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METHODOLOGY FOR CORRECTING THE VARIABILITY OF TECHNIQUE IN PREPARING JUDO ATHLETES FROM TRAINING GROUPS FOR COMPETITIVE ACTIVITY

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ABOUT ARTICLE

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Abstract: This study substantiates the scientific and practical significance of a differentiated approach to improving judo athletes' preparation for competitive activity. The results of pedagogical testing made it possible to assess athletes' physical and technical-tactical indicators and to conduct a comparative analysis of the groups. The research revealed that the individualization and differentiation of training loads ensure stable development of physical qualities, while the integration of special speed-strength and strength endurance exercises with technical actions enhances athletic mastery. It is emphasized that comprehensive pedagogical control of biomechanical, functional, and technical-tactical indicators is an important factor in determining an athlete's individual development trajectory. The findings confirm the effectiveness of a methodology based on a differentiated approach in achieving high sporting results in judo.

Introduction. Worldwide, extensive efforts are being undertaken to enhance judo athletes' motor performance, increase reaction speed, improve physical readiness for major

competitions, and refine methodologies for teaching technical actions at a high level. In particular, research addresses the planning of pre-competition training and competitive activity, differentiation of training volume and intensity according to athletes' age, weight category, and qualification level, timely elimination of fatigue symptoms induced by training loads, and accelerated restoration of work capacity.

However, there remains a need to develop scientifically grounded recommendations regarding regulatory requirements used in athlete preparation, criteria for assessing different types of readiness, and model performance indicators.

Methodology

A substantial body of experimental research and theoretical perspectives has accumulated in the field of motor skill acquisition. As an object of study, motor activity is typically examined through the formation of motor skills and the problems of organizing and controlling movement. Muscular strength depends not only on the anatomical and physiological characteristics of muscles but also directly on the number of neuromuscular units recruited during contraction. At the same time, the functional state of the athlete's neuromuscular system plays a crucial role in the ability to master motor skills and in expressing a set of qualities that ensure movement speed and coordination.

In the training process, the stability of motor skills is ensured through structural and functional stability—namely, the formation of automatism—reflecting the capability of the functional system underlying a particular motor act to withstand the emergence of new temporary connections within neuromuscular interactions.The analysis of the motor-skill problem is commonly carried out from two perspectives. First, it involves clarifying the concept of a motor skill. The analysis of empirical studies in motor activity indicates that a single, universally accepted viewpoint regarding the concept of motor skill has not yet been fully established.

Results and Discussions. The leading parameters of technical mastery among young judo athletes were identified. At the training stage of long-term preparation, the main competitive characteristics typical of young athletes' attacking actions in judo were determined. Special means aimed at improving attacking actions within competition-oriented training regimes were developed, and a new methodology for improving attacking actions based on individual characteristics of athletes' competitive performance was proposed.

Clarifying the semantic structure of motor action and specifying movement components is carried out by determining the method for solving the motor task, which includes forming motor orientations (movement "sets") and organizing a system of actions.

An analysis of scientific sources shows that improving technical and tactical preparation in combat sports requires a comprehensive approach; that is, it should be organized in close integration with physical, functional, psychological, and methodological components of preparation. Motivation, competitive reliability, adaptation to subjective refereeing, psychological stability, and the management of emotional states are recognized as important factors for achieving high results. In addition, scientifically grounded planning, modeling, and monitoring of training loads constitute an integral part of modern sports training.

Results of the Questionnaire and Observational Study

Table 1. Dynamics of explosive power abilities at the beginning of the study (30 m sprint), n = 20

Indicator	Experimental group n-20	Control group n-20
X	5,1	5,2
σ	0,58	0,59
V %	11,28	11,26

Table 1 presents baseline 30 m sprint results for the experimental and control groups, enabling an assessment of speed ability and starting acceleration. This test is widely used as a standard diagnostic tool to determine explosive power, reaction speed, and the ability to reach maximal sprint velocity.

In the experimental group (n = 20), 30 m sprint times ranged from 4.0 s to 6.5 s, with a total of 102.9 s and a mean value of X = 5.1 s. These results indicate a moderate level of speed readiness, while the presence of noticeable individual differences is supported by SD = 0.58 and CV = 11.28%, reflecting a moderate dispersion and relatively homogeneous group composition.

In the control group, sprint times ranged from 4.3 s to 6.2 s, with a total of 104.0 s and a mean of X = 5.2 s, suggesting a slightly lower speed level compared with the experimental group. SD = 0.59 and CV = 11.26% indicate that the degree of individual variability is almost identical to that of the experimental group.

Overall, baseline comparisons show that the experimental group demonstrates a minor advantage in speed preparedness; however, this difference is not pronounced. The near-equal coefficients of variation confirm that both groups had comparable initial readiness and are suitable for subsequent comparative analysis in a pedagogical experiment.

Table 2. Dynamics of upper-body strength at the beginning of the study (pull-ups), n = 20

Indicator	Experimental group n-20	Control group n-20

X	12,5	11,7
σ	2,91	2,47
V %	23,35	21,13

Mazkur jadvalda turnikda tortilish mashqi bo‘yicha tajriba guruhi va nazorat Table 2 reflects baseline pull-up performance in the experimental and control groups. The pull-up test is an important diagnostic tool for assessing the strength of the shoulder girdle muscles, strength endurance, and relative strength.

In the experimental group, results ranged from 9 to 19 repetitions, totaling 249 repetitions, with a mean of X = 12.5. This indicates a moderate development of upper-body strength and strength endurance. SD = 2.91 suggests substantial inter-individual differences, while CV = 23.35% indicates relatively high within-group heterogeneity in strength preparedness.

In the control group, results also ranged from 9 to 19 repetitions, totaling 234 repetitions, with a mean of X = 11.7, demonstrating slightly lower strength performance compared with the experimental group. SD = 2.47 and CV = 21.13% suggest somewhat less variability than in the experimental group.

Comparative analysis indicates that the experimental group has a modest advantage in mean pull-up performance; nevertheless, both groups display comparable result ranges. The CV values exceeding 20% in both groups indicate non-uniform strength preparedness and imply the need for individualized training approaches for certain athletes.

Table 3. Dynamics of upper-body strength at the beginning of the study (push-ups), n = 20

Indicator	Experimental group n-20	Control group n-20
X	29,2	28,5
σ	5,45	6,18
V %	18,65	21,71

Table 3 presents baseline push-up performance (supported position) for both groups. This test is commonly used to evaluate the strength and strength endurance of the shoulder girdle, chest muscles, and trunk stabilizers.

In the experimental group, results ranged from 21 to 41 repetitions, totaling 584 repetitions, with a mean of X = 29.2. These values indicate moderate to above-moderate development of upper-body strength endurance. SD = 5.45 shows noticeable individual differences, while CV = 18.65% suggests relatively stable performance within the group.

In the control group, results ranged from 20 to 42 repetitions, totaling 569 repetitions, with a mean of X = 28.5. SD = 6.18 and CV = 21.71% indicate greater inter-individual variability, suggesting more pronounced heterogeneity in strength readiness.

Overall, the experimental group shows a small advantage in mean performance; however, the difference is not substantial. The higher CV in the control group indicates a greater need for individualized strength development strategies.

Table 4. Dynamics of lower-limb explosive power at the beginning of the study (standing long jump), n = 20

Indicator	Experimental group n-20	Control group n-20
X	231,0	236,0
σ	4,21	4,21
V %	1,82	1,78

Table 4 presents baseline standing long jump results, which are diagnostically significant for assessing lower-limb explosive power, speed–strength ability, and coordination.

In the experimental group, jump distance ranged from 225 cm to 241 cm, totaling 4620.5 cm, with a mean of 231.0 cm. The low SD (4.21 cm) and very low CV (1.82%) indicate minimal variability and a highly homogeneous baseline level.

In the control group, results ranged from 230 cm to 246 cm, totaling 4719.5 cm, with a mean of 236.0 cm, indicating slightly higher explosive power than in the experimental group. SD = 4.21 cm and CV = 1.78% likewise confirm very low variability.

Comparisons show that the control group has a modest advantage in mean standing long jump performance; however, both groups demonstrate nearly identical and highly uniform baseline readiness, providing a strong initial basis for evaluating the effectiveness of subsequent speed–strength training interventions.

Table 5. Dynamics of leg and arm muscle strength at the beginning of the study (preliminary foot-sweep throw repetitions in 1 min), n = 20

Indicator	Experimental group n-20	Control group n-20
X	33,6	37,3
σ	4,95	8,58
V %	14,77	23,03

Table 5 reflects baseline performance in a 1-minute repetitive technical exercise involving preliminary foot-sweep actions. The test is important for assessing speed, agility,

coordination, special strength endurance, and the ability to maintain rhythmic movement over time.

In the experimental group, repetitions ranged from 25 to 47, totaling 671, with a mean of 33.6. SD = 4.95 and CV = 14.77% indicate moderate variability and relatively stable performance.

In the control group, repetitions ranged widely (15 to 53), totaling 745, with a mean of 37.3. However, SD = 8.58 and CV = 23.03% indicate high variability, suggesting non-uniform readiness among athletes.

Thus, although the control group demonstrates a higher mean, the experimental group exhibits more stable and consistent performance, potentially reflecting better-formed rhythm and technical execution consistency at baseline.

Table 6. Dynamics of shoulder and leg muscle strength at the beginning of the study (shoulder throw repetitions in 1 min), n = 20

Indicator	Experimental group n-20	Control group n-20
X	33,6	37,8
σ	4,95	8,19
V %	14,77	21,70

Table 6 presents baseline results for a 1-minute repetitive exercise based on executing shoulder throws. The test is used to evaluate speed, coordination, special strength endurance, and the ability to repeatedly perform technical actions at a high tempo.

The experimental group demonstrates moderate variability (SD = 4.95; CV = 14.77%) and stable execution. The control group shows higher mean performance (X = 37.8) but also higher variability (SD = 8.19; CV = 21.70%), indicating greater differences in athletes' baseline technical endurance and readiness.

Table 7. Dynamics of trunk and arm muscle strength at the beginning of the study (hip throw repetitions in 1 min), n = 20

Indicator	Experimental group n-20	Control group n-20
X	33,6	37,8
σ	4,95	8,19
V %	14,77	21,70

Table 7 shows baseline results of a 1-minute repetitive exercise based on hip throws. This test has diagnostic value for assessing special strength endurance, speed–strength qualities, the ability to repeat technical actions at a high tempo, and coordination.

In the experimental group (n = 20), the number of hip throws performed within 1 minute ranged from 25 to 47 repetitions. The total number of repetitions was 671, and the arithmetic mean was 33.6 repetitions. These results indicate that the experimental group demonstrated a moderate level of development in special strength and strength endurance. The standard deviation was σ = 4.95, reflecting the presence of inter-individual variability within the group; however, this variability remained within acceptable limits. A coefficient of variation of V = 14.77% suggests that the experimental group results were relatively stable and homogeneous.

In the control group, the number of hip throws varied within a wider range, from 15 to 53 repetitions, with a total of 755 repetitions and a mean value of 37.8 repetitions. This finding suggests that, at the baseline stage, the control group exhibited a higher work volume and exercise intensity in this test compared with the experimental group. At the same time, the standard deviation (σ = 8.19) and coefficient of variation (V = 21.70%) indicate that the control group's preparedness level was less uniform, with substantial differences between individual results.

A comparative analysis of the experimental and control groups shows that, at baseline, the control group had an advantage in mean performance, whereas the experimental group demonstrated more stable and consistent results. This may imply that the experimental group had a more established movement rhythm and greater repetition consistency when executing the hip-throw technique. Overall, the hip-throw test results indicate that both groups had a certain level of development in special strength, speed–strength, and strength endurance, while also suggesting the presence of potentially statistically meaningful differences within and between groups. These baseline data provide a reliable scientific foundation for assessing the effectiveness of the subsequent pedagogical experiment and specialized training interventions.

Conclusion and Recommendations. The findings of this study indicate that applying a differentiated approach to improving the system of preparing training-group judo athletes for competitive performance represents one of the priority directions in contemporary sports training theory and methodology.

The results of pedagogical tests conducted in the experimental and control groups (30 m sprint, pull-ups, push-ups, standing long jump, and specialized technical actions—foot-sweep throws, shoulder throws, and hip throws) made it possible to determine athletes' levels of speed, speed–strength, special strength endurance, coordination abilities, and the stability of

repeated technical–tactical actions. The absence of substantial differences between the groups at the baseline stage confirms that the groups were methodologically formed appropriately for a comparative pedagogical experiment.

References:

1. Kerimov F.A., Tastanov N.A., Qodirov E.I. Yunon-rim kurashi. O‘quv –uslubiy qo‘llanama. T.., “PRESS NAShRIUOTI”, 2017. – 132 b.
2. Керимов Ф.А. Особенности применения трехуровневой системы управления подготовкой резерва для спортивных единоборств / Ф.А.Керимов // Теория и практика физической культуры.1988.-№8. – С.27-28.
3. Kerimov F.A. - Sport kurashi nazariyasi va usuliyati. “Lider Press” Toshkent – 2009. – 265 b.
4. Тастанов Н.А., Малакали юнон-рим курашчиларининг тактик тайёргарлигини айланма услуб ёрдамида ривожлантириш. //Ўзбекистон давлат жисмоний тарбия ва спорт университети . Чирчиқ. Фан-Спортга журнали. 2023. 2 -сон. - Б.20-27.
5. Тастанов Н.А. Скоростно-силовая подготовка высококвалифици-рованных борцов греко-римского стиля применительно к соревновательной деятельности. //Ўзбекистон давлат жисмоний тарбия ва спорт университети. Фан-Спортга журнали. Чирчиқ. 2023. - 6-сон. - Б.3-13.
6. Tashnazarov D. Yunon-rim kurashchilarini texnik tayyorgarligini takomillashtirishda tik turgan holatdan yelkalardan oshirib tashlash harakatining kinematik asoslarini o ‘rganish (o ‘ng tomonga bajarish asosida) //Farg'ona davlat universiteti. – 2025. – №. 1. – С. 32-32.
7. Tashnazarov D. Sportning yunon-rim kurash turida texnik tayyorgarlikini takomillashtirishda tik turgan holat yelkalardan oshirib tashlash harakatining samaradorligi (chap tomonga bajarish asosida) //Farg'ona davlat universiteti. – 2025. – №. 1. – С. 26-26.
8. Tashnazarov D. Kinematic foundations of the arm wrapping and throwing movement from a standing position in the improvement of greco-roman wrestlers'technical training (based on the execution of the technique to the right side) //Mental Enlightenment Scientific-Methodological Journal. – 2025. – Т. 6. – №. 01. – С. 119-134.
9. Tashnazarov J. Greco-roman wrestlers performance indicators of technical methods and their effectiveness //Mental Enlightenment Scientific-Methodological Journal. – 2023. – Т. 4. – №. 6. – С. 292-301.

10. Yuldashevich T. D. Yunon-rum kurashchilarining texnik usullarga o ‘rgatish metodikasi //Research Focus. – 2024. – T. 3. – №. 1. – C. 172-180.

11. Yuldashevich T. D. Y. T. D. Yunon-rum kurashchilarini texnik usullarga o ‘rgatishda umumiy va maxsus tayyorgarligi //Farg'ona davlat universiteti. – 2023. – №. 4. – C. 124-124.