

## **Abstract**

This diploma thesis deals with functional disorders of the musculoskeletal system. It discusses the possible causing factors of these disorders, their manifestations on the body, diagnostics and the possibilities of influencing them. Since this is a very common phenomenon on the human body, I chose mainly the muscle, fascia and joint structure, which I explored and described in more depth. The experimental part of this work aims to demonstrate the possible impact of the intervention of the 1.-3. ribs and clavicular joint as described by Ludmila Mojžíšová on the muscles of the neck (m. scalenus anterior, medius and sternocleidomastoideus). To obtain results, I used the ultrasound examination of the diameter of these muscles and Visual analogue scale (VAS) to obtain pain values before and after the intervention using this method.

**Title:** Problematics of musculoskeletal dysfunction and chains

### **Objectives:**

The first goal of this paper is to collect currently recognized sources about musculoskeletal functional disorders. I have described origins of this kind of problems, manifestation of these disorders and kinds of therapy. I've focused on functional disorders of muscle, fascia and joint. Second goal of this thesis is to evaluate a top-rated Prague rehabilitation school's method. Part of Prague rehabilitation school is called Mojžíšová Method.

**Methods:** This research aims to analyze the effect of mobilization of the 1.-3 ribs and sternoclavicular joint in a relationship with sensitivity and diameter of neck and shoulders muscles. The ultrasonographic diagnostic method was used to evaluate muscle diameter before and after the mobilization of ribs. Visual analogic scale (VAS) was used to evaluate pain during palpation of certain muscles. This research examined 30 subjects, aged 19-26 years old, divided into the control and the experimental group. Each subject was in both groups. In the control group, we are analyzed, if certain neck muscles keep the same volume without any intervention. The control group evaluated if there were any muscle volume and palpation muscle sensitivity changes before and after the intervention of the ribs.

**Results:** The theoretical part was created as a research of currently recognized sources on functional disorders of the musculoskeletal system. The results of the experiment indicate a statistically significant increase in muscle diameter (anterior scalenus, medius and sternocleidomastoid) monitored by ultrasound in the experimental group, which was intervened by mobilization 1-3. sternocostal junction and sternoclavicular joint according to Mojžíšová. No statistically significant change was observed in the control group without intervention. The values of palpation examination of the VAS indicate a significant reduction of palpatory pain after the intervention by intervention of the 1.-3. Sternocostal and sternoclavicular junction according to Mojžíšová.

**Keywords:** Mojžíšová, functional disorders, ultrasound diagnostic, mobilization, manual therapy