

Original Article

Performance analysis of freestyle wrestling competitions of the last olympic cycle 2013–16

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Abstract:

In view of frequent changes of competition rules in freestyle wrestling a timely and systemic analysis of the competitive activity is a relevant task of the high-level sport. The research objective is to study the dynamics of characteristics of the competitive activity at world championships and the Olympic Games in freestyle wrestling over the period of 2013–16 Olympic cycle, to reveal development tendencies and to draw conclusions about the influence of the new competition rules. It is shown that wrestling rules changes (2013) have entailed the increase in activity, performance level and competition among wrestlers. Thus, the mean number of scored points per wrestler per match had gradually increased from 4.42 in 2013 to 4.72 points per match in 2015 and made up 0.93 pts/min on average. The number of matches with victory by superiority at world championships (2013–15) averaged 18%, while at the 2016 Olympic Games the figure was only 11.7%. Olympic wrestlers have a similar level of qualification than world championship wrestlers. On the whole, the positive dynamics of performance, activity and impressiveness of matches as a result of the competition rules changes is confirmed.

Key words: freestyle wrestling, competition rules, analysis, world championship, Olympic Games.

Introduction

Sporting competitions in Olympic sport are the central element (Platonov V.N. 2015) which determines the whole system of organization, methodology and sportsmen preparation for effective training and competitive activity. Today the commercial competitive capacity of a certain sport is the most important condition of its development. It is mainly defined by impressiveness, popularity and prestige of this sport on the world stage. Freestyle wrestling faces the acute **problem of impressiveness**, since a fundamental issue is tackled – that of development prospects and the presence of this sport in the Olympic Games programme (Tünnemann H. 2013, 2016; Latyshev N., Latyshev S., Shandrigos V. 2014; Lennartz K. 2013).

The increase in impressiveness of the competitive activity is provided to a considerable degree by means of improving the rules and conditions of holding competitions. It is assumed that these changes adequately correspond to the modern requirements and make a positive impact on the development of the sport. However, during the last decades the competition rules have been revised multiple times, but still remain an important subject of study for specialists from different countries. The analysis of the biggest competitions and publications of the recent years (Tünnemann H. 2013, 2016; Boyko V.F., Malinskii I.I., Andreytsev V.A., Yaremenko V.V. 2014; David Eduardo López González 2014) reveals controversial questions, discrepancies and contradictions of opinions of different categories within the sports community.

In the paper (Apoyko R.N. 2015) it is concluded on the basis of the questionnaire survey of opinions of specialists who have some practical experience (84 experts) that the new rules of 2013 have influenced positively the effectiveness and impressiveness of the competitive activity. The return to the old regulations of the match (two periods of three minutes each), the general summation of points in accordance with the results of the whole match, the score increase for technical-tactical actions, etc. has been welcomed both by spectators and specialists with great enthusiasm. At the same time significant contradictions of opinions concerning a number of points with regard to the rules change are discovered: fixed number and limits of weight categories, cancellation of a 5-point mark and some other issues. On the whole, expert estimations require more profound quantitative investigations of the competitive activity of different levels (Podlivaev B. 2010; Tünnemann H. 2013; Platonov V.N. 2015).

In the series of works (Tünnemann H. 2013, 2016) extensive important quantitative data of competitions is analyzed in view of the rules change. New tendencies at competitions of the highest level are revealed, quantitative analysis of various aspects of competitive activity in all styles of wrestling is conducted. Nevertheless, some important aspects of a freestyle wrestlers training program during the Olympic cycle are not analyzed.

Previously in the work (Latyshev N., Latyshev S., Gavrilin V. 2007, 2008, 2009) the significant difference between figures of competitive activity at the Olympic Games in Beijing (2008), Athens (2004), Sydney (2000) and Atlanta (1996) has been demonstrated. Characteristics of success of wrestlers at the 2008 European Championship have been revealed. Conclusions about efficient directions and types of analysis of the competitive activity in wrestling, as well as the general regularities of holding a bout of high-level wrestlers have become the result of these researches (Korobeynikov G.V., Latyshev S. V., Latyshev N.V., Goraschenko A.U. Korobeynikova L.G. 2016).

Nevertheless, the questions of the analysis of performance characteristics, sportsmen activity, as well as the dependence on weight classes and the level of wrestler qualification in the dynamics of the Olympic cycle form a general **relevant problem** of continuation of researches into the competitive activity in terms of new competition rules.

The objective of the given research is to study the dynamics of characteristics of the competitive activity at world championships and the Olympic Games in freestyle wrestling during the 2013–16 Olympic cycle, to reveal development trends and to draw conclusions about the influence of the new competition rules.

Material & methods

The following research methods have been used in the paper: the analysis of scientific-methodological literature, the analysis of the official result cards, methods of mathematical statistics.

The official result cards in all weight classes of the following competitions were analyzed: World Championship 2013 (Budapest, Hungary), World Championship 2014 (Tashkent, Uzbekistan), World Championship 2015 (Las Vegas, the United States) and Games of the XXXI Olympiad 2016 (Rio de Janeiro, Brazil). The result cards were taken from the official website of United World Wrestling (www.unitedworldwrestling.org). In total 926 sportsmen participated in the competitions and 2099 matches were held. For each wrestler the number of matches, the number of scored and given up points, the victory variants (victories by fall, default/forfeit/disqualification; victories by superiority; victories by points) and the duration of a match were recorded. Depending on the results of performances at the competitions all the wrestlers were divided into three groups: those who took prize-winning places (1–3 place); those who won at least one match; those who won no matches. Such a division is conditioned by two aspects of the analysis. Firstly, separated groups are quite equivalent and representative in the number of matches: it allows processing the data with the mathematical statistics methods. Secondly, these groups differ fundamentally in results of competition performances. To discover peculiarities of matches depending on weight classes, all wrestlers were divided into three weight groups: light (up to 57 kg and up to 65 kg), middle (up to 74 kg and up to 84 kg) and heavy (up to 97 kg and up to 125 kg).

Results & discussion

The last essential competition rules changes were accepted in May 2013 and, after some adjustments, came fully into force early in 2014, therefore 2013 World Championship (WC) was held according to some interim rules variant. The change in match regulations, the increase in the number of points for performing some actions, and the general summation of points during the whole match are of special importance and have entailed changes in many aspects of the competitive activity. The essential result is noted in the work (Tünnemann H. 2013), namely: the immense recession of performance, which took place at the 2012 Olympic Games (OG) in all styles of wrestling, was overcome. The study of 2013 international competitions demonstrated remarkable success of the new competition rules: “after analysing four Championships 2013 carried out with new rules we found out a successful implementation of the new rules. Boring 1:1 periods and unattractive clinches disappeared and it took place an increase of technical-tactical actions, more offensive wrestling and activity, more scorings and more spectacular bout for the audience and media”. It is showed that the performance figure (the difference between points won and lost) has improved, the attack effectiveness (the number of points for an attack per minute) and the activity have increased.

We have carried out an analysis of characteristics of the competitive activity, such as performance, distribution of the number of matches won under different conditions and number of competitors. In Table 1 the average data of technical performance characteristics of the competitive activity of wrestlers at world championships (2013–15) and the 2016 Olympic Games are presented.

The first line shows the dynamics of the average number of scored points per wrestler (including scores of both winners and losers) per match: by 2.0% in 2014 and by 6.8% in 2015 in comparison with 2013. At OG 2016 the figure is higher by 4.5% in comparison with 2013 and by 1.5% in comparison with the average number of all 2013–15 world championships. This important fact indicates the effectiveness of the changes of the competition rules, with the figure characterizing performance at the Olympic Games being higher than that at world championships.

Table 1. The dynamics of characteristics of the competitive activity of freestyle wrestlers over the period of the 2013–16 Olympic cycle.

№	Characteristics of the competitive activity	Competitions			
		WC 2013	WC 2014	WC 2015	OG 2016
1	Average number of points per match per wrestler	4.42	4.51	4.72	4.62
2	Average number of points per minute per wrestler	0.96	0.88	0.94	0.81
3	Average number of victories by fall VT per match, %	5.2	4.5	5.7	3.9
4	Average number of ST victories by superiority per match, %	23.2	15.0	15.9	11.7
5	Number of participants	262	243	301	120

In the second line the average number of points per minute per wrestler is presented. The figure for 2013–15 averages 0.93 pts/min, while at OG 2016 it is notably lower – 0.81 pts/min. The decrease in the figure in the middle of the Olympic cycle to 0.88 pts/min at WC 2014 is probably caused by the adaptation of wrestlers to the new rules, and the decrease at OG 2016 to 0.81 pts/min is connected with the high level of the event and the competition at them.

According to the paper (Tünnemann H. 2016) winners at world championships in 2013 scored about 1.5 pts/min, in 2014 already 1.8 pts/min, but a little decrease is observed in 2015 – to 1.6 pts/min. Although according to the data the average number of points per match per wrestler had grown from 2013 to 2015. This seeming discrepancy is conditioned by the influence of many heterogeneous factors: more rapid adaptation of wrestlers of higher class, considerable difference between the number of participants and the average duration of the match.

The next figure – the number of victories by fall – almost did not change during the Olympic cycle and made up about 5% of all matches. This is a natural expected outcome since the conditions of awarding victories by fall have not changed. Variations of the figure during the Olympic cycle are connected to the level of sportsmen and the number of participants of the competition.

The figure of the fourth line – the number of victories by superiority – is of the prime importance. The change of the competition rules (2013) immediately led to a considerable decline in the number of matches won by superiority by 35.3% (2014) and by 31.5% (2015) correspondingly in comparison with the competitions of 2013. It is mainly caused by the changes of the conditions of scoring for performing some actions, as well as by the conditions of victory (an increase of disparity in points between the winner and the loser). At OG 2016 the figure lowered to 11.7% since the best-trained wrestlers in the world were presented at these competitions.

A comparative analysis of the average number of scored points earned by wrestlers of different groups depending on the performance results at the competitions during the last Olympic cycle was carried out (Figure 1).

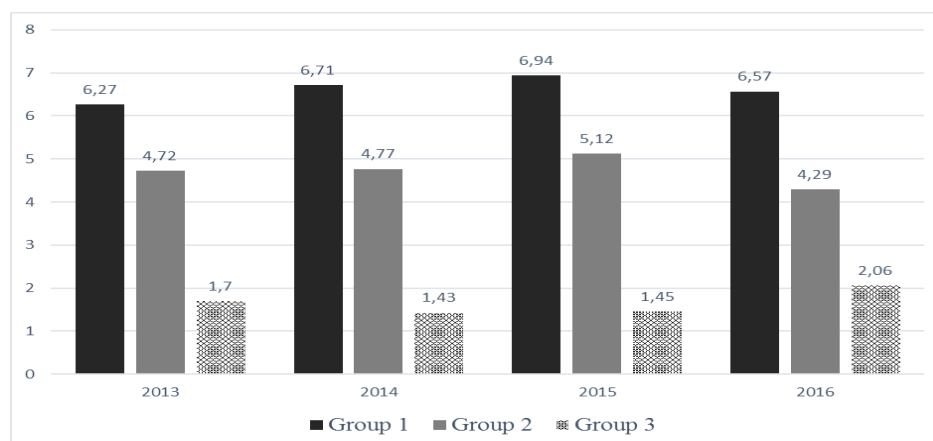


Fig. 1. The average number of points scored during the match by three groups of sportsmen depending on the performance results: Group 1 – winners and medallists, Group 2 – wrestlers who won at least one match and Group 3 – wrestlers who won no matches.

The graph distinctively demonstrates that medallists scored the bigger number of points per match on average after the changes of the rules in the dynamics of the Olympic cycle (2013–2016): by 7.1% (WC 2014) and 10.7% (WC 2015) in comparison with WC 2013. The second group of wrestlers also demonstrates the growth of the number of scored points: by 8.5% in 2015 in comparison with 2013. As for the wrestlers who won no matches (group 3), these sportsmen began to score essentially smaller number of points after the change of the competition rules: the figure diminished by 14.7% in 2015. It means that the range of differences between the winners and the losers in the dynamics of the Olympic cycle was on the increase. Apparently, not all wrestlers adapt to the new competition rules equally successfully: wrestlers of the higher level of qualification adapt

quicker.

As expected, wrestlers who participated in OG 2016 are closer in terms of the level of qualification. Thus, for the first and the second groups of wrestlers the figure diminishes by 5.3% and 16.2% correspondingly in comparison with 2015, while wrestlers of the third group, on the contrary, win more points (by 42.1%). It is explained by the fact that the number of participants at OG 2016 (because of the selection) is 2.5 times fewer than at WC 2015. These facts are confirmed by other researches (Tünnemann H. 2013, 2016) and indicate the high level of wrestlers' qualification at the Olympic Games.

For finding peculiarities which depend on the weight classes the analysis of the Olympic Games 2016 was carried out. Wrestlers of the lightweight group score more points than anyone else – 5.2 points per match on average; those of the middleweight group – 4.6 points per match, while for wrestlers of the heavyweight group this figure is minimal – 4.1 points per match (Table 2).

Table 2. The average number of scored points of the wrestlers who participated in 2016 Olympic Games depending on the weight class.

№	Groups of sportsmen depending on the competition performance results	Weight groups		
		Light	Middle	Heavy
1	Group 1, medallists	7.5	6.0	6.2
2	Group 2, those who won at least one match	4.4	4.6	3.9
3	Group 3, those who did not have any victories	2.8	2.3	1.1
4	All wrestlers	5.2	4.6	4.1

Prize-winners of the lightweight group (the first column) scored 7.5 points per match on average. It is by 2.7 times more than the wrestlers who won no matches (2.8 point per match). As far as the heavyweight group (the third column) is concerned, the prize-winners scored 6.2 points per match on average, the wrestlers who won at least one match – 3.9 points per match, and those who did not have any victories – only 1.1 points per match. In such a way, the prize-winners and the defeated (wrestlers without victories) of the heavyweight group differ the most according to the performance – by 5.6 times. It demonstrated the considerable distinctions between weight classes. The obtained results are important for development of preparedness models and allow revision of the training activity of sportsmen. Thus, for example, for achieving a positive result it is required to score about 6 points per match on average, therefore it is necessary to aspire to perform about three attacks earning point.

Conclusions

The rules of the freestyle wrestling (as of any other type of wrestling) have been significantly changing during the past decades and each Olympic cycle has its own essential peculiarities. The received data indicates the increase of the performance activity of wrestlers owing to the changes in the competition rules. Thus, the average number of scored points per wrestler per match gradually increased from 4.42 at WC 2013 to 4.72 points per match at WC 2015. It is discovered that wrestlers of the lightweight classes are more active and high-scoring irrespective of their competition rank and level of qualification. On the whole, the research has demonstrated positive dynamics of performance and the impressiveness of matches, conditioned by the right choice of the structure of the competition rules changes and their correspondence to spectators' requirements and tendencies of the development of the freestyle wrestling.

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