

IMMEDIATE CROSS-SECTIONAL AREA CHANGES AFTER DEEP VERSUS SUPERFICIAL ULTRASOUND-GUIDE DRY NEEDLING IN THE LUMBAR MULTIFIDUS

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INTRODUCTION:

Chronic nonspecific low back pain (LBP) is a frequent condition which produces disability and alterations in the motor control recruitment of the lumbar multifidus muscle. The multifidus (MF) cross sectional area (CSA) shows a high association with electromyography changes. Ultrasound-guide dry needling (DN) may change the functionality of the lumbar multifidus.

PURPOSE:

The aim of this research was to establish the immediate contractibility changes after deep versus superficial ultrasound-guide-DN in the multifidus of subjects with and without LBP

METHOD:

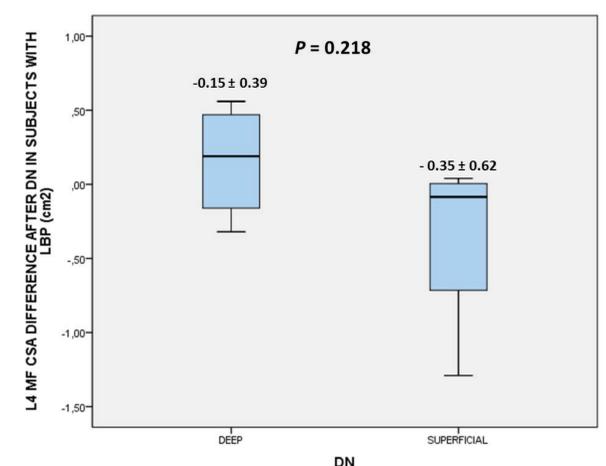
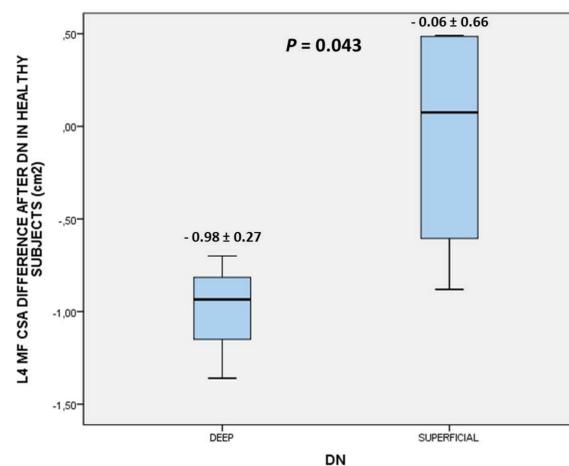
A prospective longitudinal experimental study was performed following the TIDieR criteria. Two samples, one of 4 women with and another of 4 women without chronic nonspecific LBP, were recruited from the CARMASALUD clinical and research center. Four MF in the right side and 4 MF in the left side were treated in each group. All women were placed in prone position and received bilaterally ultrasound-guide-DN in the L4 MF muscles by the inferomedial angle of approach towards the lumbar lamina. Deep and superficial DN were performed in the right and left MF, respectively. First, deep DN was performed using Hong's fast-in and fast-out technique until local twitch responses exhaustion or maximum 5 needle insertions. Second, superficial DN was performed without reaching the L4 MF superficial fascia, in the subcutaneous tissue during 2 minutes. The primary outcome was the L4 MF CSA variation between at rest and a 30° ipsilateral hip extension. SPSS version 22.0 for Windows was utilized for statistical analysis. A Shapiro-Wilk test was carried out to test normality. Mean \pm SD and median \pm IR were used to descriptive data. Student *t* test and Mann-Whitney U test were performed to evaluate the descriptive data and primary outcome.

RESULTS:

Statistically significant differences ($P = 0.043$) were found for the L4 MF CSA decrease after deep ($-0.98 \pm 0.27 \text{ cm}^2$) versus superficial ($-0.06 \pm 0.66 \text{ cm}^2$) DN in healthy subjects. Nevertheless, deep versus superficial DN did not show any statistically significant difference ($p > 0.05$) in the subjects with chronic nonspecific LBP group.

CONCLUSIONS:

The L4 MF CSA contractibility reduction after ultrasound-guide-DN appears to be deep dependent in healthy subjects, while not in subjects with chronic nonspecific LBP.



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