

Conclusion: Women with PFP show a decline in performance in functional tests when compared to asymptomatic women, which can be detected through clinical tests.

Implications: Functional tests should be incorporated into the assessment and monitoring of rehabilitation programs for women with patellofemoral pain, allowing for the identification of the level of impairment and the progression of functional capacity throughout the treatment. Furthermore, it is recommended that rehabilitation include exercises that simulate activities of daily living, aiming to improve functionality and the quality of life of these patients.

Keywords: Women, Functionality, Muscle Strength

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MANUAL THERAPY IN THE BODYBUILDING: INTEGRATIVE REVIEW

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Background: Physiotherapy has several approaches and instruments that act in rehabilitation and pain relief. Among the resources to be used is manual therapy. Its use in sports is well known, including in bodybuilding, where it demonstrates benefits both in injury prevention and muscle recovery.

Objectives: To analyze the use of manual therapy in bodybuilding.

Methods: This is an integrative review, in which the search strategy was carried out according to the PICO strategy, being (P) Bodybuilders, (I) Manual therapy, (C) Control or other intervention, (O) Health and functional performance, and with the use of descriptors present in the Health Sciences Descriptors (DeCS/MeSH) and Medical Subject Headings (MeSH), in addition to complementary terms due to the absence of specific descriptors for this audience. Then, the search was carried out on the Pubmed, Cochrane, Web of Science, Scopus and Virtual Health Library (VHL) platforms, with no restrictions regarding time and language. The inclusion criteria were articles with a specific sample of bodybuilders and using at least one manual therapy technique. In parallel, the exclusion criteria were review studies, books, course completion papers, theses and monographs. After the bibliographic survey, the data were directed to the Rayyan software, in which duplicates were excluded, title and abstract screening and full-text screening were performed. The data from the selected articles were displayed in an Excel spreadsheet for analysis of the results.

Results: A total of 239 studies were identified, of which 6 duplicates were removed. Then, 3 articles were selected in the screening by title and abstract and in the end only 2 articles were included. Among the included studies, one quasi-experimental study and one randomized clinical trial were obtained, which analyzed different outcomes. Regarding the sample, there were different approaches, with one study focused on bodybuilders with chronic low back pain (n = 48) and another on male bodybuilders (n = 30). Among the manual therapy techniques used were massage (n = 2) and dry needling (n = 1), performed for 30 minutes. Among the tests, scales and assessment instruments, the following were observed: visual pain scale, visual analogue scale, modified Schober test, portable

goniometer, mechanical scale, blood sample by venipuncture, agility test, vertical jump displacement and maximum isometric torque test. It was possible to observe that dry needling demonstrated benefits mainly in relation to pain, while massage obtained advantages in relation to range of motion and in optimizing the athletes' performance.

Conclusion: Manual therapy can be an effective resource in the health and performance of bodybuilders. However, it should be emphasized that there are few studies available with this audience, and it is essential to carry out new research that investigates more techniques in different situations and outcomes.

Implications: Identifying the effectiveness of manual therapy in bodybuilding is essential for the practice of sports physiotherapists, who can use low-cost techniques capable of benefiting athletes in their daily lives and performance.

Keywords: Resistance Training, Physical Functional Performance, Musculoskeletal Manipulations

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ACUTE EFFECTS OF MANUAL MYOFASCIAL RELEASE ALONE OR IN COMBINATION WITH INSTRUMENT OR PERCUSSION DEVICE ON DELAYED ONSET MUSCLE SORENESS

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Background: Amateur athletes frequently experience delayed-onset muscle soreness (DOMS), impacting training and daily activities. Myofascial release, a massage technique for DOMS management, can be performed manually or with instruments. Recently, percussion devices, such as massage guns, have gained popularity. While several studies have examined foam rollers for self-myofascial release, no research has compared physiotherapist-administered manual myofascial release with instrument-assisted or percussion-based techniques for DOMS treatment.

Objective: To evaluate the effects of a single session of manual myofascial release alone or combined with instrument-assisted soft tissue mobilization or a percussion device massager on DOMS in amateur athletes.

Methods: Randomized controlled trial. Amateur athletes were classified as "very active" according to the International Physical Activity Questionnaire (IPAQ), and pain reporting associated with exercise practice was included. Exclusion criteria included athletes with pain due to a previously diagnosed musculoskeletal injury and those unable to read and understand the questionnaire. Athletes were randomized into one of three groups: Manual Myofascial Release (MMR), Manual + Instrument-Assisted Soft Tissue Mobilization (MMR + IASTM), or Manual + Percussion Device Massager (MMR + PDM). An assistant researcher conducted the randomization process. Assessments were carried out by a trained evaluator blinded to group allocation. Initially, participants identified the muscle group experiencing pain. The evaluator then palpated the affected muscle group and asked the athlete to quantify their pain using the Visual Analog Scale (VAS) from 0 to 10. Following this assessment, a trained physiotherapist administered the assigned intervention. Each

session lasted 40 minutes. The session was evenly divided for interventions combining manual therapy with another approach, with 20 minutes allocated to manual therapy and 20 minutes to the instrument/device intervention. Immediately after the session, the same evaluator reassessed pain levels using the VAS. Twenty-four hours later, the research team contacted participants, instructing them to palpate the painful area and self-report their pain score on the VAS. To assess normality, the Shapiro-Wilk test was applied. For group comparisons, repeated measures ANOVA and one-way ANOVA were used.

Results: A total of 159 athletes completed the protocol: 73 in the MMR group, 47 in the MMR+IASTM group, and 39 in the MMR+PDM group. There was a loss of 24-hour follow-up data in the last two groups due to non-responsiveness to the 24-hour evaluation. No significant differences were found between the three groups in baseline VAS scores: 4.63 for MMR, 4.79 for MMR+IASTM, and 5.59 for MMR+PDM ($p=0.099$). Immediately after the intervention, VAS scores were 2.30 for MMR, 2.34 for MMR+IASTM, and 5.28 for MMR+PDM. At the 24-hour follow-up, VAS scores were 2.38 for MMR, 2.82 for MMR+IASTM, and 4.44 for MMR+PDM. When comparing groups, no significant difference was found between MMR and MMR+IASTM ($p=0.714$), while both showed superior results compared to MMR+PDM ($p < 0.001$ for both comparisons).

Conclusion: MMR alone or in combination with IASTM yielded better outcomes than MMR combined with PDM in treating DOMS.

Implications: A percussion device should not be combined with MMR for DOMS management.

Keywords: myofascial release, myofascial pain, athlete

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CONCURRENT VALIDITY OF MY JUMP LAB APP IN VERTICAL JUMP PERFORMANCE IN INDIVIDUALS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Background: Performance in vertical jump tests, such as jump height and the reactive strength index (RSI), are important metrics for clinicians to monitor during the rehabilitation of individuals following anterior cruciate ligament reconstruction (ACLR). Although force platforms are considered the gold standard for this type of measurement, their limited accessibility and high cost make them unsuitable for clinical settings. In this context, mobile applications, such as the My Jump Lab app, have emerged as potential alternative tools for jump assessment in clinical environments.

Objectives: To verify the concurrent validity of the My Jump Lab app compared to a force platform (gold standard) in assessing vertical jump performance in individuals who have undergone anterior cruciate ligament reconstruction.

Methods: A concurrent validity study following the Guidelines for Reporting Reliability and Agreement Studies (GRRAS). Individuals of both sexes who had undergone ACLR and were eligible to perform jump tests between the sixth and twenty-fourth postoperative

month were recruited. Participants were instructed to complete an assessment form with clinical and anthropometric characteristics and then underwent a five-minute warm-up on a stationary bicycle. They performed two vertical jumps: single-leg vertical jump (SLVJ) and single-leg drop jump (SLDJ). A researcher not involved in the assessment randomized the limbs (operated and non-operated) to determine which limb the participant would start the tests with. The evaluation of jumps using the My Jump Lab app was conducted simultaneously with the force platform assessment (Bertec® Model FP4060-08-1000) by two blinded assessors, each responsible for analyzing the data from one instrument. The smartphone (iPhone 11) was positioned 1.5 meters from the platform with its lenses close to the ground. The jump height in SLVJ and SLDJ and the RSI in SLDJ were collected. Pearson correlation was used to analyze concurrent validity, and Bland-Altman plots were used to assess the agreement between the force platform and the My Jump Lab app.

Results: Eighty participants with ACLR were included in the evaluation. A total of 320 jumps were analyzed using the app. The jump height in SLVJ and SLDJ and the RSI in SLDJ assessed by the My Jump Lab app showed a very strong correlation with the jump height in SLVJ ($r=0.982$, $p < 0.001$) and SLDJ ($r=0.977$, $p < 0.001$) and the RSI in SLDJ ($r=0.972$, $p < 0.001$) assessed by the force platform. The agreement analysis using Bland-Altman plots did not reveal any systematic bias in the results obtained by either method.

Conclusion: The My Jump Lab app is a valid tool for assessing vertical jump performance in individuals who have undergone anterior cruciate ligament reconstruction.

Implications: Due to the high cost of gold-standard instruments, such as the force platform, mobile applications like My Jump Lab offer a more economical and accessible alternative for use in clinical practice.

Keywords: Anterior Cruciate Ligament Reconstruction, Functional Performance, Smartphone

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CORRELATION BETWEEN DORSIFLEXION AND JUMP PERFORMANCE IN BASKETBALL ATHLETES

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Background: Basketball requires high physical demand, including running, directional changes, and frequent jumping. Jump performance is a key determinant of athletic success, given the sport's specific demands. The jump phases include takeoff, flight, and landing, with the ankle joint playing a crucial role in energy transfer and impact absorption.

Objectives: To evaluate the correlation between ankle dorsiflexion and jump height in basketball athletes.

Methods: This cross-sectional observational study included male basketball players, excluding those with self-reported lower limb pain or injury. Ankle dorsiflexion was assessed using the Lunge Test, in which athletes performed maximal knee flexion while