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Study design: Retrospective Cohort

Objective: To evaluate the effectiveness of a scapula-focused protocol, with aid of electromyographic biofeedback to abolish pain, increase function and scapula dynamic control, in patients with shoulder dysfunctions.

Background: Current clinical practice still lacks strong and consistent scientific evidence in the physiotherapy management of patient with shoulder dysfunctions, although some emerging literature highlights the effects of physiotherapy exercises and real-time electromyographic biofeedback in the treatment of scapular dyskinesis.

Methods: 82 subjects divided in two subgroups (n=53 shoulder impingement syndrome and n=29 shoulder instability). Main outcomes measures were shoulder pain (visual analog scale) and function (Disabilities of the Arm, Shoulder and Hand, and Shoulder Pain and Disability Index questionnaires), diagnostic tests for shoulder impingement syndrome and shoulder instability, muscles recruitment pattern (electromyography), scapula static and dynamic control (PhysioPlux), range of motion (goniometer), muscular strength (manual muscle testing) and posture (observation). Scapula-focused treatment protocol followed three phases of a motor relearning process, including stretching and scapular dynamic control exercises with real-time electromyographic biofeedback.

Results: Results demonstrate that the protocol was effective achieving all the discharge criteria's (95%IC, $p < 0.05$) with a mean total time of treatment (6.45 weeks for SIS and 5.83 for SJI) that support its clinical use, with 9.7% recurrence rate (24M follow-up) and zero dropouts during the intervention period.

Conclusion: A scapula-focused treatment protocol supported by real-time electromyographic biofeedback, was presented and its effectiveness assessed. Results demonstrated that regardless of the dysfunction, the outcome results were identical in both subgroups, showing no significant differences between the variables, total treatment time and time to reach discharge criterion, except for pain, which was higher in the SIS subgroup. The low recurrence rate corroborates the effectiveness of this protocol and emphasis the importance of motor relearning based intervention.

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