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MANIPULATION VS. MOBILIZATION IN THE LUMBAR SPINE: WHICH IS MORE PLEASURABLE? A PROTOCOL FOR A RANDOMIZED CROSSOVER TRIAL

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Background: Joint mobilizations and manipulations are manual techniques widely used in the management of spinal dysfunctions. Mobilizations are low-velocity, low-force oscillatory techniques that typically do not produce audible joint sounds, while manipulations are characterized by a high-velocity, low-amplitude thrust at or near the end of the physiological movement, often resulting in audible joint sounds. Despite being distinct techniques, current evidence suggests that there is no difference between them in terms of pain reduction and range of motion improvement. Therefore, in most cases, the choice of technique is left to the discretion of the physical therapist. However, recent studies suggest that modern manual therapy should adopt a person-centered care model. Consequently, investigating patient-related outcomes after the application of joint techniques is of paramount importance, and to the best of our knowledge, this has not yet been explored.

Objectives: To investigate whether there is a difference in pleasure perception immediately after manipulation compared to joint mobilization in the lumbar spine of healthy individuals and to evaluate whether there is a relationship between pain, fear, comfort, and the participant's pleasure perception immediately after the application of the techniques.

Methods: This is a protocol for a randomized, crossover clinical trial with two arms and a single-blind design, involving participants of both sexes and ages ranging from 18 to 60 years who have not experienced significant lumbar pain in the past 3 months and consider themselves healthy. The volunteers recruited for the study will be randomly assigned to one of two groups: the manipulation group (Gm) or the mobilization group (Gmob). As a crossover design, all participants will undergo both techniques with a 7-day washout period between them, aimed at eliminating any residual effects from the previous technique. After the washout period, participants will undergo the second technique. The Gm group will consist of 15 volunteers who will receive a "thrust" manipulation in the lumbar spine during the first phase and mobilization in the second phase, after the washout period. The Gmob group will follow the same protocol. Randomization will be performed by P1, who will not be involved in data collection, and the allocation will be placed in opaque envelopes. After opening and identifying the participant's group, P3 will apply the designated technique, and finally, P2 will administer the assessment instruments. This evaluator will be blinded. All participants will be assessed for eligibility and sign the Informed Consent Form (ICF). Participants will be evaluated for pleasure sensation, pain intensity, relaxation perception, fear,

comfort, and self-perception immediately after the application of the technique. Adverse effects, if any, will also be collected.

Results: We believe that the comparison of the two techniques in terms of the participants' pleasure perception will be more evident in the Gm group, as the presence of audible clicks may generate psychological effects and influence the pleasure sensation.

Conclusion: We hope to clarify which technique is more pleasurable after completing the study.

Implications: The results found will assist physical therapists in decision-making regarding which technique to use.

Keywords: Manipulação articular, mobilização articular, percepção de prazer

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RATE OF TORQUE DEVELOPMENT IN HIP MUSCLES OF WOMEN WITH AND WITHOUT PATELLOFEMORAL PAIN

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Background: Patellofemoral pain (PFP) is a common musculoskeletal disorder, primarily affecting women. It is characterized by pain in the anterior region of the knee, which can lead to functional limitations in the knee and hip. The rate of torque development (RTD) is considered a more representative indicator of daily task performance compared to maximal strength. Even though previous studies have examined strength deficits in individuals with PFP, limited research has explored RTD alterations in the hip musculature of this population. Understanding its influence on the hip musculature in this population can contribute to a better understanding of the factors involving PFP.

Objectives: To compare the rate of torque development (RTD) of the hip extensor and abductor muscles in women with and without PFP.

Methods: This is a cross-sectional study involving 60 women, divided into two groups: PFP (n = 30) and control (n = 30). Hip extensor and abductor torque were measured using a System 4 PRO isokinetic dynamometer (Biodex®). The protocol consisted on three maximal concentric contractions and the movement range was 0° to 30° of abduction and 90° to 60° of hip flexion at an angular velocity of 30°/second. RTD was calculated by dividing the difference in normalized torque by the difference in time from contraction onset to 30% (RTD 30%) and 60% (RTD 60%) of maximum torque ([Nm.Kg⁻¹] × 100/ms). Data was statistically analyzed using PASW Statistics 18.0® (SPSS), applying the t-test.

Results: Women with PFP showed a reduction in the RTD of hip extensors and abductors at 30% (p < 0.001, p = 0.015, respectively) and 60% of peak torque (p < 0.001, p = 0.015, respectively) compared to asymptomatic women.

Conclusion: Women with PFP exhibit deficits in rate of torque development of the hip extensor and abductor muscles when compared to women without PFP, underscoring the importance of targeting various aspects of muscle function in exercise therapy.

Implications: RDT may better represent the ability to perform daily living activities compared to maximal strength. Everyday tasks