

## **Abstract**

This diploma thesis is focused on the vestibular system and its influence on postural musculature. The theoretical section contains an overview of modern findings concerning the vestibular system and its impact on other parts of the organism. Besides anatomical and physiological findings, the theoretical section also contains a research section which includes studies on the vestibular system, posture, stretching and their mutual effects. The main focus of the practical section is to prove the influence of the vestibular system on musculature, mainly the extensors and flexors of the lower limbs. Affecting the vestibular system causes lengthening of the ischiocrural muscles and shortening of the hip flexors (*musculus rectus femoris*). In this study, we tested 39 probands and measured their results after rotational vestibular stimulation. The measurements were taken goniometrically in the hip and knee joints. Dynamic parameters of the spine were also measured, along with Thomayers distance in metric values. The results have been statistically and graphically evaluated. It was proven that the vestibular system has a large statistical impact on the ischiocrural muscles as well as the frontal thigh muscles. An influence of the vestibular system on the paravertebral muscles was however not proven. In the discussion, the results of all measurements were summarised and described. A suggestion of practical application in therapy was also offered, along with further possible options for research into this issue.

## **Keywords**

Vestibular system, posture, postural muscles