



Comparative analysis of the performance of olympic games-2024 finalists in wrestling

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Abstract

Objective of the study was to perform a comparative study of the performance traits of male and female wrestlers in the disciplines of freestyle and Greco-Roman wrestling at the Olympic Games in Paris in 2024.

Methods and structure of the study. The following approaches were employed in the research: a review of scholarly and methodological publications, video analysis, and timing of the competitive matches for the first and third places in each weight class at the Paris 2024 Olympic Games in wrestling for both men and women (freestyle and Greco-Roman wrestling), as well as the application of mathematical statistical techniques.

Results and conclusions. The following aspects of the competitive performance of wrestlers were calculated: the average duration of a bout, the average time spent wrestling in the standing and clinch positions separately, the intensity and consistency of wrestling in the standing position, the overall effectiveness of the bout, and the effectiveness of wrestling in the standing and clinch positions separately, as well as the number of high-scoring bouts.

Subsequently, a comparative analysis of these aspects was conducted based on gender and wrestling discipline. The analysis revealed that the key indicators of entertainment and success in a wrestling match, such as activity, effectiveness, and high-scoring, were highest for male wrestlers specializing in freestyle and lowest for Greco-Roman wrestlers. The disparities in these indicators were substantial, varying from 1,29 to 2,52 times.

The efficacy of grappling on the ground is significantly higher for men in two categories, with a ratio of more than two to one, and for women, it is 1,27 times more effective. This necessitates a substantial overhaul of the training regimen for athletes, with a focus on enhancing their technical and tactical abilities in the clinch, particularly for men.

Keywords: *Olympic Games, wrestling, freestyle wrestling, Greco-Roman wrestling, competitive activity.*

Introduction. Competitive activity (CA) of highly skilled athletes is constantly transforming, which is associated with changes in competition rules, evolution of the sport and other factors. This requires constant updating of effective CA models by identifying the most significant characteristics of competitive activity for a given sport, which are relatively independent in nature [5]. In martial arts, the first studies on the issues of identifying and analyzing the informative characteristics of competitive activity began more than 40 years ago [1, 6]. Currently, scientists identify a large number of CA characteristics depending on the objectives of the study, while the approach in which the choice of characteristics is determined by the success and spectacle of the competitive fight seems preferable. Based on this, we will highlight the following quantitative characteristics: activity - the number of real attacks (assessed and unassessed) carried out by an athlete per unit of time;

effectiveness - the number of points won by an athlete per unit of time; attack reliability – the ratio of the number of assessed technical and tactical actions (TTA) to the total number of real attacks; reliability of defense – the ratio of the number of successfully repelled attacks to the total number of attacks by the opponent; high-scoring – the share of high-scoring attacks in the total number of assessed TTA [2, 3, 4].

Current models of competitive activity, the achievement of which is associated with the athlete's reaching the level of a given sports result, are the system-forming factor that determines the structure and content of the training process at this stage of sports improvement [4, 5]. Thus, the definition of model characteristics of modern competitive activity of world-class athletes remains an urgent task of the theory and practice of sports.

Objective of the study was to perform a comparative study of the performance traits of male and female



wrestlers in the disciplines of freestyle and Greco-Roman wrestling at the Olympic Games in Paris in 2024.

Methods and structure of the study. The following methods were used in the work: analysis of scientific and methodological literature, video analysis and timing of fights for the first and third places in each weight category at the Olympic Games in Paris (2024) in wrestling among men and women (disciplines - freestyle and Greco-Roman wrestling), methods of mathematical statistics. At the beginning of the study, a video analysis of competitive fights at the Olympic Games in Paris (2024) was carried out, on the basis of which the following characteristics of the competitive activity of wrestlers were calculated: average bout time, average time of wrestling in a standing position and on the ground separately; activity and reliability of wrestling in a standing position, overall effectiveness of the bout, as well as effectiveness in wrestling in a standing position and on the ground separately, high-scoring. Then a comparative analysis of the competitive activity indicators of male and female wrestlers in the disciplines of freestyle and Greco-Roman wrestling was carried out. At the end of the work, conclusions and recommendations were formulated.

Results of the study and discussion. The table presents the calculated indicators of the competitive activity of male and female wrestlers (disciplines - freestyle and Greco-Roman wrestling) in the final fights for first and third places at the Olympic Games in Paris (2024).

The table shows that the number of weight categories and the number of fights for medals are the same for all

disciplines. With the fight regulations being two 3-minute periods with a 30-second break for all athletes, the average fight time for men (discipline – freestyle wrestling) is 5 minutes 27 seconds, which is 18 seconds longer than in Greco-Roman wrestling and 1 minute 6 seconds longer than for women. This suggests that the number of early victories for women is significantly higher than for men in both disciplines, which indicates that women's fights are more spectacular and can also be explained by insufficient competition, which is reflected in the difference in the class of athletes fighting for medals. This is due to the fact that women's wrestling (discipline – freestyle wrestling) is a fairly young sport and has only been in the Olympic Games program since 2004. It is worth noting that men (discipline – freestyle wrestling) spend more time in the standing position than others. Thus, the ratio of the average time of wrestling in a standing position to the average time of wrestling on the ground is maximum for them and amounts to 6,5, while for women this ratio is only 4,0. In a standing position, men (discipline – freestyle wrestling) made a total of 189 real attacks of which only 82 were assessed by the judges at 139 points. For Greco-Roman wrestling, these indicators were 70, 57, 74, and for women 116 and 53, 101, respectively. For a correct comparison of these indicators, they must be normalized per unit of time and per athlete, that is, to calculate the activity and effectiveness of wrestling in a standing position. The calculated values of these indicators are presented in the table, from which it is clear that the highest values of both activity and effectiveness are

Performance indicators in the final bouts for first and third place at the Olympic Games in Paris (2024).

Indicators	Freestyle Wrestling (Men)	Greco-Roman Wrestling (Men)	Freestyle Wrestling (Women)
Number of weight categories, pcs.	6	6	6
Number of fights for medals, pcs.	18	18	18
Average fight time, min, sec	5 min 27 s	5 min 09 s	4 min 21 s
Ratio of average time of fight in stand-up to average time of fight in ground fighting	6,5	6,0	4,0
Number of assessed actions in stand-up, pcs.	82	57	53
Number of points won in stand-up, pcs.	139	74	101
Number of real attacks in stand-up, pcs.	189	70	116
Activity of fight in stand-up, TTA/min	1,11	0,44	0,92
Effectiveness of fight in stand-up, points/min	0,82	0,47	0,80
Reliability of attack in stand-up, %	43	81,4	45,7
Number of assessed actions in ground fighting, pcs.	23	16	16
Number of points won in ground fighting, pcs.	45	35	32
Effectiveness of fight in ground fighting, points/min	1,71	1,33	1,02
Effectiveness of fight, points/min	0,94	0,59	0,85
High-scoring, %	5,7	4,1	4,3



observed in men (discipline – freestyle wrestling) and amount to 1,11 real attacks per minute and 0,82 points per minute per wrestler. The values of these indicators are slightly lower for women and amount to 0,92 and 0,8, respectively.

In Greco-Roman wrestling, they are significantly lower and equal to 0,44 and 0,47, respectively. At the same time, the reliability of the attack in Greco-Roman wrestling is the highest and is 81,4%, while in freestyle wrestling, this figure is almost two times lower and is 43% for men and 45,7% for women. This suggests that Greco-Roman wrestling representatives prefer to wrestle as reliably as possible, minimizing attempts to attack, excluding risky actions, which leads to a significant decrease in the dynamism and spectacle of a wrestling match and, ultimately, the popularity of this sport. The International Federation of United Wrestling Styles UWW has been trying to solve this problem for several decades by changing the points of the competition rules, but, as we can see, so far without success.

In ground wrestling, men (discipline – freestyle wrestling) performed 23 TTD, estimated at 45 points. For women specializing in freestyle wrestling and men (discipline – Greco-Roman wrestling), these indicators are approximately equal and amount to 16 TTA estimated at 35 points and 16 TTA estimated at 32 points, respectively. Calculation of the effectiveness of wrestling on the ground shows that, as in the standing position, the value of the indicator is maximum for men (discipline – freestyle wrestling) and amounts to 1,71 points per minute, for Greco-Roman wrestlers it is 1,33, and for women 1,02. Thus, the effectiveness of wrestling on the ground is more than twice as high as the effectiveness of wrestling in the standing position for men in both disciplines and 1,27 times higher for women. This requires a significant revision of the methods of training athletes with an emphasis on improving technical and tactical actions on the ground, especially for men. Calculation of the effectiveness of the entire bout gives similar results: the value of the indicator is maximum for men (discipline – freestyle wrestling) and is 0,94 points per minute, for women 0,85 and Greco-Roman wrestlers 0,59. In conclusion, let us move on to the analysis of such a SD indicator as high-scoring. The table shows that the share of high-scoring techniques from the total number of assessed TTA is quite small and lies within the range from 4,1% to 5,7% depending on the sports discipline. At the same time, the maximum value of this indicator also belongs to men (discipline – freestyle wrestling). This suggests that athletes prefer to perform more reliable, albeit less assessed TTA.

Conclusions. The analysis of the competitive activity of male and female wrestlers (disciplines – freestyle and Greco-Roman wrestling) at the Olympic Games in Paris (2024) showed that the main indicators of the entertainment and success of a wrestling match, such as activity, effectiveness and high-scoring, are maximum for men specializing in freestyle wrestling, and minimum for Greco-Roman wrestlers. The differences in these indicators are significant and range from 1,29 to 2,52 times. This suggests significant differences in the system of training young athletes, which is not reflected in the content of the federal standard of sports training for the sport of "wrestling". The effectiveness of wrestling on the ground is more than twice as high as that of wrestling in a standing position for men in two disciplines and 1,27 times higher for women. This requires a significant revision of the methodology for training athletes with an emphasis on work on the ground, especially for men.

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