

## **Bibliographical record:**

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## **Abstract**

This thesis focuses on the importance and significance of human senses – especially hearing and vision – in connection with a performance of a motor activity. The theoretical part brings a summary of knowledge about the influence of hearing and vision on human movements and the induction of changes in the body during the elimination (deprivation) of some of the senses. Furthermore, in this part we briefly inform about the mutual relationship between vision and hearing, ideomotor functions, an auditory deprivation and lastly, we try to point out the possibilities and importance of a neuro-visual complex therapy. The main goal of the practical part is to prove the influence of hearing on the motor expression of the tested probands. A secondary goal of the practical part is to determine the influence of the quality of a visual perception on a motor expression and whether there can be an immediate intensification of a visual perception during auditory deprivation.

**Methodology:** As a part of the main goal of the practical part, we tested 77 probands (average age 17.13; SD  $\pm$  4.93) while playing tennis under standard conditions and under conditions with an auditory deprivation. To objectify the ideal execution of a tennis stroke, we used the Zepp Tennis 2 sensor, which determined the percentage of a sweet spot under standard conditions and during the auditory deprivation. The data for the secondary objectives of the work were ensured through a complete visual screening (examination on the DNEye Scanner 2+, Senaptec, Neurotracker), which was attended by five probands. These data were subsequently compared with the data measured by the Zepp Tennis 2 sensor as the main part of the thesis.

**Results:** It was statistically significantly shown that under the standard auditory conditions there is a 1.4 times greater chance of a successfully playing the ball. 75.32% of probands subjectively perceived the game with hearing elimination as more physically demanding. In a group of 5 probands who underwent an examination of the quality of the vision (visual screening), we observed an obvious correlation between the quality of vision and the quality of the motor activity (in this case tennis). We did not significantly demonstrate an immediate intensification of the visual perception during the auditory deprivation.

Conclusion: In the main part of the work we confirmed that auditory perception has a significant effect on the performance of a motor activity. Furthermore, we observed the influence of the quality of the visual perception on the ideal performance of a motor activity, which, however, due to the insufficient number of probands, we cannot consider as a significant result.

## **Keywords**

Auditory deprivation, tennis, sensorimotor integration, visual examination, acoustic gnostic function, optical gnostic function