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Сфера та проблематика

Проблематика журналу полягає у висвітленняі медико-біологічних, психолого-педагогічних та інформаціних технологій для зміцнення та збереження здоров'я засобами фізичної куьтури, спорту, фізичної терапії, а також - для побудови тренувального процесу спортсменів, реабілітації після травм і хвороб засобами рухової активності.

Спеціалізоване наукове видання з висвітлення технологій зміцнення здоров'я, профілактики та лікування захворювань засобами фізичного виховання, фізичної терапії, реабілітації, лікувально-оздоровчої фізичної культури. Також журнал висвітлює технології підготовки спортсменів, спортивної медицини та адаптивного спорту.

У журналі представлені статті з актуальних проблем розробки та застосування інформаційних, педагогічних, медико-біологічних технологій фізичного виховання, спорту, фізичної терапії, реабілітації, спортивної медицини та адаптивного спорту. Також в журналі представлені технології формування здорового способу життя, зміцнення здоров'я представників різних груп населення.

Місія журналу - сприяти розробці та науковому обгрунтуванні на медико-біологічній основі технологій для побудови програм з фізичного виховання, підготовки спортсменів, фізичної терапії. Наукове обгрунтування передбачає застосування біомеханічних, фізіологічних, біохімічних методів дослідження, побудови експериментів згідно сучасним вимогам до наукових досліджень, зокрема, до рандомізованих наукових досліджень, а також - застосування відповідних методів статистичного аналізу для обробки отриманих результатів та логічний опис результатів досліджень. Також місія журналу полягає у донесенні науково обгрунтованої інформації людям щодо засобів, методів і технологій щодо здорового способу життя, спортивної діяльності і фізичної терапії.

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Адреса редакції
61082, м. Харків, вул. Ощепкова, 4/1, кв. 11; Телефон: +380664813666; Електронна пошта: zhanneta.kozina@gmail.com
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ORIGINAL ARTICLES. SPORT

Application of the complex of game exercises "G.A.M.E.S." in the training process of young taekwondo players

Iryna Sobko[1ABSD*], Yuliia Golenkova [1ABSD*], Iryna Podmaryova [2ABSD*], Oleksii Filonov[1BSD]

[1]H. S. Skovoroda Kharkiv National Pedagogical University, Ukraine

[2] Semen Kuznets Kharkiv National University of Economics, Ukraine

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

* - Correspondent author

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Abstract

Background and purpose	The use of the game method is considered one of the most natural and effective ways to involve young athletes in motor activity and the formation of physical abilities and emotional and volitional qualities. The purpose of the study: to determine the effectiveness of using a set of game exercises, formed according to the "G.A.M.E.S." algorithm, in the training process for developing the physical abilities of young athletes involved in taekwondo
Material and methods	Participants of the study: 15 taekwondo athletes, aged 12-13, who are engaged in the sports complex of the Youth Sports School No. 13 in Kharkiv. Research methods: analysis and generalization of scientific and methodological literature, methods of testing the physical qualities of athletes (push-up for 30 s, push-up on the crossbar, long jump from a place, high jump from a place, raising the torso to a sitting position for 30 s, jumping with a rope for 1 min, shuttle run 4x9 m, Romberg test, tilting the torso forward from a sitting position, tilting the torso while standing, 100 m sprint, 20 m sprint from a high start), methods of mathematical statistics
Results	An experimental training methodology was developed and implemented, which included a set of game exercises formed according to the algorithm - "G.A.M.E.S." Goal - a specific goal (physical / technical-tactical / cognitive); Area - space (4 × 4 m; 6 × 6 m; 8 × 8 m) depending on the goal and age; Modifiers - restrictions / modifiers: format (1 × 1; 1 × 2), allowed techniques, distance; Effort - load mode: series of 20–30 s of active work with pauses of 40–60 s; Scoring - a scoring system (points for accuracy / speed / variability) to support motivation and quality control. The developed methodology was based on the use of different types of game exercises, which are structured in accordance with the target guidelines of physical and special training of young taekwondo players.
Conclusions	It is shown that the implementation of the experimental methodology according to the algorithm "G.A.M.E.S." can be recommended as an effective means of developing the physical abilities of young taekwondo players.
Keywords	taekwondo, physical abilities, complex, exercises, game method, young athletes

Анотація

Ірина Собко, Юлія Голенкова, Ірина Подмарьова, Олексій Філонов. Застосування комплексу ігрових вправ «G.A.M.E.S.» у тренувальному процесі юних тхеквондістів

Обґрунтування і мета	Використання ігрового методу розглядається як один із найбільш природних і ефективних шляхів залучення юних спортсменів до рухової діяльності та формування фізичних здібностей та емоційно-вольових якостей. Мета дослідження: визначити ефективність застосування комплексу ігрових вправ, сформованих за алгоритмом «G.A.M.E.S.», у тренувальному процесі для розвитку фізичних здібностей юних спортсменів, які займаються тхеквондо.
Матеріал і методи	Учасники дослідження: 15 спортсменів тхеквонди, віком 12-13 років, які займаються у спортивному комплексі ДЮСШ № 13 м. Харкова Методи дослідження: аналіз і узагальнення науково-методичної літератури, методи тестування фізичних якостей спортсменів (згинання рук в упорі протягом 30 с, підтягуваня на перекладині, стрибок у довжину з місця, стрибок у висоту з місця, підняття тулуба в положення сидячи протягом 30 с, стрибки зі скакалкою протягом 1 хв, човниковий біг 4х9 м, проба Ромберга, нахил тулуба вперед з положення сидячи, нахил тулуба стоячи, спринт 100 м, спринт 20 м з високого старту), методи математичної статистики.
Результати	Розроблено та впроваджено експериментальну методику тренувань, що включала в себе комплекс ігрових вправ сформованих за алгоритмом - «G.A.M.E.S.» Goal – конкретна ціль (фізична/техніко-тактична/когнітивна); Area – простір (4×4 м; 6×6 м; 8×8 м) залежно від цілі та віку; Modifiers – обмеження/модифікатори: формат (1×1; 1×2), дозволені техніки, дистанція; Effort – режим навантаження: серії 20–30 с активної роботи з паузами 40–60 с; Scoring – система підрахунку (бали за точність/швидкість/варіативність), щоб підтримати мотивацію і контроль якості. Розроблена методика ґрунтувалась на використанні різних типів ігрових вправ, які структуровані відповідно до цільових орієнтирів фізичної та спеціальної підготовки юних тхеквондистів.
Висновки	Показано, впровадження експериментальної методики за алгоритмом «G.A.M.E.S.» може бути рекомендоване як ефективний засіб розвитку фізичних здібностей юних тхеквондистів.
Ключові слова	тхеквондо, фізичні здібності, комплекс, вправи, ігровий метод, юні спортсмени

Introduction

Game methods occupy an important place in the system of training young athletes, especially at the stages of initial training. At this stage, the training process should be maximally adapted to the age characteristics, interests, and psychophysiological development of children. Since the game is a natural form of activity for young athletes, its integration into training not only contributes to physical improvement, but also has a positive effect on the emotional sphere and social skills [1-3].

Studies by various authors indicate that the key characteristic of the game method is its ability to combine physical activity with emotional involvement, elements of rivalry, a motivational component, and interest in performing exercises [4-6]. Thanks to this approach, favorable conditions are created for the active involvement of athletes in the training process, which contributes to the formation of physical qualities, improvement of tactical thinking, development of coordination abilities, and the formation of team interaction skills. This method is of particular importance in working with children of younger and middle age, as it meets their natural needs for movement and play, reduces psychological stress and increases the accessibility and attractiveness of classes [4].

As experts note, in working with young athletes, it is advisable to give preference to outdoor games and game exercises that contribute to increasing motivation and the emotional background of classes, creating favorable conditions for the development of physical qualities [3,7]. The authors emphasize the high effectiveness of sports training under the conditions of using an integrated approach that combines outdoor sports games, game exercises and special training complexes. This technique allows you to effectively form the necessary physical abilities that are key to the development of spatial orientation in young wrestlers [8].

In order to optimize the physical fitness of athletes specializing in taekwondo, various traditional means are widely used in training practice. These include basic strikes, combinations of technical elements, formal complexes (poomsae), breaking techniques, self-defense, step-by-step sparring, as well as sparring exercises and free duels. All of these components can be combined with the use of additional means, in particular, elastic bands or paws, to increase the load [9-10]. At the same time, the use of game exercises with a combat load (for example, mini-fights, fights in a limited space, situational tasks) provides a significant load on the cardiovascular system, which allows for a parallel effect on aerobic and anaerobic endurance. Such exercises demonstrate advantages over traditional technical combinations, in particular when using additional equipment, such as expanders, paws, support strips, etc. [11]. An innovative approach to the development of physical qualities through game forms is the concept of small combat games. The study showed that sparring exercises in 1×1 formats within a limited space (for example, 4×4 m) cause an increase in heart rate to 85–90% of the maximum, which corresponds to the intensity recommended for the development of functional endurance. At the same time, such exercises activate combat thinking, the ability to adapt tactics in conditions of limited space and minimal time for decision-making [12].

Thus, the analysis of scientific sources allows us to state that the use of game exercises in the training process in taekwondo has significant potential and can be used as a tool not only for general but also for special physical training.

The purpose of the study: to determine the effectiveness of using a set of game exercises, formed according to the "G.A.M.E.S." algorithm, in the training process for developing the physical abilities of young athletes involved in taekwondo

Material and Methods

Participants

Participants of the study: 15 taekwondo athletes, aged 12-13, who are engaged in the sports complex of the Youth Sports School No. 13 in Kharkiv. The athletes were randomly divided into a control (8 athletes) and an experimental (7 athletes) group. All participants and their parents gave their consent to participate in the experiment.

Ethical statement

This research included humans and therefore has been provided according to principles embodied in the Helsinki Declaration. The studies were approved by the Ethics Committee of H. S. Skovoroda Kharkiv National Pedagogical University (No. KhNPU/ PhES/EC/4/4/2024).

Testing of athletes physical qualities

At the beginning and end of the experiment, strength, speed, coordination and flexibility testing of athletes in both groups was conducted.

Methods of testing athletes' physical qualities

1. Pull-up for 30 s, (number of times).
2. Pull-up on the crossbar, (number of times).
3. Long jump from a place, (cm).
4. High jump from a place, (cm).
5. Raising the torso to a sitting position for 30 s (number of times).
6. Jumping with a rope for 1 min, (number of times).
7. Shuttle run 4x9 m (s).
8. Romberg test (s).
9. Tilting the torso forward from a sitting position (cm).
10. Tilting the torso while standing, (cm).
11. 100 m sprint, (s).
12. 20 m sprint from a high start, (s)

Procedure

The experiment lasted for 8 weeks from July to September 2025, training sessions in both groups were held 3 times a week for 75-90 minutes. The control group trained according to a standard training program, using outdoor games.

An experimental training methodology was introduced into the training process of the experimental group, which included a set of game exercises formed according to the algorithm - "G.A.M.E.S.":

• G (Goal) - a specific goal (physical / technical-tactical / cognitive).

• A (Area) - space (4×4 m; 6×6 m; 8×8 m) depending on the goal and age.

• M (Modifiers) - restrictions/modifiers: format (1×1; 1×2), allowed techniques, distance, "attack line", starting signals, visual/ audio stimuli.

• E (Effort) – load mode: series of 20–30 s of active work with pauses of 40–60 s (≈1:2), 3–6 repetitions.

• S (Scoring) – a scoring system (points for accuracy/speed/variability) to support motivation and quality control.

The developed methodology is based on the use of different types of game exercises, which are structured in accordance with the target guidelines of physical and special training of young taekwondo players. The following games were used:

Reactive games (Stimulus–Response) are aimed at developing the speed of simple and complex reactions, as well as improving the ability to switch attention.

Examples of games:

The game “Run to the carpet”. After the coach gives a signal, each participant must cover the distance as quickly as possible and touch the carpet with their hand or foot. The winner is the athlete who did it before the others. To increase the complexity of the task, the starting conditions can be changed (starting from a sitting, lying, back to the mat position), additional obstacles in the form of cones or jumping barriers can be introduced, and the reaction time can be reduced due to unexpected signals.

The game "Reactive gates". Several marked sectors of different colors or with digital markings are located on the site. The coach gives a signal (light or voice) corresponding to a certain sector. The athlete's task is to quickly touch the marked zone and immediately perform a blow (for example, up-chagi or yop-chagi) in a certain direction. Each approach lasts 20 seconds, repeated six times with a short rest.

Small combat games (Small Combat Games) are the basic component of the technique, which are closest to the conditions of a real fight. Their use allows you to develop aerobic-anaerobic endurance, speed of decision-making and the ability to tactical adaptation.

Examples of games:

The game “Push Out of the Circle” is played on a court where a circle with a diameter of 2–3 meters is previously marked. Two athletes are in the center, who, at the coach’s signal, start the fight. The task of each is to push the opponent out of the circle using the body, shoulders or legs, but without striking.

Distance Chess game. The essence of the exercise is to practice distance control during attack and defense. The fight takes place in a 1×1 format on a limited court measuring 4×4 m. Each round lasts 20–30 seconds, after which the athletes get 40–60 seconds of rest. Each time, the coach determines the allowed distance (close, medium or long) from which the athlete must strike. Successful execution brings points, and errors in choosing the distance or fouls lead to a loss of points.

Line of Attack games involve working with spatial landmarks, which allows athletes to practice choosing the right angle of attack and practicing different movement trajectories.

Examples of games:

The game exercise "Choose the moment" involves athletes working in pairs. One participant plays the role of an attacker, the other a defender. Both partners move in a circle or within a limited area, simulating distance control using soft grips and movements. The attacker's task is not to attack immediately, but to wait for the opponent's mistake: an open stance, loss of balance, incorrect grip or turning with his back. At the moment of detecting such a mistake, the attacker must perform a quick but controlled action, for example, a light throw in a safe form, touching a specific part of the body.

The game "Corner Break". Two athletes converge in the center of the court. One of them attacks in a straight line, as if paving the way forward, while the other must find a moment to sharply deviate from this trajectory, take a step to the side and attack at an angle. The whole game is based on the speed of reaction and the ability to see the opponent's "blind spot". The winner is considered the one who managed to attack at an angle and at the same time maintain balance. For dynamics, the coach can change the task: sometimes you need to go at an angle of 30°, sometimes, 45°, or perform an attack with a series of blows.

Partner Scenarios create conditions for practicing decision-making skills in stressful situations and choosing an effective counterattack.

Examples of games:

Game exercise "Grab and hold". The exercise is performed in pairs made up of athletes of approximately the same level of fitness. One of the participants takes the upper position, similar to positions in wrestling, while the other is at the bottom. The task of the player on top is to control the opponent for as long as possible, using permissible options. The athlete in the lower position, on the contrary, must strive to get out of the hold using rolls, crawls, flips or other technical actions. The duration of a round is from 30 seconds to 1 minute, depending on the level of the athletes in the pair. After the completion of each round, the athletes change roles.

Game exercise "CounterIQ". One of the athletes begins an attack using one of three predetermined patterns. The attacker launches one of the three patterns at any moment; the defender must instantly recognize the pattern and execute the assigned counterattack, maintaining technical purity and distance control. After each successful episode, the athletes return to their starting positions without stopping the timer and continue working. At the end of the round, the roles change. One approach consists of 4–5 episodes.

The experimental methodology was implemented over 2 mesocycles, with the exercises becoming more complicated: gradual narrowing of the space (8×8 → 4×4 m), increasing the work density (increasing repetitions and reducing pauses), introducing additional restrictions and cognitive triggers (changing the pace/line/distance, variability of attack-counterattack patterns) (Table 1).

Table 1

Flowchart of the application of the game method developed according to the algorithm G.A.M.E.S.

Period	Weekly	Purpose of the period	Space/format	Dosage (work rest)	Progression levers
Mesocycle 1	1–4	Learning the rules of the game; stabilizing technique in game conditions; moderate density	6×6–8×8 м; mainly 1×1	20–25 с: 50–60 с; 3–4 repeat/ game	Simplified modifiers; limited "bank" of techniques; lower density
Mesocycle 2	5–8	Increasing intensity and cognitive load; specificity to combat	4×4 м; adding 1×2; close distances	25–30 с: 40–50 с; 4–6 repeat/ game	More complex rules, more tempo/line switching

Statistical analysis

The study applied mathematical statistical methods using SPSS-26 and Microsoft Excel programs. The following indicators were determined: arithmetic mean, standard deviation, representativeness error. The significance of the differences in mean values was determined by the Student's t-test, since the Kolmogorov-Smirnov method showed that the samples corresponded to a normal distribution ($p>0.05$).

Results

At the beginning of the experiment, the studied groups did not differ significantly ($p>0.05$) from each other in terms of testing indicators. After the experiment, the indicators in the experimental group showed a significant improvement in the results of tests for strength, coordination and speed. ($p <0,04$; $p <0,01$) (Table 2).

In the control group, after the experiment, the indicators showed a significant improvement in the results of the tests: "Long jumps from a place" ($p<0.04$); "Jumps with a rope in 1 min" ($p<0.02$); "in taekwondo players of the control group (Table 3). In taekwondo players of the control group, after the experiment, a significant improvement in individual indicators of physical fitness was observed, which indicates the effectiveness of the traditional training program using outdoor games.

Comparison of the experimental and control groups after the experiment showed significant differences in the test results: "Romberg test" ($p <0.01$); "Jump rope in 1 min" ($p <0.01$); the taekwondo athletes of the experimental group performed significantly better than the representatives of the control group (Table 4).

Table 2

Test indicators of taekwondo fighters of the experimental (n = 8) group before and after the experiment

The name of the test	Group	Statistical indicators				
		$\overline{x}$	S	m	t	p
Push-up for 30s, number of times	E_1	21.13	1.96	0.69	-2.86	0.01
	E_2	23.63	1.51	0.53		
Push -up on the crossbar, number of times	E_1	4.63	1.06	0.38	-1.05	0.31
	E_2	5.13	0.83	0.30		
Long jump from a place, cm	E_1	187.63	6.05	2.14	-0.66	0.52
	E_2	189.50	5.26	1.86		
High jump from a place, cm	E_1	33.13	2.10	0.74	-0.54	0.60
	E_2	33.75	2.49	0.88		
Raising the trunk in a sitting position in 30 s, number of times	E_1	25.25	2.60	0.92	-1.17	0.26
	E_2	26.50	1.51	0.53		
Jumping rope in 1 minute, number of times	E_1	113.38	5.55	1.96	-3.37	0.01
	E_2	124.88	2.42	0.85		
Shuttle run 4x9 м, s	E_1	9.79	0.21	0.07	2.24	0.04
	E_2	9.57	0.19	0.07		
Romberg's test, s	E_1	16.00	1.07	0.38	-3.50	0.01
	E_2	20.25	1.91	0.67		
Tilting the torso forward from a sitting position, cm	E_1	2.25	1.04	0.37	-0.86	0.41
	E_2	2.75	1.28	0.45		
Tilting the torso while standing, cm	E_1	3.63	1.51	0.53	-0.31	0.76
	E_2	3.88	1.73	0.61		
100 m sprint, s	E_1	5.05	0.22	0.08	3.53	0.01
	E_2	4.65	0.23	0.08		
20 m sprint from a high start, s	E_1	3.65	0.17	0.06	0.42	0.68
	E_2	3.61	0.19	0.07		

* E_1 – experimental group before the experiment; E_2 – experimental group after the experiment

Table 3

Test indicators of taekwondo fighters of the control (n = 7) group before and after the experiment

The name of the test	Group	Statistical indicators				
		$\bar{x}$	S	m	t	p
Push-up for 30s. number of times	C_1	21.57	1.72	0.65	-1.34	0.21
	C_2	22.57	0.98	0.37		
Push -up on the crossbar. number of times	C_1	4.86	0.90	0.34	-0.97	0.35
	C_2	5.43	1.27	0.48		
Long jump from a place. cm	C_1	188.29	4.99	1.89	-2.19	**0.04**
	C_2	191.71	4.23	1.60		
High jump from a place. cm	C_1	33.43	1.27	0.48	-0.76	0.46
	C_2	34.00	1.53	0.58		
Raising the trunk in a sitting position in 30 s. number of times	C_1	25.71	2.56	0.97	-1.04	0.32
	C_2	26.86	1.35	0.51		
Jumping rope in 1 minute. number of times	C_1	114.71	6.07	2.30	-2.79	**0.02**
	C_2	121.43	1.90	0.72		
Shuttle run 4x9 м. s	C_1	9.86	0.21	0.08	1.70	0.11
	C_2	9.69	0.16	0.06		
Romberg's test. s	C_1	16.71	1.11	0.42	-0.23	0.82
	C_2	16.86	1.21	0.46		
Tilting the torso forward from a sitting position. cm	C_1	2.43	1.27	0.48	-1.53	0.15
	C_2	3.29	0.76	0.29		
Tilting the torso while standing. cm	C_1	3.00	0.82	0.31	-1.16	0.27
	C_2	3.43	0.53	0.20		
100 m sprint. s	C_1	4.81	0.38	0.15	1.10	0.34
	C_2	4.63	0.31	0.12		
20 m sprint from a high start. s	C_1	3.67	0.21	0.08	0.78	0.45
	C_2	3.61	0.19	0.07		

* C_1 – control group after the experiment; C_2 – experimental group after the experiment

Table 4

Test indicators of taekwondo fighters of the experimental (n = 8) and control (n = 7) groups after the experiment

The name of the test	Group	Statistical indicators				
		$\bar{x}$	S	m	t	p
Push-up for 30s. number of times	E_2	23.63	1.51	0.53	1.58	0.14
	C_2	22.57	0.98	0.37		
Push -up on the crossbar. number of times	E_2	5.13	0.83	0.30	-0.55	0.59
	C_2	5.43	1.27	0.48		
Long jump from a place. cm	E_2	189.50	5.26	1.86	-0.89	0.39
	C_2	191.71	4.23	1.60		
High jump from a place. cm	E_2	33.75	2.49	0.88	-0.23	0.82
	C_2	34.00	1.53	0.58		
Raising the trunk in a sitting position in 30 s. number of times	E_2	26.50	1.51	0.53	-0.48	0.64
	C_2	26.86	1.35	0.51		
Jumping rope in 1 minute. number of times	E_2	124.88	2.42	0.85	3.04	0.01
	C_2	121.43	1.90	0.72		

Shuttle run 4x9 м. s	E_2	9.57	0.19	0.07	-1.28	0.22
	C_2	9.69	0.16	0.06		
Romberg's test. s	E_2	20.25	1.91	0.67	4.03	**0.01**
	C_2	16.86	1.21	0.46		
Tilting the torso forward from a sitting position. cm	E_2	2.75	1.28	0.45	-0.42	0.68
	C_2	3.00	1.01	0.38		
Tilting the torso while standing. cm	E_2	3.88	1.73	0.61	0.65	0.52
	C_2	3.43	0.53	0.20		
100 m sprint. s	E_2	4.65	0.23	0.08	0.15	0.88
	C_2	4.63	0.31	0.12		
20 m sprint from a high start. s	E_2	3.61	0.19	0.07	0.35	0.74
	C_2	3.57	0.27	0.10		

* C_2 – control group after the experiment; E_2 – experimental group after the experiment

As a result of the application of the experimental method, the physical fitness indicators of the taekwondo athletes of the experimental group in tests characterizing balance, coordination of movements and motor speed were significantly better than those of the athletes of the control group, which shows the effectiveness of the proposed approach, which allows combining the development of physical qualities with the improvement of technical and tactical actions in a format that is as close as possible to the conditions of a real match. Therefore, the implementation of the experimental method according to the "G.A.M.E.S." algorithm can be recommended as an effective means of developing the physical abilities of young taekwondo athletes.

Discussion

The conducted study proved the effectiveness of the game method, which is based on the use of various types of game exercises, which are structured in accordance with the target guidelines of physical and special training of young taekwondo players. The obtained data expand and complement the conclusions of other authors on the feasibility of using game technologies in the system of training athletes, in particular those who are at the stage of initial and basic specialization [13]. The game method contributes not only to the development of motor skills (speed, agility, coordination), but also to the formation of the motivational and volitional sphere, which is of key importance for long-term preservation of interest in taekwondo [14]. The obtained results confirm that the systematic use of game exercises allows to increase the efficiency of the educational and training process, optimize the load and reduce emotional exhaustion of young athletes. At the same time, it is important to emphasize that the effectiveness of the game method increases if it is purposefully combined with traditional means of technical and tactical training [15]. The proposed methodology, built according to the "G.A.M.E.S." algorithm, is consistent with the existing classification of outdoor games by level of physical activity. Each type of game exercises in the training system for young taekwondo players can be attributed to a certain mobility group depending on the dominant goal, intensity and structure of execution.

Thus, Small Combat Games and Line of Attack belong mainly to games of high mobility, since the exercises involve high motor activity, the use of a wide range of technical actions, frequent changes in the pace and direction of movements. Such exercises provide a significant load on the cardiovascular and respiratory systems, contribute to the development of speed-strength qualities and aerobic-anaerobic endurance. Reactive games (Stimulus–Response) can be attributed to medium mobility games, because their main goal is to improve the speed of reaction and cognitive processes, and the level of physical activity is moderate, which provides an optimal balance between physical and psycho-emotional stress, developing the ability of athletes to instantly respond to external stimuli. Situational games (Partner Scenarios) belong to low mobility games, because they focus not so much on the intensity of motor activity, but on

analytical thinking, tactical choice and working out behavioral models in various competitive situations. Such games can be an effective means of active recovery after high-intensity loads, while maintaining their educational and educational potential. The results obtained confirm that game exercises are a universal means of pedagogical influence, which can be effectively adapted to specific tasks of the training process.

Also important, according to the authors, is the use of game forms in warm-up, which contributes to the gradual activation of the cardiovascular system, preparation of the muscular apparatus for further intensive work and creation of a positive emotional background of the lesson. In turn, in the main part of the training, game methods should be used to improve technical and tactical actions, since they create simulated conditions of competition, which stimulates the development of speed of decision-making and the ability to situational adaptation [3,4,16],

Thus, the game approach ensures the integration of educational, educational and developmental tasks, researchers emphasize that due to the simplicity of motor content, naturalness of movements and high emotional saturation, outdoor games are not only an effective means of physical education, but also an important component of the formation of a positive attitude of children to sports [3,10,17]. Moreover, the inclusion of games in the training of young taekwondo players contributes not only to the development of basic physical qualities, but also to an increase in the level of special preparedness, since it allows for a comprehensive influence on the functional systems of the body, which makes it possible to dose physical activity in accordance with the age and individual characteristics of athletes, maintaining a high level of motivation and emotional interest in the training process [3,18-20]. In conclusion, it can be stated that the systematization of game exercises by the level of mobility allows for a more accurate dose of the load within one training session, alternating high and medium levels of intensity with recovery stages, which will provide an optimal effect on the physical and functional state of the athletes' body, increases the effectiveness of the training process and contributes to the harmonious development of young taekwondo players.

Conclusions

The conducted research contributes to the modern methodology of taekwondo training, confirming that game forms of training can act not only as an auxiliary, but also as a leading means of developing physical abilities necessary for successful mastery of combat techniques.

Conflict of interest

The author declares no conflict of interest.

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Information about the authors

Sobko Iryna
sobko.iryna18@gmail.com
http://orcid.org/0000-0002-4920-9775
H.S. Skovoroda Kharkiv national pedagogical university
Altshvskyh str., 29, Kharkiv, 61002, Ukraine

Golenkova Yuliia
golenkovaulia@gmail.com
https://orcid.org/0000-0003-1553-8893
H.S. Skovoroda Kharkiv national pedagogical university
Altshvskyh str., 29, Kharkiv, 61002, Ukraine

Podmaryova Iryna
podmareva@ukr.net
https://orcid.org/0000-0002-9339-6504
Semen Kuznets Kharkiv National University of Economics:
Nauki Ave., 9-A, 61166, Kharkiv, Ukraine

Oleksii Filonov
alekseyfilonov7@gmail.com
https://orcid.org/0009-0006-8878-500X
H.S. Skovoroda Kharkiv national pedagogical university
Altshvskyh str., 29, Kharkiv, 61002, Ukraine

Інформація про авторів

Собко Ірина
sobko.iryna18@gmail.com
http://orcid.org/0000-0002-4920-9775
Харківський національний педагогічний університет імені Г.С. Сковороди
вул. Алчевських 29, Харків, 61002, Україна

Голенкова Юлія
golenkovaulia@gmail.com
https://orcid.org/0000-0003-1553-8893
Харківський національний педагогічний університет імені Г.С. Сковороди
вул. Алчевських 29, Харків, 61002, Україна.

Подмарьова Ірина
podmareva@ukr.net
https://orcid.org/0000-0002-9339-6504
Харківський національний економічний університет імені Семена Кузнеця
пр-т Науки, 9-А, 61166, Харків, Україна

Філонов Олексій
alekseyfilonov7@gmail.com
https://orcid.org/0009-0006-8878-500X
Харківський національний педагогічний університет імені Г.С. Сковороди
вул. Алчевських 29, Харків, 61002, Україна

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