

## **Abstract**

The main objective: The goal of this thesis was to examine the problematics of chronic back pain, to find out whether patients, suffering from chronic back pain, will achieve statistically significant improvement in weight distribution while standing as well as patients' stance after participating in the motoric training. Also to recognise statistically significant overall improvement in all tests (two scales test, Moiré topography, numeric pain rating scale) after participating in motorical training/exercise. And verify whether the change in chronic pain is related to the change of weight distribution when standing as well as body posture.

Methodology: Research on "Impact of motoric training on cognitive functions and psychological state of patients suffering with chronic pain" was conducted as a part of the students scientific activity and data produced were used in this thesis. Those data involve anamnesis and pain: numeric rating scale of pain – intensity and unpleasantness of the pain (NRS I/N). This study examines a reduced sample of patients from the aforementioned research. The study was conducted over the course of 4 months. It covers 17 probands - 11 women and 6 men, aged between 39 to 73 years old, with chronic back pain, hospitalized at the University Hospital Královské Vinohrady at the Department of Rehabilitation Medicine, where therapy was also executed. Individual probands were hospitalized from 6 to 21 days with median being 16 days. Before therapy, each proband was examined and anamnesis was given on socio demographic information as well as information related to the illness. Probands were asked to describe their pain using the scale focusing on intensity and unpleasantness. This information was also provided by probands at the end of the hospitalization after the completion of the therapy. Motoric training consisted of physiotherapy, which was administered two times a day, occupational therapy or physical therapy. Therapy was done by experienced professionals. Additional data were obtained retrospectively from medical records – from initial and exit examination done by physiotherapist. Specifically: examination of weight distribution while standing on two scales and Moiré topography, which specifically was evaluated by comparing photos before and after the completion of the therapy.

Results: Examination confirmed improvement in measurements of weight disbalance and body posture of patients suffering with chronic back pain who underwent the therapy on 5% confidence interval. Patients also showed overall improvement in all three tests after participation in motoric training (weight disbalance, Moiré, numeric pain scale). Linear relation

between the change of the pain and the change of the weight disbalance was not verifiable as was not the relation between the change of the pain and the change of the body posture.

Conclusion: This thesis proves statistically significant improvement of body posture, weight disbalance on lower limbs and also overall improvement - which also considers pain. However, all of these are just one part of the whole picture. Patients with chronic back pain need to also achieve improvement in quality of life and normal-level functioning in their day-to-day life.

**Key words: Chronic back pain, Motoric training, Moiré topography, Weight distribution, Posture**