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COMPREHENSIVE APPROACH TO ASSESSING THE FUNCTIONAL STATUS OF AMPUTEE FOOTBALL ATHLETES: RESEARCH METHODS AND TOOLS

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Amputee football as an adapted form of football for persons with amputations is rapidly developing worldwide, particularly in countries involved in military conflicts. In the context of full-scale Russian aggression, the problem of rehabilitation for persons with amputations becomes especially relevant in Ukraine, where experts estimate the number of amputees to be approximately 50,000 people [11]. Research shows that amputee football athletes expend 10-30% more energy compared to healthy individuals due to the use of forearm crutches for movement, with upper body muscles experiencing the greatest fatigue [12]. These characteristics require a specialized approach to assessing the functional status of amputee football athletes.

The aim of the study is to substantiate and develop a comprehensive methodological approach to assessing the functional status of amputee football athletes, taking into account the specific requirements of this sport.

A system of methods has been developed for comprehensive assessment of amputee football athletes' functional status, including five main blocks.

Assessment of postural control and balance. Stabilographic examination is conducted using the Biodex Balance System platform to determine the overall stability index (OSI), medial-lateral stability index (MLSI), and anterior-posterior stability index (APSI) in static conditions with eyes open and closed [1; 3]. Additionally, the Activities-Specific Balance Confidence Scale (ABC) questionnaire is used to assess athletes' confidence in their ability to maintain balance [8].

Functional mobility testing. The validated Amputee Mobility Predictor test without prosthesis (AMPnoPro) is used, as amputee football athletes do not use

prostheses during play [5]. The L-test is used to assess functional mobility and the ability to change direction [4; 9].

Strength assessment. Dynamometry is used to determine maximum isometric strength of upper limb muscles using a hand dynamometer, which is critically important for amputee football athletes [2]. Single-leg vertical jump is measured to assess explosive strength of the lower limb.

Special physical fitness testing. Sprint tests over distances of 5, 10, and 30 meters using photoelectric cells, Yo-Yo Intermittent Recovery Test Level 1 for assessing aerobic endurance considering intermittent loads in amputee football, T-test for agility assessment [9; 7].

Psychophysiological assessment. Visual analog scale for weekly monitoring of subjective well-being, pain level, and fatigue. Questionnaire surveys to collect information about sports experience, injury characteristics, and presence of phantom pain.

The developed system provides standardized testing conditions: conducted in the first half of the day at 18-22°C temperature, using calibrated equipment, adhering to the ethical principles of the Helsinki Declaration. Considering the specifics of amputee football, testing is conducted on synthetic surfaces measuring 60×40 meters according to World Amputee Football Federation standards, using standardized forearm crutches without prostheses [6].

A distinctive feature of the proposed approach is its multidisciplinary nature, involving a team of specialists: rehabilitation physician, physical therapist, amputee football coaches, psychologist, and orthopedic surgeon. This approach aligns with current recommendations for rehabilitation of persons with amputations and ensures comprehensive impact on all aspects of athletes' functioning.

The monitoring system includes baseline testing (before the training cycle begins), intermediate testing (after 12 weeks), and final testing (after completion of the 24-week program). Additionally, weekly monitoring of participants' well-being and registration of all injury cases or health deterioration are conducted.

To ensure objectivity of results, all measurements are conducted by the same researchers using calibrated equipment. The testing methodology is adapted to the specifics of amputee football and uses validated instruments confirmed by international research [10; 13].

The developed comprehensive approach allows for thorough assessment of amputee football athletes' functional status considering the specific requirements of this sport. The use of validated international tests ensures the possibility of comparing results with global research. The multidisciplinary nature of assessment creates a foundation for developing individualized physical rehabilitation programs.

The proposed methodology has particular significance for Ukraine in the context of increasing numbers of persons with amputations due to military actions

and can be implemented in rehabilitation centers and sports organizations working with individuals with disabilities. A comprehensive approach to functional status assessment is a necessary prerequisite for developing effective training programs to prepare amputee football athletes for competition.

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