

## **ABSTRACT**

**Author:** Bc. Veronika Stejskalová

**Supervisor:** PhDr. Jitka Malá, PhD.

**Title:** Comparison of the Effect of Ultrasound Therapy and High-Power Laser Therapy on the Treatment of Heel spur

**Objectives:** This master's thesis examines and compares the effectiveness of high-power laser therapy with therapeutic ultrasound in the treatment heel spur. Heel spur is a painful condition associated with irritation of the plantar fascia, often leading to restricted mobility and reduced quality of life for patients. The aim of this study is to analyse how these two treatment approaches affect the course of the disease. We expect that this study will provide useful insights into whether high-power laser therapy is effective in treating plantar fasciitis and contribute to a better understanding and improvement of treatment protocols for this condition.

**Methods:** A total of 30 subjects meeting the inclusion criteria were included in the experiment and randomly assigned to two groups. Evaluative parameters included the visual analog scale for pain, range of motion in dorsiflexion at the ankle joint, modified Timed Up and Go Test, and the WHO 5 Well-Being Index. Testing was conducted prior to initial therapy, after the final therapy session, and 6 weeks after the last therapy session. To assess the effectiveness of laser therapy, data from the experimental group (treated with high-power laser therapy) were compared to the control group (treated with therapeutic ultrasound). Descriptive statistics and nonparametric tests were utilized for data analysis. Group homogeneity was assessed using the Mann-Whitney test. The significance level was set at 5% ( $\alpha = 0.05$ ).

**Results:** Both therapeutic approaches showed a favorable impact when assessing the evaluation parameters. Additionally, both therapeutic approaches demonstrated statistically significant short-term effects in all monitored parameters except for the WHO 5 Well-being Index. HILT therapy exhibited significant results in long-term effect across all monitored parameters. Conversely, ultrasound therapy did not demonstrate statistically significant long-term effect in any monitored parameter except for the VAS pain scale. When comparing both therapeutic approaches, HILT therapy did not show statistically significant differences compared to ultrasound therapy.

**Keywords:** heel spur, calcar calcanei, high-power laser therapy, HILT, heel pain, restricted dorsiflexion at the ankle joint

