

ORIGINAL RESEARCH

THE EFFECT OF ELECTRICAL STIMULATION VERSUS SHAM CUEING ON SCAPULAR POSITION DURING EXERCISE IN PATIENTS WITH SCAPULAR DYSKINESIS

Deborah L. Walker, PT, DPT, OCS, GCS¹Cheryl J Hickey, PT, MPT, MS, Ed.D¹Mason B. Tregoning¹

ABSTRACT

Background: Conventional therapeutic exercise programs are commonly used to treat patients with scapular dyskinesia. There are no studies that have examined traditional therapeutic exercise programs with the addition of remote triggered electrical stimulation (ES) to affect the position of the scapula (using spine to scapular border distance as a reference point) during the performance of exercises that have lower upper trapezius (UT) to lower trapezius (LT) ratio exercises.

Purpose: The purpose of this pilot study was to compare scapular position after performance of three low UT/LT ratio therapeutic exercises in two conditions, electrical stimulation (ESTherex) and sham electrical stimulation (ShamTherex) in asymptomatic persons who were positive for scapular dyskinesia.

Study Design: Randomized trial, single-blinded

Methods: Eleven asymptomatic university students representing 15 scapulae with a positive Scapular Dyskinesia Test were recruited as subjects. Participants were randomized into exercise and electrical stimulation (ESTherex) or exercise and sham electrical stimulation (ShamTherex). Subjects performed side-lying shoulder external rotation and flexion, and prone horizontal abduction with external rotation in both conditions. Scapular position was assessed during active abduction at four angles before and after performance of these exercises.

Results: There were no significant differences in scapula to spine distance between ESTherex and ShamTherex groups at 0, 45, 90 and 120 degrees of shoulder abduction. A between group difference (ESTherex and ShamTherex) approached significance at 45 degrees ($p = 0.089$, $CI = -.152$ to 1.88 cm) with the post mean measurement of the ShamTherex group (6.44 cm) greater than the post mean measurement of the ESTherex group (5.57 cm). The ESTherex showed a significant pre-to-post mean within group improvement in spine to scapula distance at 120 degrees (mean 2.76 cm, $t = 4.89$, $p = .003$).

Conclusions: Electrical stimulation with exercises for scapular dyskinesia showed improvements in spine to scapula distance at 120 degrees of shoulder abduction.

Level of evidence: Therapy, level 1b

Key words: Electrical stimulation, lower trapezius, scapular dyskinesia,

CORRESPONDING AUTHOR

Deborah L. Walker, PT, DPT, OCS, GCS

California State University, Fresno

5315 Campus Drive M/S PT 29

Fresno, CA 93740

559-278-0491

E-mail: dewalker@mail.fresnostate.edu

¹ California State University, Fresno, CA, USA.