The effectiveness of exercises aimed at mastering motor skills in young taekwondo athletes

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[1]Erkinova Nozima Mirodil qizi
[1]Uzbekistan state university of physical education and sport, Chirchik, Uzbekistan

Abstract

This article highlights the effectiveness of using specialized game-based exercises and tasks for mastering motor skills, developing physical qualities, and forming technical abilities during the initial training stage of young taekwondo athletes. The organizational and methodological features of incorporating specialized game tasks into the training process of young athletes, as well as their correlation with general and special physical training methods, are analyzed. Additionally, the impact of game-based exercises on the development of explosive power, speed endurance, general endurance, coordination, and flexibility is explored. The research findings indicate that the purposeful use of specialized game tasks in the training of young taekwondo athletes allows for the improvement of physical fitness indicators and the effective acquisition of motor skills.

Keywords: taekwondo, young taekwondo athletes, motor mastery, motor skills, specialized game exercises, game tasks, physical training, technical training, explosive power, speed endurance, coordination, flexibility.

Introduction

In modern sports practice, achieving high results largely depends on the targeted development of motor abilities during the initial stages of athlete training, the proper formation of technical skills, and the selection of training methods and tools appropriate for the athletes' age. The formation of motor skills in young athletes is a particularly crucial component of the training process in sports that demand complex coordinative movements, rapid decision-making, and a high level of physical preparedness.

Taekwondo is one such sport, requiring complex technical movements, high speed and precision in their execution, rapid adaptation to changing situations, and coordinated actions. The inclusion of taekwondo in the Olympic Games program since 2000 has led to intensified competition in the sport, stricter requirements for athlete training systems, and the need to continuously improve the scientific and methodological foundations for preparing the sports reserve. In this context, identifying methods and tools that effectively shape the motor abilities and technical skills of young taekwondo athletes from the very beginning of their training holds significant scientific and practical importance.

An analysis of scientific and methodological sources indicates that using game-based methods and special game tasks in the training process for children aged 7–10 aligns with their age-related, psychological, and functional characteristics *(E.M. Geller, 1987; M.N. Ivanov, 1984, et al.)*. Exercises organized in a game format not only ensure the engagement of young athletes during training sessions but also create favorable pedagogical conditions for developing physical qualities such as speed, agility, coordination, flexibility, and endurance, as well as for mastering new motor skills.

Nevertheless, the use of game-based tools in the current training process for young taekwondo athletes is often limited to relays, general motor games, or elements of sports like football, basketball, and rugby. The issues of selecting, systematizing, and applying special game exercises—adapted to the technical specifics of taekwondo and aimed at forming specific motor skills and comprehensively developing physical qualities—in various parts of the training session are not sufficiently substantiated from a scientific and methodological standpoint.

Therefore, the relevance of this study is determined by the need to develop and systematize special game-based exercises aimed at improving the process of motor skill acquisition, effectively forming technical skills, and developing necessary physical qualities in young taekwondo athletes, as well as to determine the effectiveness of the methodology for their targeted implementation in the training process.

The aim of the study is to enhance the motor skills, technical skill acquisition, and physical training effectiveness of young taekwondo athletes through the targeted use of

special game-based exercises and tasks.

Research objectives: To develop and systematize special game-based exercises and tasks aimed at developing the motor abilities and forming the technical skills of young taekwondo athletes.

To determine and scientifically substantiate, based on pedagogical experiment, the effectiveness of using special game-based tasks in the training of young taekwondo athletes at the initial preparation stage.

Results and discussion

In the training system for young taekwondo athletes, the initial preparatory stage serves as a crucial pedagogical foundation for the formation of subsequent athletic mastery. At this stage, the content of the training process should be organized in accordance with the age and functional capabilities of the children and, in addition to developing general and special physical fitness, should be directed toward the gradual formation of basic motor skills specific to taekwondo.

The primary objectives of the initial preparatory stage are to increase the overall and specialized physical fitness of young athletes, develop fundamental motor skills, form initial technical skills specific to Taekwondo, and create the necessary motor foundation for mastering complex technical and tactical actions in subsequent stages.

Physical exercises are one of the main tools in a Taekwondo practitioner's training and are categorized by their content and focus into general developmental and specialized exercises. General developmental exercises serve to enhance the functional capabilities of the cardiovascular, respiratory, and neuromuscular systems, as well as to improve the overall motor preparedness of young athletes. Specialized exercises, on the other hand, are aimed at forming Taekwondo-specific motor abilities, technical skills, coordination, and psychological and volitional qualities.

The components of specialized training include exercises aimed at teaching Taekwondo -specific movements, simulation drills, tasks designed to develop speed, strength, endurance, flexibility, and coordination, as well as exercises that serve to cultivate qualities such as patience, perseverance, purposefulness, and psychological stability. Applying these tools in accordance with the young athletes' level of preparedness allows for the consistent development of motor proficiency.

In Taekwondo, the method of repetitive execution of exercises plays an important role in mastering technical movements. However, in training sessions with 7–10-year-old athletes, using only the repetition method may not be sufficiently effective. Therefore, it is advisable to combine the training process with games, competitions, and situational exercises. In particular, special game-based tasks not only increase the engagement of young athletes in training but also help develop their ability to perform technical actions quickly and accurately in various situations.

In preliminary training groups, control exercises that assess speed, speed-strength, endurance, strength, and flexibility are used to monitor the general physical fitness of young taekwondo athletes (Table 1).

In the initial preparatory phase, it is crucial to ensure an optimal ratio between general and specialized training methods. At this stage, it is recommended that 60–70% of training time be allocated to general physical conditioning and 30–40% to specialized training. This ratio not only builds the necessary physical foundation in young taekwondo practitioners but also creates a favorable environment for the gradual mastery of movements and technical skills specific to taekwondo.

When planning the training process for the initial stage of taekwondo preparation, the key criteria include the athletes' age-specific characteristics, their level of physical fitness, the pace at which they master technical movements, and the qualification requirements set for each belt level. Based on these requirements, coaches determine the content of the training sessions, the methods to be used, the training load volume, and the sequence of exercises. Conducting belt level control tests throughout the year in these initial training groups allows for the regular assessment of the young athletes' progress in both technical and physical conditioning.

In this regard, it is essential to focus on the consistent development of young taekwondo athletes' motor skills, rather than limiting the training process solely to the requirements of belt examinations. In particular, the purposeful inclusion of special game-based tasks in the training content helps them perform technical actions in various situations, increase

Table 1. Sample requirements for general physical fitness in preliminary training groups

Control Exercises	Boys	Girls
30m run, s	5.0	5.2
Standing long jump, cm	185	170
6-minute run, m	1350	1300
Pull-ups, reps	19	11
Stretching (front and side splits)	Demonstrate	Demonstrate

movement accuracy and speed, develop coordination abilities, and reinforce acquired skills.

Conclusion

The analysis of scientific and methodological literature and the synthesis of best practices in sports have demonstrated the necessity of a targeted use of special game-based tasks during the initial training stage for young taekwondo athletes. Special game exercises create conditions that are appropriate for the age-related, psychological, and functional characteristics of primary school-aged athletes, facilitating the effective development of motor abilities and technical skills. This serves as an important foundation for creating the necessary motor base during the initial training stage and for its consistent improvement in subsequent stages of athletic mastery.

The optimal ratio of specialized game-based tasks in the training of young taekwondo athletes has been determined. Accordingly, it is advisable for game-based tasks aimed at mastering motor and technical skills to comprise **35%,** while those focused on developing physical qualities should constitute **65%.** It is recommended to combine these specialized game-based tasks with traditional exercises in the preparatory, main, and final parts of the training session. At the initial training stage, incorporating various game-style exercises for up to **50%** of the total training time can increase the motor activity and training effectiveness of young athletes.

The results of the pedagogical experiment confirmed that incorporating special game-based tasks into the training of young taekwondo athletes positively influences the effective development of their physical fitness indicators. Compared to the control group, the experimental group recorded higher results in indicators of physical work capacity, explosive strength, speed endurance, general endurance, coordination abilities, and flexibility. Specifically, the overall level of physical quality development in the experimental group was **11.8%** higher, explosive strength was **13.1%** higher, speed endurance was **6.05%** higher, general endurance was **13.55%** higher, coordination ability was **23.7%** higher, and flexibility was **51.5%** higher than in the control group. The results obtained indicate that the systematic and purposeful use of special game-based tasks is one of the effective means of developing the physical fitness and motor skills of young taekwondo athletes.

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AUTHOR BIOGRAPHY:



Nozima Mirodil qizi ERKINOVA

Employment
Researcher at Uzbekistan state university of physical education and sports

Degree
MD

Research interests
taekwondo, young taekwondo athletes, physical education and sport, Theory of physical education, Analyzing of sport competitions

E-mail:
erkinovanozima582@gmail.com