

Abstract

This bachelor thesis describes the relationship between gait and neurodegenerative diseases. The beginning of the work is devoted to the general definition of walking and factors that contribute to its variability. The structure of the walk cycle is described and what phases of the cycle look like. Subsequently, the evolutionary aspect of bipedia is outlined. The next part is devoted to the neural control of motor work. It describes which areas of the central and peripheral nervous system are involved in it and how the entire pathway from the central system, where the stimulus to motion is generated, through the nerve pathways to the periphery, where the movement is performed by the muscle unit. Then the thesis deals with individual methods used for quantification of walking. For the purposes of this work, these are divided into standardized ones that are routinely performed in a clinical setting, ie in hospital or laboratory, and real-life measurements, which are used for long-term monitoring in the patient's everyday life conditions. Standardized tests are further divided into non-invasive and invasive depending on whether or not the integrity of the individual is impaired. Practical application of these methods is described on four selected neurodegenerative diseases. Attention is focused on their characteristics, on how they cause changes in human behavior and movement, and especially on their influence on walking.

Key words: bipedalism, human, neurodegenerative diseases, gait, measurement