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ASSESSMENT OF TECHNICAL AND TACTICAL ACTIONS OF WRESTLERS IN SPORTS WRESTLING ON THE BASIS OF "MUBIN ZASK" INTELLECTUAL SENSOR TECHNOLOGY

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ABOUT ARTICLE

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Abstract: In this article, the analysis of evaluation of technical and tactical actions of wrestlers based on "MUBIN ZASK" intellectual sensor technology in sports wrestling, as well as remote analysis of the preparation process for sports wrestling competitions and the selection of styles related to the individual characteristics of athletes, are mentioned.

Introduction. In the modern world, wrestling is actively developing due to strong competition among countries and athletes, and it is becoming increasingly popular among nations participating in the Olympic Games. The intensification of competition in international wrestling places demands on the rapid analysis of competition performance indicators, as well as on identifying ways to develop coordination abilities and improve overall efficiency.

In leading countries around the world, one of the key factors contributing to the continuous improvement of high-level sports results in wrestling is the development of training strategies and their systematic management. This, in turn, further increases competition on the global stage.

In the modern wrestling industry, the application of advanced methods and data analysis is essential for improving athletic performance. In particular, there is a growing need

to address tasks such as targeted preparation of athletes for competitions based on remote analysis of performance indicators using intelligent sensor systems.

Recommendations and training control methods proposed by both local and foreign wrestling specialists have been taken into account and considered.

Methods. A system for managing wrestlers' sports training based on the "MUBIN ZASK" intelligent sensor technology has been introduced. At the same time, issues related to improving coordination and technical-tactical actions have been studied as follows:

Table 1 presents the results obtained using the "MUBIN ZASK" intelligent sensor technology. At the beginning of the study, the time interval (in seconds) between effective technical-tactical actions was 36.02±3.99 in the experimental group and 35.44±3.85 in the control group, with no statistically significant difference (P>0.05). At the end of the study, these indicators were 29.99±3.91 in the experimental group and 32.89±3.88 in the control group, showing a statistically significant difference (P<0.05).

Results. At the same time, the average score (points) for technical-tactical actions was 1.04±0.16 in the experimental group and 1.06±0.15 in the control group, with no statistically significant difference (P>0.05).

Table-1

The results of wrestlers from the experimental and control groups, determined using the 'Mubin ZASK' intelligent sensor technology at the beginning and at the end of the study (n = 48)

O.N	Indicators	Study Stage	Experimental Group			Control Group			t	P
			X_1	σ	V%	X_2	σ	V%		
1	Time interval between technical-tactical actions (seconds)	At the beginning	21,22	2,19	10,32%	20,92	2,25	10,76%	0,458	>0,05
		At the end	16,02	2,11	13,17%	17,44	2,11	12,10%	2,282	<0,05
2	ime interval between effective technical-tactical actions (seconds)	At the beginning	36,02	3,99	11,08%	35,44	3,85	10,86%	0,502	>0,05
		At the end	29,99	3,91	13,04%	32,89	3,88	11,80%	2,525	<0,05
3	Average score for technical-tactical techniques (points)	At the beginning	1,04	0,16	15,38%	1,06	0,15	14,15%	0,437	>0,05
		At the end	2,11	0,28	13,27%	1,94	0,18	9,28%	2,449	<0,05

At the end of the study, the value in the experimental group was 2.11±0.28, while in the control group it was 1.94±0.18, demonstrating a statistically significant difference (P < 0.05).

At the beginning and at the end of the study, the following indicators of wrestlers in the experimental and control groups were determined using the “MUBIN ZASK” smart technology. In particular:

1. Time interval between technical-tactical actions (seconds).

Based on the analysis of this indicator, the following conclusions can be drawn:

Initially, the results at the beginning of the study (21.22 and 20.92) had a smaller standard error compared to the final measurements (16.02 and 17.44). Both datasets had the same number of observations (n = 48), and the standard deviation (σ) was nearly equal.

At the same time, the t-values for the initial measurements (10.32% and 10.76%) were higher than those of the final measurements (13.17% and 12.10%), indicating that the differences between the results were more pronounced at the beginning of the study than at the end.

According to the obtained data, the level of significance for the initial measurements ($P > 0.05$) shows that the differences between the results are not statistically significant, meaning there is no basis to reject the null hypothesis, and the observed differences can be considered random.

However, the final level of significance ($P < 0.05$) indicates that the differences between the results are statistically significant, providing sufficient grounds to reject the null hypothesis.

Thus, it can be concluded that the final measurement results are more reliable, and the differences between them are considerably more meaningful compared to those observed at the beginning of the study (see Figure 1).

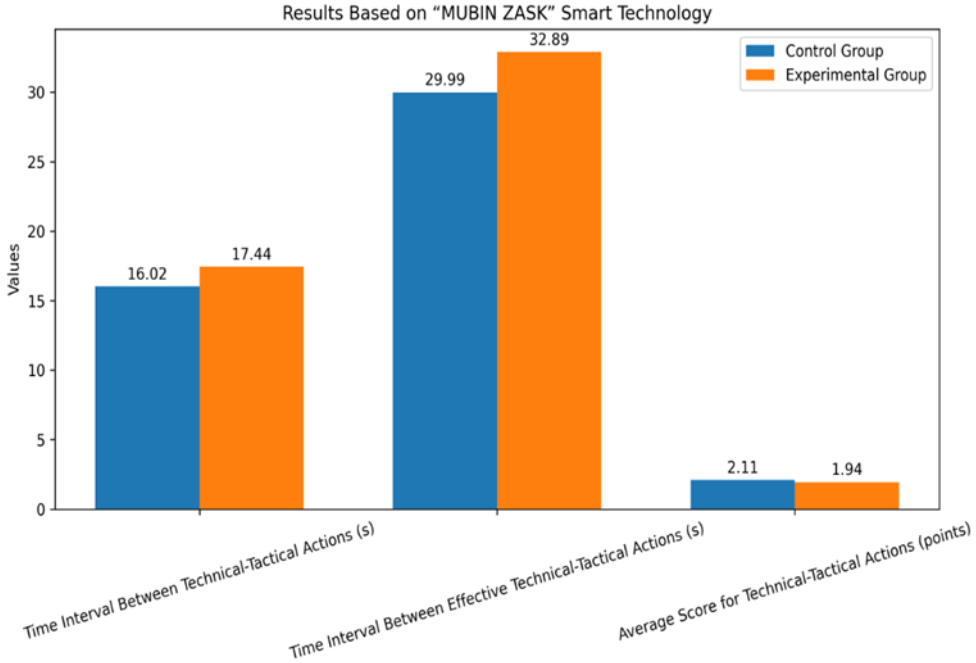

Figure 1. Results of wrestlers in the experimental and control groups at the beginning and at the end of the study, obtained using the 'MUBIN ZASK' intelligent sensor technology.

2. Effective technical-tactical actions (seconds). This indicator demonstrates the results of the statistical analysis of two datasets presented in the study. Each row includes key statistical parameters such as the mean (x), standard deviation (σ), sample size (n), coefficient of variation, t-value, and level of significance. The Student's t-test significance criterion and its critical value are also provided. During the interpretation of the table results, at the beginning of the study, the mean values were 36.02 and 35.44, with corresponding standard deviations of 3.99 and 3.85, and a sample size of n = 48. The coefficients of variation were 11.08% and 10.86%, the t-value was 0.458, and the level of significance was greater than 0.05. From the perspective of the final stage of the study, the mean values were 29.99 and 32.89, with corresponding standard deviations of 3.91 and 3.88, and the sample size remained n = 48. The coefficients of variation were 13.04% and 11.80%, the Student's t-value was 2.525, and the level of significance was less than 0.05. Based on the analysis, the statistical results in the table indicate that there is a significant difference between the groups at the end of the study, whereas no significant difference was observed at the beginning. These findings provide important information for decision-making and for designing future research. In addition, the results of the initial testing suggest that the use of statistical analysis—especially in studies aimed at determining whether differences exist between two groups—helps to derive meaningful conclusions and practical recommendations. In this context, factors such as sample size, measurement techniques, and other variables that may influence the results were taken into account.

Discussion. At the end of the training process in wrestling, the average score indicators of technical-tactical actions observed in the experimental group and the control group reflect the results of the study conducted under the supervision of specialists. The significance of this study indicates that, prior to the pedagogical experiment, there was no statistically significant difference or reliability between the experimental and control groups. According to the Student's t-test, before the pedagogical intervention, the difference between the experimental and control groups was not statistically significant ($P > 0.05$).

However, the final results of the study demonstrate that after the pedagogical intervention, the Student's t-value ($P < 0.05$) led to changes in the athletes' performance outcomes. Thus, while the differences between the experimental and control groups were not statistically significant before the experiment, they became statistically significant after the intervention ($P < 0.01$).

The presented data can serve as a foundation for future research and for the development of individualized training programs for athletes. The results also indicate that, under the guidance of experienced specialists, it is possible to achieve high efficiency in training camp conditions.

Conclusion. In conclusion, it should be noted that the preparation process for wrestling competitions was studied through remote analysis, selection of methods based on athletes' individual characteristics, proper application of training tools, and the use of sensor systems to analyze competition performance indicators. Furthermore, the integration of physical and technical-tactical training effectiveness, along with the use of specialized sports equipment, was ensured.

In addition, during this research, approaches for optimizing training programs, remotely analyzing athletes' competitive performance indicators, and integrating the physical, coordination, and technical-tactical preparedness of highly qualified wrestlers using specialized sports equipment were developed.

Finally, the study highlights the necessity of conducting further scientific research based on pedagogical observations, focusing on the integration of coordination and technical-tactical actions in wrestling through the use of intelligent sensor systems and competition activity analysis.

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