

SCIENTIFIC AND METHODOLOGICAL FOUNDATIONS FOR IDENTIFYING AND CORRECTING TECHNICAL ERRORS IN SWIMMING TRAINING

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ABSTRACT

This article analyzes the scientific and methodological foundations for identifying and correcting technical errors in swimming training. The study examines the major technical deficiencies observed among swimmers and the factors contributing to their occurrence through pedagogical observation, video analysis, and the analysis of relevant scientific literature. Furthermore, it highlights the effectiveness of contemporary pedagogical approaches, specialized corrective exercises, and individualized teaching methods aimed at eliminating technical errors. The findings of the study contribute to improving the quality of swimming training, enhancing technical proficiency, and achieving better athletic performance.

Keywords: *swimming, technical preparation, technical errors, video analysis, pedagogical monitoring, biomechanical analysis, corrective exercises.*

INTRODUCTION

Today, swimming is recognized as one of the key disciplines within the system of physical education and sport, serving as an effective means of promoting public health, developing physical abilities, and achieving high athletic performance. Success in competitive swimming largely depends on the athlete's level of technical preparation, while the biomechanically correct execution of movements is a decisive factor in ensuring the effectiveness of the training process.

Practical observations indicate that technical errors occur not only among beginners but also among highly skilled swimmers. Such deficiencies lead to impaired movement coordination, increased water resistance, greater energy expenditure, and reduced competitive performance. Moreover, improperly developed swimming techniques may place excessive stress on the musculoskeletal system, thereby increasing the risk of injury. Therefore, the timely identification of technical errors, the analysis of their underlying causes, and their correction through scientifically grounded methods constitute one of the primary objectives of the

swimming training process. In this regard, the integrated application of pedagogical observation, video analysis, biomechanical assessment, and functional monitoring provides an effective approach to enhancing technical proficiency and improving overall training outcomes.

LITERATURE REVIEW.

An analysis of the scientific literature indicates that swimming technique is one of the primary determinants of athletic performance. Studies conducted by both national and international researchers have devoted considerable attention to improving technical preparation, developing efficient movement patterns, and eliminating technical errors. The existing literature suggests that technical errors mainly arise from insufficient motor coordination, inadequate physical fitness, shortcomings in teaching methodologies, and ineffective pedagogical supervision.

A number of studies emphasize the importance of biomechanical analysis in evaluating swimming technique. In particular, body position in the water, the coordination of arm and leg movements, breathing rhythm, and the analysis of movement phases are recognized as essential criteria for identifying technical deficiencies. Recent research also highlights that the application of video analysis technologies enables coaches and researchers to observe movements in slow motion, assess their kinematic characteristics, and accurately identify technical errors.

Furthermore, the literature demonstrates the effectiveness of specialized corrective exercises, part-task training, simulation (dry-land) exercises, and individualized instructional approaches in correcting technical errors. However, an analysis of existing studies indicates the need for further development of comprehensive and systematic scientific and methodological approaches to identifying and correcting technical errors during swimming training. Therefore, advancing research that integrates modern pedagogical, biomechanical, and digital technologies has become an important priority in the field of sports science.

RESEARCH METHODOLOGY.

The present study was designed to investigate the scientific and methodological foundations for identifying and correcting technical errors in swimming training. The research methodology was developed based on the principles of systematic, comprehensive, and individualized approaches. The study employed theoretical analysis and synthesis, pedagogical observation, pedagogical experimentation, video analysis, performance testing, and mathematical-statistical methods.

Theoretical analysis was conducted to examine and synthesize scientific literature related to swimming technique, the causes of technical errors, and evidence-based methods for their correction. During the pedagogical observation phase,

swimmers' arm and leg movements, body position, breathing rhythm, and movement coordination were evaluated to identify the most common technical deficiencies. In the pedagogical experiment, a set of specialized corrective exercises aimed at eliminating technical errors was implemented, and its effectiveness was assessed by comparing participants' performance before and after the intervention.

Using the video analysis method, swimmers' movements were examined frame by frame based on digital video recordings, enabling the identification of technical errors and the underlying factors contributing to their occurrence. In addition, performance tests were conducted to assess swimmers' physical fitness, including strength, endurance, coordination, and movement speed. The collected data were processed using mathematical and statistical methods, and the findings were summarized through the calculation of mean values, percentage distributions, and comparative analyses.

CONCLUSION

The findings of the study demonstrate that the timely identification and correction of technical errors through scientifically grounded methods significantly enhance the effectiveness of swimming training. The results revealed that the most common technical deficiencies among swimmers include poor coordination between arm and leg movements, improper body position, incorrect breathing rhythm, and disruptions in the sequence of movement phases. The integrated application of pedagogical observation, video analysis, and pedagogical experimentation proved effective in accurately assessing technical errors and facilitating their correction. In particular, the use of video analysis demonstrated high effectiveness in providing an in-depth biomechanical evaluation of swimming movements, identifying technical deficiencies, and developing individualized corrective recommendations. Furthermore, the systematic implementation of specialized corrective exercises significantly improved swimmers' technical preparation and motor skills.

Overall, the results of this study contribute to the advancement of the scientific and methodological foundations for identifying and correcting technical errors in swimming training. The practical application of the proposed methodological approaches can enhance swimmers' technical proficiency, improve the effectiveness of the training process, and support the achievement of consistently high athletic performance.

REFERENCES

1. Mirziyoyev, Sh. M. (2021). The Strategy of New Uzbekistan. Tashkent: O'zbekiston. 464 p.

2. Matkarimov, A. (2016). Theory and Methodology of Physical Education: Textbook. Tashkent: O'qituvchi. 320 p.
3. Usmonov, S., & Qodirov, M. (2017). Sports Physiology: Study Guide. Tashkent: Fan. 284 p.
4. Xo'jayev, F. (2018). Theory and Methodology of Athletics: Study Guide. Tashkent: O'zbekiston. 256 p.
5. Abdullayev, A. (2015). Theory of Children's and Youth Sports. Tashkent: Sharq. 248 p.
6. Nurmatov, B. (2019). Health-Enhancing Physical Education. Tashkent: Fan va texnologiya. 216 p.