

PHYSIOLOGY

Publication date: 15.06.2026

DOI: 10.24412/2782-6570-2026_05_02_1

UDC [612.21: 612.172.2] – 055.15 (292.53)

FUNCTIONAL CAPABILITIES OF THE EXTERNAL RESPIRATORY SYSTEM IN PEOPLE FROM CONTRAST CLIMATIC AND GEOGRAPHICAL REGIONS, TAKING INTO ACCOUNT THE AUTONOMIC REGULATION TYPE, IN THE CONDITIONS OF THE SOUTHEASTERN COAST OF THE CRIMEA

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Abstract. Introduction. The article discusses the reserve capacity of the external respiratory system in young men from contrast regions, taking into account the predominant type of autonomic regulation, in the conditions of the southeastern coast of Crimea. The study involved men (n=25) from the main health group, native to the temperate zone with a sharply continental climate. **Methods.** The study included the spirometry and the heart rate variability methods. **Results.** The analysis of the functional reserves of the external respiratory system in young men with a genetically determined type of autonomic regulation has revealed the compliance with the range of the satisfactory level in the breathing test on inhale. At the same time, for the subjects with the IV type, we have discovered the compliance with the unsatisfactory level in the breathing test on exhale. **Conclusion.** In the conditions of the southeastern coast of Crimea, the subjects were found to have a restrictive type of violation. A non-physiological pattern of breathing, depending on the prevailing type of autonomic regulation, determines the level of reduction in the respiratory system's functionality in people from contrast climatic and geographical regions.

Keywords: functional reserves, external respiratory system, spirometry, heart rate variability, men, contrast climatic and geographical regions.

RESTORATIVE MEDICINE, BALNEOLOGY AND PHYSICAL THERAPY

Publication date: 15.06.2026

DOI: 10.24412/2782-6570-2026_05_02_2

UDC 615.825.6

APPLICATION OF THE CON-TREX ROBOTIC SYSTEM IN UPPER LIMB RECOVERY FOR ATHLETES: AN ANALYTICAL REVIEW

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Abstract. Introduction. Objective of the study – to analyze the scientific literature on the possibility of applying the CON-TREX robotic system for restore and improve the functional state of the upper limbs in team sports athletes. **Methods.** We have conducted an analysis of Russian and foreign scientific literature on the aforementioned topic in the following electronic databases: eLibrary, PubMed, Google Scholar. **Results.** We have found that the CON-TREX system is frequently used in sports medicine to restore the functional state of the lower limbs, diagnose muscle imbalances, and rehabilitate the upper and lower limbs after musculoskeletal system injuries. **Conclusion.** No studies

on the application of the CON-TREX system aimed at assessing and improving the functional state of the upper limbs in athletes were found. The issue of developing a methodology for restoring the upper limbs using the CON-TREX system during intense training activity remains relevant.

Keywords: CON-TREX, upper limbs, mechanotherapy, restorative medicine, biofeedback, sports medicine, team sports.

Publication date: 15.06.2026

DOI: 10.24412/2782-6570-2026_05_02_3

UDC 796; 159.91

EFFECTIVENESS OF BETA-WAVE NEUROFEEDBACK FOR MALE ATHLETES WITH DIFFERENT LEVELS OF MENTAL CAPACITY

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Abstract. Introduction. The objective of the study was to evaluate the effectiveness of corrective and restorative effects of beta-wave neurofeedback on male athletes with different levels of mental capacity. **Methods.** Seventy-six male athletes participated in the study during training camps. Athletes in the main group underwent a neurofeedback course aimed at increasing beta wave activity using biofeedback. Each session included a graphical (10 minutes) and game (16 minutes) portions, with the full course consisting of 8-10 sessions. **Results.** The beta-wave training has improved psychophysiological indicators in male athletes, such as mental capacity, warming-up, tolerance, and sensorimotor reaction time. According to functional indicators, the dynamics of changes varied. Men with high mental capacity have demonstrated increased efficiency of the cardiovascular system. All the subjects have experienced decreased facial muscle tension and psychoemotional stress, while those with low and average capacity have experienced increased breathing frequency and rhythm. **Conclusion.** As a result of the course, psychophysiological indicators of athletes with low and average mental capacity have begun to approach those of individuals with high capacity, achieving similar levels of anxiety, performance, and reaction time.

Keywords: athletes, neurofeedback, brain beta wave, mental capacity, functional state.

Publication date: 15.06.2026

DOI: 10.24412/2782-6570-2026_05_02_4

UDC 001.8:001.891

CLEAR CHECKLIST FOR EVALUATING NARRATIVE REVIEWS: RESULTS OF THE INTERNATIONAL DELPHI CONSENSUS IN THE FIELD OF SPORTS SCIENCE

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Abstract. Introduction. Despite the widespread use of narrative reviews, their expert assessment remains insufficiently standardized. Existing tools are either focused on systematic reviews or do not take into account the depth of analytical synthesis. Most of the approaches used do not allow us to simultaneously assess the transparency of literature selection, the quality of critical analysis, and the level of conceptual integration of data. Goal: to develop and coordinate with experts a checklist designed to assess the methodological transparency and analytical depth of narrative reviews. **Methods.** The checklist was formed after analyzing methodological publications and refined during two rounds of the modified Delphi procedure. The experts were asked to evaluate the relevance, clarity, and significance of the proposed points. **Results.** The final version of the checklist includes 18 criteria grouped into five domains: the purpose of the review, search transparency, evidence structure, critical analysis, and ethical reporting. A scale of interpretation of the total score has been developed, as well as a separate scale that allows classifying reviews according to the level of analytical depth from descriptive to conceptual synthesis. **Conclusion.** The checklist can be used as a working tool for reviewers and can be introduced in scientific and editorial practice. The next stage of the work should

include an independent verification of inter-expert agreement in the application of the checklist developed by us in various scientific fields.

Keywords: narrative review, review quality, literature assessment, Delphi method, checklist, analytical synthesis, evidence-based medicine, scientific methodology.

PHYSICAL CULTURE AND SPORTS

Publication date: 15.06.2026

DOI: 10.24412/2782-6570-2026_05_02_5

UDC 796.92

ANALYSIS OF FOREIGN RESEARCH ON IMPROVING TECHNICAL AND TACTICAL FITNESS OF ATHLETES IN SKATE CROSS-COUNTRY SKIING

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Abstract. Introduction. The objective of the study – to search, systematize and analyze foreign research devoted to improving the technical and tactical fitness of athletes in skate cross-country skiing. **Methods.** We conducted the search for journal articles using the keyword “skating technique in cross country skiing training” in the PubMed database. The search depth – since 2000. The obtained sources were selected, translated, analyzed and synthesized. **Results.** Studies have shown that faster speed skating techniques, such as V2 skating and double poling, are more energy-intensive and have a higher physiological load cost, require good speed and strength training, which is often lacking for young and weaker athletes. A lower physiological cost, and, consequently, less fatigue, is caused by the skier’s movement methods involving the lower limb muscles: V1 skating options for climbing and flat terrain. **Conclusion.** The choice of the optimal skating technique for different trails is determined by maintaining the speed set for a given distance length (rate of passage), the frequency and duration of movement cycles, the force and speed exerted to perform swings, push-offs and subsequent skates. **Keywords:** cross-country skiing, bibliometric analysis, technical and tactical fitness of a skier, sports movement biomechanics, functional fitness.

Publication date: 15.06.2026

DOI: 10.24412/2782-6570-2026_05_02_6

UDC 796-053.2

PERFORMANCE OF A STANDING VERTICAL JUMP BY HEALTHY CHILDREN AGED 5-10 YEARS

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Abstract. Introduction. The objective of this study was to evaluate the influence of age (5-10 years) and biomechanical parameters on standing vertical jump performance. **Methods.** A total of 509 children aged 5-10 years participated in the study. The test subjects performed a standing vertical jump after collection of anthropometric data and standard warm-up. **Results.** A two-way analysis of variance has revealed that motor activity parameters in children aged 5-10 years could be classified according to their sensitivity to age and belonging to a certain cluster (amplitude, temporal, power). Jump height, power, and take-off velocity parameters have demonstrated large effect sizes ($\eta^2=0.79-0.82$) as well as robust age-related improvements, serving as universal markers of motor development. Kinematic amplitude parameters have revealed large cluster effects ($\eta^2=0.34-0.36$) with no or minimal interaction effects. Temporal parameters were sensitive ($\eta^2=0.40-0.42$) to both factors in an additive manner. **Conclusion.** These results may facilitate the development of individualized approaches to motor training for children.

Keywords: motor development, children aged 5-10 years, ANOVA, jump kinematics, inter-joint coordination, age-related changes.

Publication date: 15.06.2026
DOI: 10.24412/2782-6570-2026_05_02_7
UDC 796.011.1; 316.334.55

THE IMPACT OF RURAL LIFESTYLE ON THE PHYSICAL CONDITION OF A RURAL COMMUNITY

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Abstract. Introduction. In recent decades, the distinction between urban and rural agglomerations in the Republic of Belarus and the Russian Federation has been rapidly blurring, significantly influencing the sociocultural development of rural and urban communities. This sociological study was undertaken to identify the differences affecting the physical condition of the rural population. **Methods.** The study was conducted online using an electronic questionnaire in the Google search engine. The survey included 1,204 respondents living in rural (72.9%) and urban (27.1%) areas. **Results.** Rural residents were found to have a higher body mass index than urban residents, with an increase in body mass index among rural residents with age, ranging from 17.45 kg/m² in primary school age to 29.84 kg/m² in old age. **Conclusion.** The study has found that the body mass index increase may be influenced by living conditions and dietary composition in the rural population: prolonged periods of wakefulness (more than 16 hours), insufficient number of main meals (1-2 times per day), and late last meal (after 9:00 PM).

Keywords: rural residents, physical condition, lifestyle.

Publication date: 15.06.2026
DOI: 10.24412/2782-6570-2026_05_02_8
UDC 796

PERCEPTION OF SPORTS SLOGANS AND SUPPORT BY ATHLETES IN INDIVIDUAL AND TEAM SPORTS

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Abstract. Introduction. The article examines the role of verbal and non-verbal support, as well as sports slogans, in improving the performance of athletes in student sports clubs. The relevance of the study is due to the increasing requirements for the psychological fitness of athletes in modern sports. The objective of the study is to identify the features of the perception of external support by individual and team sports athletes. **Methods.** According to the results of a questionnaire survey of the Afaliny Student Sports Club's members (n=52), significant differences in the effectiveness of support forms were identified, depending on the specific nature of sports activities. **Results.** It has been shown that personalized verbal encouragement is of priority for representatives of individual sports, whereas in team sports the greatest mobilization effect is achieved through collective chanting and rhythmic chants with the mention of the team name. **Conclusion.** The results of the study can be used in the development of programs for psychological and pedagogical support of sports activities in universities. **Keywords:** student sports, psychological training, sports slogans, group support, achievement motivation, team and individual sports.