

TACTILE ACUITY OF THE TRUNK IN CHRONIC LOW BACK PAIN

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Introduction

Chronic non-specific low back pain is a common problem with high costs. Many factors can contribute to motor dysfunction after an initial episode of pain and many people are not aware that they are moving differently. The loss of proprioceptive acuity is an element that can contribute to motor dysfunction. Recent literature suggests that two point discrimination (TPD) threshold at the back is greater in patients with back pain than in healthy controls, and greater TPD threshold at the back relates to decreased voluntary lumbopelvic control. These findings raise the possibility that decreased tactile acuity may contribute to poor motor control, which has implications for back pain rehabilitation in particular and for movement retraining in general.

Purpose/Aim

to study TPD threshold in a sample of CLBP patients, to verify if a 6 week sensory discrimination training improved TDP threshold, low back pain, function, movement patterns

Materials and Methods



A blinded randomized clinical study involving a sample of 77 patients with chronic non-specific low back pain. Subjects aged between 18 and 65 years, with low back pain more than 12 months, for at least 90 days within the past year were enrolled in the study. While patients with red flags or yellow flags, structural pathologies, spine surgery, pain below the knee were excluded. Patients underwent an interview and physical assessment with a physiotherapist and completed a body chart, the Baecke scale, the SF 36 questionnaire, the Oswestry disability index, the Roland-Morris Disability questionnaire and two 100-mm VAS to

describe both back pain at the moment of evaluation and average back pain. The TPD was assessed bilaterally in the back.

Figure 1 TPD assessment grid on the subject's back, a plastic caliper was used to test the TPD threshold in the different areas.



The movement impairment evaluation was based on Sahrman examination. The sample was divided into two groups (experimental and control group) by randomization: 40 patients were submitted to the sensory discrimination training, while 37 patients took part in the control group. The treatment group underwent 3 session per week lasting 6 weeks (grand total of 18 sessions). All the enrolled subjects were evaluated at baseline (t0), at 6 weeks (t1) and after another 6 weeks follow up (t2).

Figure 2 TPD treatment grid example on subject's back (subject with unilateral pain). The subjects, while looking at a picture of their back

with the points represented, were asked to recognize which point the therapist was touching and which kind of pointer was used (thin or thick).

Results

Treated patients and controls were homogeneous showing no differences in sex, age, weight, height, body mass index, pain, Baecke scale, SF 36 questionnaire, Oswestry disability index and Roland–Morris Disability questionnaire and TDP threshold. Also the movement impairment evaluation was similar between patients and controls. Movement impairment evaluation at t1 demonstrated an improvement in treated subjects on rotation signs, extension signs and total symptoms. Patients had a significant improvement of pain intensity (VAS mean t0= 4,8mm and VAS mean t1=2,9mm, $p=0,015$). Also the Oswestry disability index and the Roland–Morris Disability questionnaire disability scales showed a significant decrease after the period of training. Improvement at t1 were kept at t2.

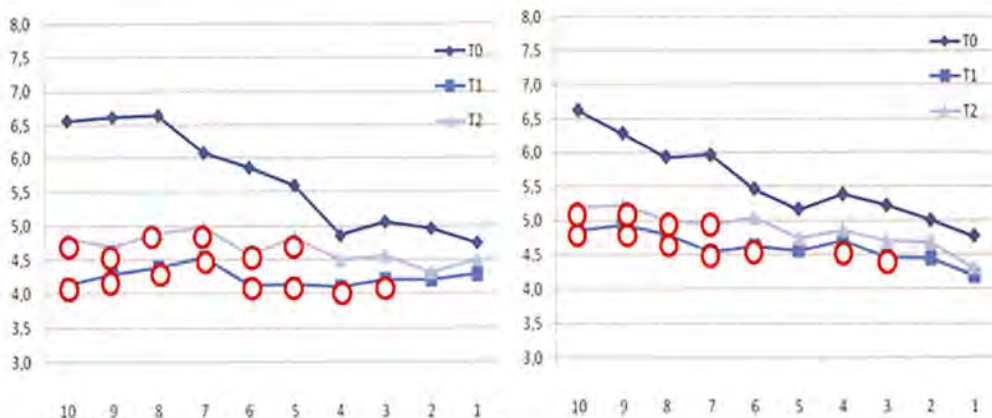


Figure 3 TPD changes (cm) over time, levels are reported on the horizontal axis with 10 representing the most caudal level (Fig.1). Red circles represent significant changes ($p < 0,05$)

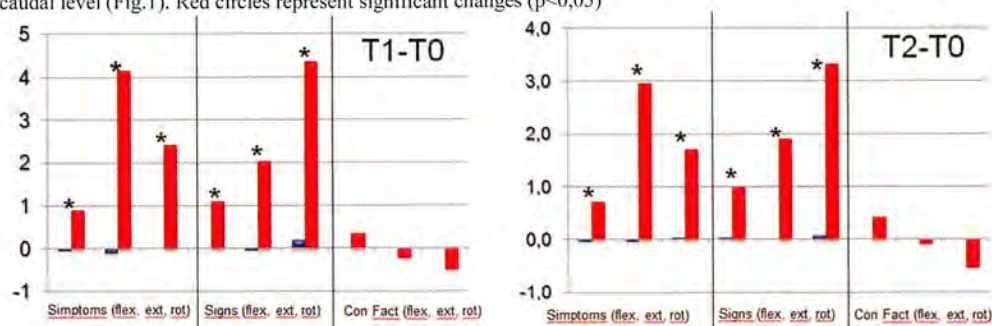


Figure 4 Movement System Impairment assessment changes (item counts), the graphs represent changes at T1-T0 and T2-T0. Note that while movement-related symptoms and dysfunctional signs decreased no significant changes have been found in the contributing factors (e.g. muscle excessive length or tissue rigidity etc..)

Relevance

Understanding strategies to improve pain and motor control is a key factor for low back pain treatment

Conclusions

Our data suggests that tactile training might play a role in improving symptoms and movement pattern in subjects with LBP.

Implications

Tactile training might be a useful tool for the treatment of people with LBP.

Keywords

Low back pain, two point discrimination, treatment

References

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