaba, Minas Gerais, Brazil*

Background: Individuals with chronic shoulder pain have decreased muscle strength and range of motion, in addition to movement avoidance beliefs that may compromise functionality. Literature demonstrates a slight correlation between avoidance beliefs and shoulder dysfunction assessed through specific reliable questionnaires, but to our knowledge, no analysis has been performed with biomechanical parameters such as muscle strength with a gold standard equipment.
Objectives: To analyze whether there is a correlation between muscle strength of external and internal rotators of the shoulder and avoidance behavior in individuals with chronic shoulder pain.
Methods: Forty-four individuals with chronic shoulder pain were evaluated (14 men and 30 women with a mean age of 46±11 years, BMI of 29±6 kg/m2 and pain intensity of 5±3 on the Visual Analog Scale). Those over 55 years old, with difficulties in understanding the questionnaires, previous surgery and fracture, presence of tumor and neurological disorders were excluded. The Visual Analogue Scale (0-10) was applied to assess pain intensity. The Avoidance Daily Activities Photo (ADAP) Shoulder Scale was applied to analyze movement avoidance behavior. ADAP has three domains: free movement, effort and self-care. Then, the individuals were seated on the isokinetic dynamometer (Biodex 4). Muscle strength of external and internal rotators of the shoulder was assessed using three concentric isokinetic contractions with verbal feedback for encouragement. A warm-up test was previously performed with three submaximal contractions. Stabilization was performed using belts in the pelvic and thoracic region. The arm position was 45° of elevation in the scapular plane and 90° of elbow flexion, complete range of motion of 60° (30° of internal rotation and 30° of external rotation) with a speed of 60°/s.
Results: Spearman's correlation analysis resulted in a weak negative correlation between muscle strength in external rotation and the ADAP Effort domain (rho=-0.3; p= 0.014) and between muscle strength in internal rotation and the ADAP Effort domain (rho=-0.3; p=0.042).
Conclusion: There is a weak negative correlation between shoulder rotator muscle strength and the ADAP effort domain scale, thus, people with chronic shoulder pain who have less strength demonstrate greater avoidance behavior in relation to effort activities.
Implications: This study showed that individuals with chronic shoulder pain and decreased muscle strength of shoulder rotators may exhibit movement avoidance behavior. It is important for the clinician to assess these determinants to propose a treatment that includes muscle strength and exposure strategies to movements that involve effort in individuals with chronic shoulder pain.
Keywords: Shoulder pain, Fear of movement, Muscle strength

Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: The authors are grateful to all participants in the research and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).
Ethics committee approval: Hospital das Clínicas of Ribeirão Preto Medical School, University of São Paulo, Brazil (CAAE 35306620.0.0000.5440 e CAAE 48775021.6.0000.5440).

https://doi.org/10.1016/j.bjpt.2024.100747

151

EFFICACY OF TELEREHABILITATION EXERCISE IN PATIENTS WITH CHRONIC NECK PAIN: A PROTOCOL FOR A RANDOMIZED CONTROLLED TRIAL

Giovanna Laura Neves Antonio[1], Mariana Quixabeira Almeida[1], Mariana Arias Avila Vera[1], Marcos Amaral de Noronha[2], Luiz Fernando Approbato Selistre[1]
[1] *Department of Physical Therapy, Federal University of São Carlos (UFSCar), São Carlos, São Paulo, Brazil*
[2] *La Trobe University, Bendigo, Victoria, Australia*

Background: Neck pain is the third musculoskeletal condition that causes the most days lived with disability and is considered an important public health problem with a significant economic impact, decreased productivity and work absenteeism. In addition to pain, these individuals also present psychosocial symptoms such as kinesiophobia, catastrophizing, anxiety, and depression. Although exercise is an effective approach in the treatment of chronic neck pain, physiotherapists face barriers to the success of therapy, such as lack of patient adherence. Additionally, due to costs, distance and lack of adequate information, patients do not have access to physiotherapy treatment. Therefore, telerehabilitation is an emerging tool to overcome these barriers. However, despite the literature supporting the effectiveness of telerehabilitation in chronic musculoskeletal conditions, there are no studies on its efficacy in neck pain regarding pain, disability and psychosocial symptoms when compared to face-to-face treatment.
Objectives: To investigate the efficacy of a telerehabilitation exercise program compared to face-to-face exercise program in patients with chronic neck pain.
Methods: The study is a single-blinded randomized controlled trial. Ninety-eight individuals of both sexes, between 18-65 years old, with non-specific neck pain lasting longer than 3 months will be recruited. They will be randomly allocated to one of two groups (telerehabilitation and face-to-face). The telerehabilitation group will perform the intervention at home through videos sent beforehand and weekly call will be made to follow-up the participants. The face-to-face group will perform the intervention with the therapist. The primary outcomes will be pain intensity and disability. Secondary outcomes will be kinesiophobia, catastrophizing, fear avoidance beliefs, symptoms of anxiety and depression, pain self-efficacy and global perceived effect. All participants will be evaluated before and after treatment. Both groups will perform the same exercise protocol, twice a week for six weeks. The protocol consists of 8 exercises (two stretching exercises, two mobility exercises and four strengthening exercises) with an approximate duration of 40 minutes and these will be progressed every two weeks. The statistical analysis will follow the principles of intention-to-treat analysis and the effects of treatment will be calculated using mixed linear models, using interactions terms (group versus time interactions).

Conclusion: This is the first study to investigate whether an exercise program applied via telerehabilitation is effective in reducing pain, disability, and psychosocial symptoms in individuals with chronic neck pain when compared to the same exercise program applied face-to-face.
Implications: The results of this study may contribute to a better understanding of the efficacy of telerehabilitation in biopsychosocial outcomes, as well as support future remote intervention research to reduce physical, temporal, financial and treatment adherence barriers that professionals face. In addition, remote treatment may also be able to reduce waiting lists and public spending on chronic neck pain.
Keywords: Neck Pain, Telerehabilitation, Therapeutic Exercise

Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: To the Coordination for the Improvement of Higher Education Personnel - Brazil (CAPES) for funding.
Ethics committee approval: Human Research Ethics Committee of the Federal University of São Carlos (UFSCar)- CAAE: 13918619.4.0000.5504

https://doi.org/10.1016/j.bjpt.2024.100748

152

QUANTITATIVE SENSORY TESTS AS OUTCOME OF CLINICAL TRIALS WITH THERAPEUTIC EXERCISES FOR CHRONIC NECK PAIN: A SCOPING REVIEW

Giovanna Laura Neves Antonio[1], Adriane Aguayo Alves[1], Marcos Amaral de Noronha[2], Luiz Fernando Approbato Selistre[1]
[1] *Department of Physical Therapy, Federal University of São Carlos (UFSCar) São Carlos, São Paulo, Brazil*
[2] *La Trobe University, Bendigo, Victoria, Australia*

Background: As the ninth most cause of disability health condition among women, chronic neck pain can also alter pain processing. These individuals have local and remote hyperalgesia, higher temporal summation (TS) and lower efficiency in conditioned pain modulation (CPM), reinforcing the need to evaluate these outcomes since they are predictors of poor prognosis (greater pain and disability). Quantitative sensory tests (QST) represent an important tool in assessing the processing of sensory stimuli. In addition, therapeutic exercise is consolidated as the first line of treatment, capable of modulating neurophysiological responses to pain. Given the prognostic potential of QSTs and that they can be altered by exercise, it is necessary to investigate how they are used in the literature as well as the existing gaps in their use, to provide relevant information for researchers and clinicians to improve their prescription of therapeutic exercises for this population.
Objectives: To synthesize the evidence on the use of QSTs as outcome of interventions with therapeutic exercises in chronic neck pain.
Methods: A scoping review that followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses for Scoping Reviews (PRISMAScR) guidelines and was filed with PROSPERO (CRD42022298811). PubMed, EMBASE, CINAHL, PEDro, SportDiscus and CENTRAL databases were consulted until December 2021. Titles, abstracts, and full text were independently selected by two researchers. Randomized clinical trials of non-specific chronic neck pain that used therapeutic exercise as one of the interventions were included. Data on location, year of publication, participants, outcomes, evaluated points and methodologies were extracted.
Results: 2909 articles were found. Of these, 27 articles were included with a total of 1585 participants (97% women). Studies were concentrated in the Nordic countries (40%) and Spain (25%) and the majority (14 articles) were published from 2015 onwards, which demonstrates a growing interest in the area in the last decade. Pressure pain threshold (PPT) was the most evaluated outcome (100% of the studies), however thermal pain threshold, vibratory threshold, TS and CPM were evaluated in only 1 study each. The most evaluated local points were the upper trapezius muscle (74%) and scapula elevator (29%); and remotely, the tibialis anterior (29%). Regarding the methodology, the PPT is more standardized in the literature, using the average of 3 measurements for the analyses.
Conclusion: The use of QSts in clinical trials in the field of neck pain is still very limited and little explored, but an increase in publications has been observed in recent years. Furthermore, only the PPT was better investigated with an established methodology, highlighting the gap with other QSTs.
Implications: This scope review carried out a relevant survey of the literature considering neck pain as an important public health problem and the influence of pain processing on chronification processes and success of interventions with exercise therapies. More studies on this review topic are still needed to improve the understanding of pain processing when an individual is submitted to therapeutic exercises.
Keywords: Neck pain, Exercise Therapy, Hyperalgesia

Conflict of interest: The authors declare no conflict of interest.
Acknowledgment: To the Coordination for the Improvement of Higher Education Personnel - Brazil (CAPES) for funding.
Ethics committee approval: Not applicable for scope reviews.

https://doi.org/10.1016/j.bjpt.2024.100749

153

EVALUATION OF RANGE OF MOTION AND MUSCLE STRENGTH OF THE ANKLE OF CLASSICAL DANCERS FROM CURITIBA

Giovanna Magnani Kreutz[1], Mariana Rodrigues[1], Ana Maria dos Santos Pedroso da Silva[1], Alyssa Cristine de Oliveira Elias[1], Yasmin Paola Cristo de Carvalho[1], Ana Carolina Brandt de Macedo[1]
[1] *Federal University of Paraná (UFPR), Curitiba, Paraná, Brazil*

Background: Classical ballet requires high performance and technical level in anti-anatomical positions, inducing misalignment of joint structures. Classical dance requires intense and hard training and aims to achieve perfection, disregarding factors such as age or individual characteristics. The masterful execution of several steps of classical ballet demands the use of muscle strength to sustain the movement in large amplitudes. However, the uneven muscle activation during the ballet performances increases muscle disequilibrium and the risk of injury.
Objectives: We aimed to evaluate the range of motion and muscle strength of the ankle of classical ballet dancers from Curitiba.
Methods: This cross-sectional study included women aged 20 to 29 years, who live in Curitiba and have been practicing classical ballet for at least one year. Measurement of ankle dorsiflexion, plantar flexion, inversion and eversion amplitudes was assessed by a goniometer. Isometric strength of the ankle dorsiflexors, plantar flexors, inverters and evertors was measured using a Lafayette manual dynamometer. The values found in this study were compared with the literature.
Results: Nine dancers with an average of 22.3±1.32 years and 11± 5.29 years of practice of classical ballet were evaluated. The plantar flexion movement presented range of motion values 40% greater than those previously reported in the literature. For ankle eversion, the values found were 38% higher. The results of the ankle