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MOTION CAPTURE SYSTEM STUDY ON HUMAN BALANCE

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In clinical practice, many tests are carried out to assess the state of the labyrinth and ability to maintain the balance by patients. There are performed tests such as the Unterberger, Fleck, Romberg test or various posturography examination methods [1]. These examinations are carried out in a clinical setting, using specific procedures, which, however, are not unequivocally systematized, and the performance of the test - and therefore its results - depends on the experience of the person conducting it. Precise determination of the state of the patient's stability apparatus is often key to the correct diagnosis, the observed pathologies may contribute to the introduction of the correct treatment. Some of the tests are performed using precise devices, such as dynamometric platforms or posturographs, but some tests are performed without their use, and the evaluation of the test result is left to the assessment of the person conducting the test. In order to maintain the balance, it is important to coordinate many elements of the stability system, therefore a thorough examination of all possible aspects of the stability tests may lead to better observation of the patient's movement patterns and, consequently, help in the diagnosis of subsequent disease entities [2]. The purpose of this study is to use the motion capture system to carry out selected balance tests, thanks to which it is possible to observe previously unnoticed parameters and to objectively evaluate the tests performed. The research was carried out using the BTS Smart system and dynamometric platforms on a group of healthy young adults. The paper presents a precise description of the tests performed and the method of using the motion capture system capabilities to support the research on balance. Parameters allowing for a precise assessment of the quality of test execution were also proposed and the results obtained with their use were presented for the examined group of people.

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