

THE INFLUENCE OF CHANGES IN COMPETITION RULES ON TACTICS OF WEIGHT CATEGORY CHOICE IN WRESTLING

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The article presents the types and specifics of tactics of the weight category choice in women's, freestyle and Greco-Roman wrestling. In modern scientific papers participation tactics of athletes in the competition system is covered fragmentally. Moreover, tactics of weight category choice is not described at all. We analyzed the dynamics of performances and results of 72 elite wrestlers who won gold, silver and bronze medals at the Games of XXXI Olympiad 2016 in Rio de Janeiro in different weight categories (four athletes in each one). In general, we compared the results of 24 women, 24 freestyle and 24 Greco-Roman wrestlers. There were discovered eight types of tactics which athletes used during four seasons in 2013–2016 Olympic cycle. Some types provided performances only in one Olympic weight category, while others were connected with participation in tournaments in two or even three weight categories during the same season. In all cases elite wrestlers used one weight category (mainly an Olympic one) as prior, while one or two weight categories were considered as additional. We established that the choice of the particular weight category depended on the specifics of the Olympic qualification system-2016, the prospects of obtaining the Olympic quota place in the International Qualification Tournaments and the results demonstrated at official international events in various weight categories. It was also discovered that in 2013 and 2016 the most popular was a tactics that involved performances in one prior Olympic weight category (70.83% of wrestlers used it). In 2014 and 2015 some athletes (1.39–11.11%) performed in the prior weight category and used one or two of them as additional. The largest number of tactics was used by representatives of women's and freestyle wrestling as the upper limits of weight categories were changed more than in Greco-Roman wrestling.

Key words: Olympics, Tactics, Elite Athletes, Competition, Result.

Задорожна Ольга, Кожокар Марина, Первухіна Світлана, Головачук Валентина. Вплив змін у правилах змагань на тактику вибору вагової категорії в боротьбі

У статті представлено види її особливості тактики вибору вагової категорії в жіночій, вільній і греко-римській боротьбі. У сучасній науковій літературі тактика участі спортсменів у системі змагань висвітлена фрагментарно. Більше того, тактика вибору вагової категорії практично не репрезентована. Ми проаналізували динаміку виступів і результатів 72 провідних борців світу, які завоювали золоті, срібні та бронзові медалі на Іграх XXXI Олімпіади 2016 р. в Ріо-де-Жанейро в різних вагових категоріях (по чотири спортсмени в кожній). Загалом ми порівняли результати 24 борчинь, 24 борців вільного та 24 борців греко-римського стилів. Виявлено вісім варіантів тактики, які атлети використовували протягом чотирьох сезонів олімпійського циклу 2013–2016 років. Деякі види передбачали виступи в одній олімпійській ваговій категорії, інші були пов'язані з участю в турнірах у двох і навіть трьох вагових категоріях протягом одного сезону. У всіх випадках борці використовували одну вагову категорію (переважно олімпійську) як основну, а одна-дві категорії були додатковими. Установлено, що вибір певної вагової категорії залежав від специфіки системи олімпійського відбору-2016, перспектив здобуття місця за олімпійською квотою в Міжнародних кваліфікаційних турнірах і результатів, продемонстрованих на офіційних міжнародних змаганнях у різних вагових категоріях. Також виявлено, що у 2013 та 2016 роках найбільш затребуваною була тактика, яка передбачала виступи в одній основній олімпійській ваговій категорії (її використовували 70,83% борців). У 2014 та 2015 роках деякі спортсмени (1,39–11,11%) виступали в основній ваговій категорії та використовували одну-дві з них як додаткові. Найбільшу

кількість видів тактики використовували представники жіночої й вільної боротьби, оскільки верхні межі вагових категорій зазнали більших змін, ніж у греко-римській боротьбі.

Ключові слова: Олімпійські ігри, тактика, елітні спортсмени, змагання, результат.

Introduction. Tactics is a special activity of athletes during the competition. In combat sports it is described as an opportunity to choose the most effective and appropriate action and to use it in a particular moment of the bout. These issues are discussed in works of Lopez-Gonzalez [7], Tunnemann, & Curby [8], Korobeinikova et al. [4]. Some authors also consider tactics during the main contests of the year, for example, World or Continental Championships, Olympic Games and World Cups [5]. Other researches [6] mention that tactics should also aim to demonstrate planned result. That is why an athlete should properly distribute efforts throughout the tournament or few events. In this case, an essential part of tactics is a choice of weight category (WC). Unfortunately, this issue is not considered enough in modern scientific resources.

In papers by Latyshev et al. [5; 6] there were discussed the upper limits of WC and the reasons of their changes in women's, freestyle and Greco-Roman wrestling. As for changes in the International Competition Rules, their detailed analysis is represented in a large amount of works [1; 3]. As usual, authors pay main attention to the changes of technical and tactical arsenal of actions, differences between the range of tactical and technical actions of representatives of light, middle and heavy WC [3–5]. However, there are still now data about the choice of particular WC during the season or Olympic cycle. Thus, our research was devoted to this issue.

In 2013–2016, the largest number of WC changes were made in women's and freestyle wrestling. For example, at the 2012 Olympic Games in London in women's wrestling, the awards were drawn in four WC, and in 2016 – in six WC. However, only two WC (48 kg and 63 kg) remained stable, but the upper limits of the others changed. In contrast to women's wrestling, the number of Olympic WC for men was reduced from seven to six. At the same time, at the World Championship-2013, men could compete in seven WC, and in 2014–2015 – in eight (the non-Olympic WC 70 kg was introduced in the competition program). Thus, during each season of 2013–2016, an important tactical task for athletes (and coaches) was the choice of WC both for performances in specific events and in general during the year. The situation was complicated by the fact that according to the Olympic qualification system-2016, the raffle for licenses began at the 2015 World Championship (the 1st phase of the Olympic qualification). Thus, the choice of WC was conditioned by the prospects of obtaining an Olympic quota place at the World Championship-2015 and, in case of failure, at the next contests in 2016 (Continental and two World Qualification Tournaments) [9].

According to our assumption, athletes could choose use different types of tactics of WC choice. For example, they could compete in the previous Olympic WC or change it. To prove these assumptions, we analyzed the number of competitions and the results dynamics of elite wrestlers

(n=72) in different WC in each of the four seasons in the 2013–2016 Olympic cycle.

Materials and Methods. We analyzed the dynamics of performances and results of 72 elite wrestlers who won gold, silver and bronze medals at the Games of XXXI Olympiad 2016 in Rio de Janeiro in different WC (four athletes in each of six WC). In general, we compared the results of 24 women, 24 freestyle and 24 Greco-Roman wrestlers. To do this, we used athletes' individual profiles on the UWW website. Our attention on the number of competitions in which each athlete participated during the season; the results at the main events of the season such as World Championships (WCh) and the Games of XXXI Olympiad; the number of events in which the athlete won medals during the season; the highest and lowest result during the season.

We analyzed the data with the STATISTIKA 10.0 software and Microsoft Excel 2016. Shapiro-Wilk's test was used to check normality of distribution of the indicators of wrestlers during four seasons within 2013–2016 Olympic cycle. To determine the significance of differences of the results in each group we used parametric and non-parametric tests. In case of normal distribution of indicators, we used the single-factor analysis of variance ANOVA. In case of absence of normal distribution, we used Kruskal-Wallis H-test. Method Bonferroni was used for correction in both tests. The level of statistical significance of differences was set at $p \leq 0.05$.

Results. It was found that in the 1st season of the 2013–2016 Olympic cycle, most athletes (70.83%, n=51) competed in only one Olympic WC, including 19 women, 15 – freestyle wrestlers, 17 – Greco-Roman athletes. Another 11.11% (n=8) chose two Olympic WC, one of which was the main (prior). The main (prior) WC is this one, in which the athlete participated in a large number of events in the season, including World Championship. Only 2.78% (n=2) combined performances in the Olympic and non-Olympic WC, preferring the previous WC (Table 1), and 15.26% of wrestlers (n=11) completely missed the season (did not participate in any official international event among "Senior" age category).

In 2014, the number of tactics has expanded, due to changes in the International Competition Rules. As in the previous season, the majority of athletes (68.06%, n=49) performed in one Olympic WC. However, others used different combinations of performances in several WC. Among these varieties, the most popular was the combination of performances in the prior Olympic and the use of non-Olympic as an additional (1–2 events during the year). This type of tactics was found in 11.11% of athletes (n=8). Some wrestlers, on the contrary, used the non-Olympic WC as a prior one. Among them, 2.78% (n=2) performed exclusively in the non-Olympic WC, 4.17% (n=3) – in the non-Olympic and Olympic ones. Interestingly, one representative of women's wrestling

Tactics of weight category choice by elite wrestlers in 2013–2016 (n=72)

Type of Tactics	Seasons							
	2013		2014		2015		2016	
	Number of athletes							
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
O	51	70.83	49	68.06	51	70.83	57	79.17
O + O	8	11.11	3	4.17	7	9.72	6	8.33
O + N	2	2.78	8	11.11	6	8.33	8	11.11
N			2	2.78	2	2.78		
N + O			3	4.17	4	5.55		
N + O + O			1	1.39			1	1.39
Missed season*					1	1.39		
O	11	15.28	6	8.33	1	1.39		

*Legend. Types of tactics: O – performances in one Olympic WC; O + O – a combination of performances in two Olympic WC, one of which is a priority; O + N – a combination of performances in two WC (Olympic and non-Olympic) with preference for the first; N – performances exclusively in one non-Olympic WC; N + O – a combination of performances in two WC (non-Olympic and Olympic) with the preference of the first; N + O + O – a combination of performances in three WC (non-Olympic and two Olympic) with the preference for the first; N + N + O – a combination of performances in three WC (two non-Olympic and one Olympic) with preference for one non-Olympic; Abs. – the number of wrestlers who used a certain type of tactics (absolute value); % – the number of wrestlers who used a certain type of tactics (percentage of the total number, n = 72); * – the number of athletes who did not take part in any official international event during the season.*

competed in three WC: the main non-Olympic (77.78%) and two Olympic – lighter and heavier than the main one. This is due to the fact that the “old” WC (55 kg), in which she performed earlier, in 2013 became non-Olympic. As a result, the athlete had to move to another WC. As in 2013, some athletes (8.33%, n=6) did not take part in any official international event.

Trends identified in the 2nd season continued in the 3rd one, which confirmed the impact of changes in the International Competition Rules on the tactics of WC choice. The number of athletes who performed only in the Olympic WC remained almost constant (70.83%, n=51). However, the total number of wrestlers who used a plenty of combinations of performances in several WC has increased. Among them, 9.72% of athletes (n=7) competed in the prior Olympic WC, using another Olympic one as an additional (1–2 events per year). Some wrestlers (8.33%, n=6), on the contrary, occasionally performed in the non-Olympic WC. Compared to the previous season, the number of athletes who used the non-Olympic WC as a prior one has increased. Among them, 2.78% of wrestlers (n=2) performed exclusively in the non-Olympic, 5.55% (n=4) – in the prior non-Olympic and additional Olympic. Only one athlete competed in two non-Olympic WC (one of them – the prior one) and one Olympic. Interestingly, in Greco-Roman wrestling during 2014–2015, athletes used fewer types of tactics than representatives of freestyle (four and three to six, respectively).

In 2016, the number of tactics decreased compared to previous seasons. The number of wrestlers who chose only one Olympic WC increased to 79.17% (n=57). Other athletes also preferred performances in the Olympic WC, choosing as additional Olympic (8.33%, n=6) or non-Olympic (11.11%, n=8) one. We would like to consider separately the tactics used by the representatives of freestyle wrestling from the Republic of Azerbaijan Sh. Sh. and H. A. In 2016,

Sh. Sh. competed in two Olympic WC – 97 kg and 86 kg (an additional one was heavier than the prior WC). Interestingly, this WC was chosen by the athlete exclusively to perform at the Games of XXXI Olympiad 2016 in Rio de Janeiro (in previous seasons, the athlete preferred to perform in the heavier Olympic WC). Instead, H. A. in the 4th season preferred performances in the non-Olympic WC (61 kg), occasionally performing in the heavier Olympic WC (65 kg). At the same time, in the Olympic arena, he performed in a lighter WC (57 kg) than the one that was chosen as a prior one in previous seasons. A comparison of the results demonstrated by athletes in different WC in 2013–2016 allowed us to say that for both wrestlers the change of WC exclusively for performance at the Olympics was due to deteriorating results in prior WC in 2016 compared to previous years.

Discussion. In previous papers we discussed the specifics of the participation tactics of elite wrestlers depending on the dynamics of their results in different seasons [10]. In this article, we focused on tactics of weight category choice. Unfortunately, because of worldwide pandemic Covid-19 the main part of 2019–2020 and 2020–2021 seasons was cancelled. So that it is impossible to make correct conclusions on participation tactics in the previous Olympic cycle 2016–2020. That is why we focused attention on the Olympic cycle 2013–2016. In our opinion, the trends discovered in 2013–2016 are almost similar to the modern cycle (2021–2024), because the competition system and Olympic qualification criteria are almost the same in comparison with previous period.

In women’s wrestling in 2013–2016, the most popular among most athletes was a variety of tactics that involved performances in one Olympic WC (70.83–80.33%, or 17–20 athletes). However, after the changes introduced in 2013, in the 2nd and 3rd seasons, some of them began to use other options, which provided for the preference of one

WC (prior), while one or two WC were used as additional. At the same time, most of the athletes preferred to perform in additional WC, which were heavier than the prior one.

In freestyle wrestling during the Olympic cycle of 2013–2016, the most relevant was a variety of tactics that involved performances exclusively in the Olympic WC (58.33–79.17%, or 14–19 athletes). In the 2014 and 2015 seasons, some athletes used different versions of performances in other WC, choosing one of them as a prior and one or two as additional. Interestingly, most athletes performed in those additional WC which were heavier than the prior one. Only three athletes, on the contrary, competed in the additional WC, which was easier than the prior.

If in women's and freestyle wrestling athletes used from three to six types of tactics in four seasons (the most diverse choice was in 2014–2015), in Greco-Roman – from two to four tactics. We assume this is due to the changes in the International Competition Rules and the specifics of the 2016 Olympic qualification system. According to them, the limits and number of WC in Greco-Roman wrestling underwent less changes than in freestyle wrestling, so it was easier for athletes to stay in the “old” WC.

Based on the above, we concluded that the tactics of WC choice in wrestling during the season is to give preference to performances in one of them, which is the main (prior). Most athletes choose the Olympic WC as the main one. Performances in additional WC – Olympic or non-Olympic – were mostly episodic (1–2 events per year). At the same time, most athletes choose the additional WC, which was heavier than the main one.

Analysis of the performances dynamics and results of elite wrestlers in 2013–2016 showed that most of them used different types of tactics in each season. This allowed us to consider several types of tactics during the Olympic cycle. In total, we identified eight types of tactics of WC choice within 2013–2016.

The first one included performances in one Olympic WC and in its updated version (after changes in the International Competition Rules in 2013) during four seasons. This type was the most popular – it was used by 37.50% of athletes (n=27). Representatives of freestyle and Greco-Roman wrestling predominated among them (10 and 13 wrestlers, respectively).

The second type was a combination of performances in two WC (Olympic and non-Olympic) with the preference of the first for several seasons or the entire cycle, including for performances in the main competitions. At the same time, performances in the non-Olympic WC were sporadic for one or two seasons. This type was used by 12.50% of athletes (n=9), among whom representatives of freestyle wrestling predominated (n=6).

The third type was similar to the second, but the difference was that the athletes preferred to perform in the non-Olympic WC, while the Olympic was used as an additional one during the 1st – 3rd seasons. This type was actual for 2.78% of freestyle wrestlers (one for men and one for women). Interestingly, one Olympic WC was chosen to perform in the 4th season.

The fourth type involved combining performances in several Olympic WC (most athletes performed in two WC) over a cycle or several seasons, preferring the one with the highest results. In freestyle wrestling, athletes combined this type of tactic with the first one.

The fifth type consisted in the preference to performances in the non-Olympic WC during the 1st – 3rd seasons (including the main contests). At the same time, two Olympic WC (lighter and heavier than the non-Olympic priority) were used sporadically. In the 4th season, the WC with the highest results in previous seasons was chosen to perform at the main competitions.

The sixth type was similar to the fourth one and provided performances in one prior Olympic WC during all seasons, including the main competitions. The second Olympic WC was used as an additional. In contrast to the fourth type, the athletes showed consistently high results in both WC – prior and additional.

The seventh type provided for performances in one prior Olympic WC throughout the cycle and its sudden change to another WC (“all-in”) only for performance in the Olympic Games. Interestingly, the results of the representatives of this type of tactics in the priority WC deteriorated in the 4th season, although in the previous years they were stable. According to our assumption, the sudden change of the WC in 2016 for performances exclusively in the Olympic arena was caused by this fact.

The eighth type provided for performances in one Olympic WC during the 1st – 3rd seasons with a full transition to another Olympic WC in the 3rd or 4th season. At the same time, the results in both WC at the main and other competitions were stable.

The mentioned changes during 2013–2016 prompted athletes to choose one of the eight types of tactics for choosing WC or combine them with each other. The easiest from this point of view was the transition to the “new” Olympic WC, if its upper limits completely coincided with the “old” or differed from it by 1–2 kg. Most athletes managed to do this immediately in 2014 (75.00%, n=54). Since then, they have competed in the new Olympic WC, using them as the main ones. Performances in other WC were either absent or sporadic and were limited to 1–2 events during the year.

Representatives of the WC, which have undergone significant changes (increase of upper limits or exclusion from the program of the World Championship and the Olympic Games), made the transition to another WC in other ways. After the exclusion from the program of women's wrestling Olympics WC 72 kg in 2013, three athletes after the 1st season moved to the lighter Olympic WC 69 kg and then performed only in it. Four athletes after the 1st season moved to the heavier Olympic WC 75 kg and then performed only in it.

Representatives of the “light” and “medium weight” in this case used tactics that included performances in the prior non-Olympic WC and one or two Olympic (respectively lighter and heavier than it) as additional. This type of tactics made it possible to assess the dynamics of results in both Olympic WC and, on this basis, to choose the prior WC for

the Olympic qualification and performance in the Olympic arena. At the same time, during the 1st – 3rd seasons, the non-Olympic WC was used as a “borderline”, which, if necessary, could be “increased” or “reduced” by correcting the body mass.

In some cases, a sudden change in the WC (“all-in”) was detected only for performance in the Olympics. During 2013–2016, athletes competed in various WC, but they choose the lighter one to perform at the Olympic arena (in other seasons, they never performed in the selected WC at official international competitions).

It should be noted that 37.50% of athletes (n=27) participated in the Games of the XXX Olympiad 2012 in London, and 16 of them won medals. Despite the opportunity to stay in the “old” Olympic WC, some of them during 2013–2016 tried to move to another. Among them there was a representative of women’s wrestling K. I. from Japan, who won gold medals at the Games of XXVIII, XXIX and XXX Olympiads in the WC 63 kg. In 2014, the athlete completely transferred to the WC 58 kg and then performed only in it.

We assume that the frequency and suddenness of WC changes depends not only on the dynamics of sports results or the innovations in International Competition Rules, but also on the difference between the WC upper limits in which athletes perform during one season. Representatives of “light” and “medium” weight more often perform in several WC

during the season (the difference between the upper limits is from 2 to 8 kg). For representatives of “heavy” weight, it is typical to give preference to one prior WC. At the same time, most athletes who combine performances in several WC choose as an additional that one which is heavier than the main. Most wrestlers who combine performances in the age categories “Cadets”, “Juniors” and “Seniors” choose similar WC (those whose upper limits are approximately the same for different age categories).

Conclusions. The choice of weight category is one of the components of the participation tactics in the competition system. In the scientific papers this topic is covered fragmentally.

In 2013–2016 the most popular among 68.06–79.17% of athletes was a type of tactics that involved performances in one prior Olympic WC. However, after the changes introduced in 2014, in the 2014–2015 seasons, some athletes began to use other options, which provided for the preference of one WC (prior or main), while one or two WC were used as additional. Most of the athletes preferred to perform in additional WC which were heavier than the chosen prior one.

The largest number of tactics was used in women’s and freestyle wrestling in 2014–2015 seasons as the upper limits of WC were updated. In Greco-Roman wrestling the changes in the International Competition Rules affected the tactics of WC choice less.

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