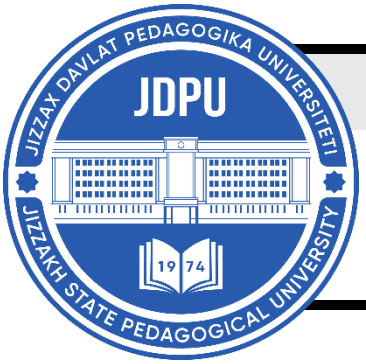
DOI: https://doi.org/10.37547/mesmj-V6-I7-17 Pages: 130-139

MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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METHODOLOGY FOR DEVELOPING PHYSICAL ABILITIES OF BEGINNER JUDOKAS THROUGH ACTIVE GAMES

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ABOUT ARTICLE

Key words: beginner training stage, physical abilities, general physical preparedness, active games, attention, reaction speed, fundamental technique, specialized games.

Received: 10.11.25
Accepted: 11.11.25
Published: 13.12.25

Abstract: This article demonstrates the development of physical abilities in beginner judokas through the use of ten selected active games during training sessions. To determine the overall level of physical development, several tests were conducted. These included: a 30-meter sprint (seconds), shuttle run 3×10 meters (seconds), standing long jump (cm), push-ups in 10 seconds (times), vertical jumps from a standing position in 10 seconds (times), and lifting the legs together to a 90-degree angle from a supine position (times). These indicators were measured before and after the pedagogical experiment to assess progress.

Introduction. In today's sports environment, it is crucial to guide young athletes in choosing the right sport and fostering interest in their chosen discipline. To achieve this, coaches must take an individualized approach during training sessions, considering each young athlete's somatotype characteristics. Training loads should be adjusted accordingly, avoiding monotony and fatigue by incorporating diverse methods that help retain their engagement in the sport. At this stage, sports schools play a key foundational role.

The initial training stage in judo is of great importance, as it develops young athletes' interest in sports, enhances their physical fitness, and teaches the basic techniques of judo. The beginner training groups play a decisive role in the development of young judokas, as they

provide a structured environment where children can learn fundamental techniques, build strength, and develop essential life skills such as discipline, respect, and perseverance.

According to F. A. Kerimov, “Sports schools ensure the comprehensive development of highly qualified adolescent athletes while strengthening their health and promoting physical development” [1, p. 226].

One of the most recognized experts in the field of sports, N. J. Bulgakova, notes that one of the reasons for the low number of well-prepared, highly qualified athletes is the relatively small total number of beginner training groups and the declining interest in mass sports in sports schools [2, p. 25; 3, pp. 21–24; 4, pp. 164–165; 5, p. 328]. This, in turn, can be explained by the challenges in identifying talented children and by the decreasing motivation to train regularly [6, p. 40; 7, p. 25; 8, pp. 39–40; 9, p. 24].

Research shows that assigning children large volumes of exercises is often ineffective, as it does not produce the physiological adaptations necessary for the morphological and functional development of the heart, lungs, and blood vessels [10, p. 17]. Moreover, it should be noted that early involvement in sports and prolonged multi-year training can contribute to a higher dropout rate among young athletes.

According to B. I. Ne’matov, “It is essential to establish a foundation of comprehensive physical preparedness during the initial training process of beginner groups” [11, p. 20].

We cannot say that the issue of forming a positive emotional background among children during wrestling training sessions has been ignored by researchers. Practical observations indicate that among the motivating factors for engaging in wrestling, the desire for play activities and collective participation significantly increases at the ages of 10–11 [12, p. 219; 13, p. 111].

The game-based method has proven particularly effective when working with young athletes. Its success is closely linked to the continuous search for ways to create a necessary emotional atmosphere during training sessions [14, p. 72; 15, p. 27; 16, p. 144; 17, pp. 4–5].

The inclusion of technical-tactical judo movements in training sessions is considered a crucial component of specialized active games [18, p. 170].

Material and methods. To develop the physical abilities of beginner judokas, 10 active games were selected and implemented during training sessions. Below are three of the games and their methodological features.

1. “Collect the Chips” Game (6–10 participants)

Required equipment: Chips (20–30 pcs), whistle, sports hall, mat or tatami for safety.

Game rules:

Each participant plays individually. Players must collect a set number of chips (for example, five) within their own circle. Chips can be taken from the central area or from the circles of other players, but only one chip can be taken per run. Blocking or obstructing other players is prohibited. The first player to collect the target number of chips wins.

Organizational guidelines: Ensure that participants do not take more than one chip at a time. Penalize violations of the rules.

Developing aspects: Improves speed, reaction time, decision-making, balance, coordination, and agility.

Recommendations:

1. Team version: Play 2 vs 2 or 3 vs 3 to enhance teamwork, communication, leadership, and responsibility.

2. "Secret Mission" cards: Each player receives a hidden task (e.g., "take only from opponents," "win without taking from the center three times") to develop creativity, flexibility, and problem-solving.

3. Tournament format: Organize elimination rounds to increase competitiveness and motivation.

2. "Sea–Shore–Island" Game (4–8 participants)

Required equipment: Sports hall, mat or tatami for safety.

Game rules:

The floor is divided into colored zones: blue for sea, yellow for shore, and red for island. The coach stands at one side and loudly calls out a command (e.g., "SHORE!"). Players must immediately jump to the corresponding zone.

Anyone who jumps to the wrong area or hesitates is eliminated. To maintain interest, vary the instructions—make players jump backward, sideways, or on one leg.

Developing aspects: Enhances focus, attention, reaction speed, agility, coordination, and balance.

3. "Magnetic Center" Game (5–10 participants)

Required equipment: Elastic safety belts, colored or numbered chips (equal to the number of participants), sports hall, mat or tatami, timer, and a central ring or anchor point.

Game rules:

Each participant wears an elastic belt connected to a single central belt fixed at the midpoint. Chips are placed at equal distances from the center, one for each player. Upon the signal "Start!", all participants try to reach and grab their chip within 5 seconds.

The first to grab their chip wins. To ensure fairness, pair participants of similar body weight so that heavier players do not have an advantage.

Developing aspects: Builds explosive power (through the start motion), speed and agility (to reach the chip), coordination and balance (while under tension), and reaction speed (responding to the signal). It also develops strategic thinking in advanced versions.

Recommendations:

1. Add obstacles: Place cones, ropes, or rings on the path to the chip so players must maneuver around or over them.
2. Dual-chip version: Each participant has two chips—one close (fewer points) and one far (more points)—to encourage strategic decision-making.
3. Blindfold version: Players are blindfolded and must rely on a teammate's voice for guidance, promoting communication and trust.
4. Pair version: One partner wears the belt while the other provides guidance or assists in overcoming obstacles.
5. Timed competition: Each participant takes turns; the fastest to retrieve the chip wins.
6. Penalty tasks: The losing player performs a short exercise (e.g., 5 jumps, squats, or sit-ups).

4. "The Fisherman" Game (6–12 participants)

Required equipment: Rope or a similar soft elastic band (approx. 3–5 meters), sports hall, and a mat or tatami for safety.

Game rules:

The coach holds one end (or the center) of the rope and begins to rotate it close to the ground, clockwise or counterclockwise. Participants stand in a circle around the rope. As the rope swings toward them, each player must jump over it without touching it. Anyone who is hit by or steps on the rope is eliminated. The last remaining player wins.

To keep the game engaging, the coach can have participants jump on one leg, in pairs, or increase rotation speed progressively.

Developing aspects: Improves agility, reaction time, focus, quick decision-making, speed, and balance control.

Recommendations:

- Reduce the number of participants and increase rope speed to enhance sensitivity and reaction.
- Gradually raise rotation height to increase difficulty and coordination demand.

- Start slowly and progressively accelerate rotation to ensure safety and skill development.

5. “Support Wrestling” Game (2 participants)

Required equipment: Soft mat or tatami, timer.

Game rules:

Two players face each other in a “turtle” position—on hands and feet, without their knees touching the ground. Upon the referee’s command (“Start!”), both attempt to lift or displace the opponent’s hand from the ground. Physical contact is allowed, but pushing or striking is forbidden.

A player loses if their knee touches the ground or they lose balance and fall. The one who maintains the support position longest is declared the winner.

Recommendations and variations:

1. One-hand version: Participants may use only their left or right hand.
2. Blindfold version: Enhances sensory awareness and balance control.
3. Tournament format: Winners progress through rounds until the final match.
4. Weighted version: A small sandbag or light weight is tied to the belt to increase balance difficulty.

Developing aspects: Builds strength endurance, static balance, coordination, reaction, and mental focus.

6–10. Additional Specialized Judo Games

- “Elastic Wrestling”
- “Who Am I Running From?”
- “Roosters’ Duel”
- “Battle for Chips”
- “Chain Walk”

Each game was included once per training session, in the final part of the session, lasting 15–20 minutes. The games were rotated weekly within the training cycle to maintain engagement and variety.

These specialized games form part of judo-specific play-based training. They not only develop physical abilities such as agility, coordination, and endurance but also help athletes master technical movements more quickly and naturally.

The play-based learning approach is among the most effective methods for skill acquisition in beginner judokas. Through games, young athletes easily grasp complex technical elements, strengthen physical qualities, and acquire essential social skills.

Jadval 1

№	30 m Sprint (s)		Shuttle Run 3×10 m (s)		Standing Long Jump (cm)		Push-Ups in 10 s (reps)		Vertical Jumps in 10 s (reps)		Sit-Ups in 1 min (reps)	
	Before Exp.	**After Exp.**	**Before Exp.**	**After Exp.**	**Before Exp.**	**After Exp.**	**Before Exp.**	**After Exp.**	**Before Exp.**	**After Exp.**	**Before Exp.**	**After Exp.**
1	8.3	7.9	8.9	8.6	156	159	18	21	22	23	26	28
2	6.7	6.0	7.9	7.3	148	155	14	16	15	17	22	25
3	8.6	8.1	8.6	8.4	133	135	17	19	18	20	24	26
4	8.4	7.9	9.1	8.7	173	175	16	18	17	20	21	22
5	7.9	7.0	8.1	7.8	170	173	12	15	16	18	20	23
6	9.3	8.7	9.8	9.6	145	149	13	16	14	15	18	21
7	6.4	6.0	7.8	7.5	163	168	12	15	18	20	22	25
8	7.7	7.0	8.7	8.2	176	179	15	18	16	18	16	18
9	7.6	7.1	9.4	9.0	164	166	14	17	14	17	14	16
10	7.8	7.6	9.6	9.2	169	174	13	16	13	16	14	17
11	8.7	8.5	9.2	8.9	155	159	10	15	14	16	16	18
12	8.8	8.3	10.6	10.1	146	148	12	14	16	18	17	19
13	8.9	8.3	9.5	9.0	168	170	13	16	14	17	13	16
14	9.9	9.2	10.2	10.0	139	145	10	13	12	15	12	14
15	10.2	9.8	11.4	11.2	129	134	11	14	10	13	14	17
16	11.5	11.1	12.6	12.1	120	126	12	15	10	14	12	16
X	8.54	8.03	9.46	9.01	153.4	163.5	13.5	16.75	14.94	17.31	17.56	20.06
σ	1.28	1.32	1.28	1.38	16.34	17.82	2.24	2.18	3.07	2.57	4.44	4.28
V, %	15.0 %	16.5%	13.5%	15.3%	10.7 %	10.9%	16.6 %	13.0%	20.5%	14.9%	25.3%	21.3%
t		2.7		2.6		2.8		4.1		3.2		2.4
p		P<0.05		P<0.05		P<0.05		P<0.01		P<0.01		P<0.05

Judo games foster discipline, respect for opponents, and team cooperation. Moreover, they help improve cardiovascular endurance, respiratory function, and overall physical

conditioning. As training progresses, game complexity gradually increases, allowing athletes to transition smoothly to more advanced technical elements.

Participants and Research Design

The study involved a research group of 16 beginner judokas (n=16). Their general physical preparedness was assessed to determine the growth rate of physical development influenced by the implemented play-based training methods.

Note:

- № – Number of participants who performed the test;

- Before Exp. – Results recorded at the beginning of the experiment (Tad. boshi);
- After Exp. – Results recorded at the end of the experiment (Tad. oxiri);
- $\bar{X}$ – Arithmetic mean (average value);
- σ – Standard deviation;
- V (%) – Coefficient of variation.

Results and discussion. According to the research findings, the participants improved their average result in the 30-meter sprint from 8.54 seconds to 8.03 seconds, showing an acceleration of 0.51 seconds. Statistical analysis revealed $t \approx 2.7$, $p < 0.05$, indicating that the difference was statistically significant. Thus, the conducted training sessions effectively enhanced the participants' speed qualities. Meanwhile, the coefficient of variation increased from 15.0% to 16.5%, suggesting that individual results within the group became slightly more diverse. Overall, the training program proved effective in improving sprint performance and increasing running speed.

At the beginning of the study, participants completed the 3×10 meter shuttle run in an average of 9.46 seconds, whereas by the end, this indicator decreased to 9.01 seconds, an improvement of 0.45 seconds. Statistical calculation ($t \approx 2.6$, $p < 0.05$) confirmed the difference as significant. The coefficient of variation rose from 13.5% to 15.3%, which means that, despite the overall improvement, individual performance differences slightly increased. In conclusion, the training sessions significantly enhanced the participants' speed in the shuttle run, though the consistency of results among individuals remained somewhat varied.

The average result in the standing long jump improved from 153.4 cm to 163.5 cm, an increase of 10.1 cm. The computed value of $t \approx 2.8$, $p < 0.05$ indicates a statistically reliable difference, demonstrating the effectiveness of the applied training program. The coefficient of variation slightly increased from 10.7% to 10.9%, suggesting minor disparities in progress among participants. Nevertheless, the overall improvement was considerable, confirming that the exercises effectively developed explosive power and leg strength.

In the push-up test (10 seconds), the participants' average performance rose from 13.5 repetitions to 16.75 repetitions, an increase of 3.25 repetitions. Statistical analysis ($t \approx 4.1$, $p < 0.01$) showed a highly significant difference, indicating that the training greatly enhanced arm strength and endurance. The coefficient of variation decreased from 16.6% to 13.0%, demonstrating not only improved performance but also greater uniformity within the group. Hence, the training sessions markedly increased upper-body strength and muscular endurance.

In the vertical jump test (10 seconds), the average number of jumps increased from 14.94 to 17.31, an improvement of 2.37 repetitions. The result was statistically significant ($t \approx$

3.2, $p < 0.01$), proving that the training substantially developed speed and jumping endurance. The coefficient of variation decreased from 20.5% to 14.9%, indicating enhanced group stability. Thus, the participants' jumping activity and frequency improved by more than two repetitions on average, and intra-group consistency strengthened notably.

In the sit-up test (1 minute), the average result rose from 17.56 repetitions to 20.06 repetitions, an increase of 2.5 repetitions. The statistical result ($t \approx 2.4$, $p < 0.05$) confirmed a significant difference. This demonstrates that the training sessions effectively improved abdominal muscle strength and endurance. The coefficient of variation decreased from 25.3% to 21.3%, showing that the differences among participants narrowed. Overall, the participants' core strength improved reliably, and group stability increased as a result of the training.

Conclusion. The conducted research demonstrated that the use of active games in training sessions has a high level of effectiveness in developing students' physical qualities. The test results confirmed that the participants' speed, explosive strength, general strength, and muscular endurance indicators significantly improved.

In particular:

- Improvements in the 30-meter sprint and 3×10-meter shuttle run reflected increased speed qualities;
- Enhancements in standing long jump and vertical jump results demonstrated the development of explosive power;
- Better outcomes in push-up and sit-up tests indicated notable progress in general strength and muscular endurance.

Furthermore, the coefficient of variation decreased in most tests, indicating that results became more consistent across the group and that nearly all participants achieved similar positive outcomes.

Overall, the systematic use of movement-based games proved to be an effective tool for the comprehensive development of core physical qualities in adolescent athletes. Therefore, their regular application in physical education and sports training sessions is highly recommended.

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