Abstract

This bachelor's thesis examines the deep spinal stabilization system and its effect on knee stability of soccer players for future injury prevention.

Joint instability is cited as a major risk factor for non-contact knee injuries. Therefore, this thesis explores the possibility of improving its stability by improving the activation of the deep stabilization system of the spine.

Soccer is a collective sport with a large player base and with this comes a high number of injuries. Among the most common of these are knee injuries. The movements performed in football require precise coordination of the activity of the muscles of the lower limbs. These movements are discussed in this thesis, along with the most common football-specific injury patterns.

The functional aspects of the deep stabilization system of the spine are also presented. This is a set of muscles of the trunk, diaphragm and pelvic floor that, when properly coordinated, provide spinal bracing during posturally demanding positions. Its proper development begins in early childhood and its involvement depends, among other things, on the correct positioning of the segments. Its function is discussed in detail by Professor Kolář in his concept of Dynamic Neuromuscular Stabilization, which is described in the paper.

In the practical part of the thesis, the method used to test the deep stabilization system of the spine and the method of testing the stability of the knee joint on the zebris Rehawalk® apparatus are presented. Furthermore, the exercise unit, its composition and course are presented. The results from the initial and final examination of the probands are compared in seven case studies. Finally, a group case report is prepared containing the mean values of all probands and their evaluation.

Keywords