

Abstract

Introduction: Impaired trunk stabilization is a frequent cause of chronic low back pain (CLBP). Trunk stabilization training can reduce back pain.

Aim: To determine the effect of the OhmTrak (OT) trunk stabilization training device following Dynamic Neuromuscular Stabilization (DNS) principles in patients with CLBP.

Methods: A single-blind randomized clinical trial. The investigator did not know to which group the participant belonged. 20 patients with CLBP were randomly divided into 2 groups. 10 patients included in the experimental group underwent six-week DNS training focusing on optimal trunk stabilization. The participants had a treatment session with a physiotherapist once a week. Experimental group patients were educated in self-treatment with the OT device which they performed for 15 minutes 5 times a week. The control group patients (n=10) underwent the same rehabilitation program of the same duration and frequency including the self-treatment. Control group participants performed self-treatment without the OT device. Before the start and at the end of the 6 weeks therapy program the ability to activate the abdominal wall was assessed using DNS Brace device in all participants from both groups. All patients from both groups completed the Oswestry Disability Index (ODI) questionnaire at the beginning and at the end of the study to evaluate subjective pain perception.

Results: After the end of the 6 weeks therapy program no significant change in the ability to activate the abdominal wall was identified both in the control and the experimental groups. In the experimental group statistically significant pain reduction was identified using the ODI ($p=0.004$). In the control group the improvement was statistically borderline ($p=0.050$).

Conclusion: The pilot study confirms positive effect of DNS stabilization exercises on pain in patients with CLBP, especially when using the OT device as a part of self-treatment. Six-week DNS treatment with self-treatment had no significant effect on the ability to activate the abdominal wall. The small number of participants is the major limit of this study.