



Integrated system for defining the best athletes and teams in arm wrestling in conditions of modern challenges

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Abstract

Objective of the study was to develop and substantiate an integrated system for determining the rating of the best athletes and teams in armwrestling.

Methods and structure of the study. The analysis of the data of scientific literary sources, protocols of competitions, expert evaluation was carried out. The protocol data of 19 official All-Russian arm wrestling competitions in 2022 were processed. The presidents of the regional armwrestling federations, members of the Presidium of the Russian Armwrestling Federation, leading coaches and judges (35 people) acted as experts.

Results and conclusions. An integrated system for determining the best athletes and teams in armwrestling has been developed in the context of limited international competitions. The rating is compiled on the basis of taking into account the results of all official all-Russian competitions of the subject's combined team and individual athletes in various tournaments over a certain period of time (classification period) - a calendar year. Criteria for determining the rating of the best teams of the constituent entities of the Russian Federation during the competitive season have been developed, providing for the ranking of official all-Russian competitions in a hierarchy into four levels of significance, taking into account three age groups: cadets, juniors and adults.

Keywords: *armwrestling, rating, official competitions, championships of Russia, All-Russian competitions, sports potential of competitions, density of results.*

Introduction. Determining the rating, that is, the conditional numerical coefficient of the best athletes and teams in sports, is an important factor in increasing the objectivity of assessing their skills. The need for such calculations is especially obvious in martial arts, since the results achieved by athletes in competitions do not have an accurate quantitative measurement [1]. In most of these sports, there have long been various ratings of athletes, and such information is mobile updated after each competition and can serve as indicators in the selection and draw of participants in competitions. Attempts have been made to determine the ranking of the best armwrestlers following the example of other sports [5]. I.V. Grinev et al. (2020) notes the high importance of the rating for the analysis, optimization of competitive activity and motivation of armwrestlers [2].

In domestic armwrestling, the rating system has traditionally been used to determine the best athletes

and federations. As the main criterion, the results of the performance of participants and teams at the main international competitions - the World and European Championships were determined. The lack of participation in international competitions as a result of sanctions requires a revision of the previously existing ratings for determining the best athletes with a reorientation to all-Russian competitions.

One of the obvious ways to determine such an assessment in arm wrestling is to calculate the rating based on the results of the participation of athletes in official competitions. However, the issues of equivalence of the achievements of teams and individual athletes of different weight categories in arm wrestling remain insufficiently developed. There is still no clear system for ranking competitions in terms of their importance for ranking in armwrestling. Taking into account the insufficient development of scientifically based ratings of armwrestlers, we have developed



ways to determine such a rating, taking into account the specifics of the sport.

Objective of the study was to develop and substantiate an integrated system for determining the rating of the best athletes and teams in armwrestling.

Methods and structure of the study. In the course of the study, an analysis of data from scientific literature, competition protocols, and peer review was carried out. The protocol data of 19 official All-Russian arm wrestling competitions in 2022 were processed. The presidents of the regional armwrestling federations, members of the Presidium of the Russian Armwrestling Federation, leading coaches and judges (35 people) acted as experts.

Results of the study and their discussion. In accordance with the recommendations of experts, the following key provisions were taken into account when developing the rating: the rating offset includes the results of only those competitions that are included in the Unified Calendar Plan of the Ministry of Sports of the Russian Federation; the number of points awarded to teams or individual armwrestlers when occupying

certain places should vary depending on the status of the competition; the procedure for determining sports results provided for by the Armwrestling Competition Rules was used, points were awarded for the first six places on a regressing scale (Table 1): 1st place - 25 points; 2nd place - 17 points; 3rd place - 9 points; 4th place - 5 points; 5th place - 3 points; 6th place - 2 points. According to this system, the rating of the best teams and individual athletes was calculated [3].

As follows from Table 1, all official domestic competitions held under the auspices of the Russian Armwrestling Federation (RAF) are ranked in a hierarchy into four levels of significance, taking into account three age groups: cadets, juniors and adults. When dividing into levels, the status of the competitions was taken into account, as well as the degree of competition competition in terms of the number of teams and participants.

Table 2 shows the top 10 teams based on the results of all official All-Russian competitions in 2022.

In the presented ranking there is no equality of points between two or more teams. In case of a tie,

Table 1. Rating for determining the best teams of the constituent entities of the Russian Federation

Level	Name	Occupied place, points					
		1	2	3	4	5	6
1	CHR	25	17	9	5	3	2
2	PR, juniors 19-21	17	9	5	3	2	-
3	PR, Cadets 16-18	9	5	3	2	-	-
4	other ORC	5	3	2	-	-	-

Symbols: CHR - Championship of Russia; PR - Championship of Russia, 19-21, 16-18 - age groups of participants, ORC - official all-Russian competitions.

Table 2. Results of the calculation of the rating of the best national teams of the subjects of the Russian Federation in 2022 (top ten)

Subject	Bonuses for holding CHR and PR	CHR	PR 19-21	PR 16-18	PR 14-15	other ORC (summary)	Points	Place
Republic of North Ossetia - Alania		25	17	9	5	11	67	1
Republic of Tatarstan		17	9	5	3	5	39	2
Saint Petersburg	5	9				7	21	3
Belgorod region		2				15	17	4
Sverdlovsk region			3			10	13	5
Moscow region		3				7	10	6
Republic of Dagestan			5	3			8	7
Kaluga region						8	8	8
Krasnodar region				2	2	3	7	9
Oryol Region	5					2	7	10

Symbols: CHR - Championship of Russia; PR - Championship of Russia, 16-18, 14-15 - age groups of participants, ORC - official all-Russian competitions.



Table 3. Rating of the best male athletes in armwrestling at the end of 2022

Full name	Subject	PR	MAE	UC	BC	AFC	PYUP	FCK	Points	Place
Zoloev A.M.	SPb/North Ossetia		2		25	25			52	1
Yurchenko S.A.	Primorsky region				25		25		50	2
Tserekaev R.G.	Krasnodar/North Ossetia							25	25	3
Matyushenko I.A.	Saint Petersburg		17						17	5
Farniev E.M.	Republic of North Ossetia	17							17	4
Khusainov N.Z.	Chelyabinsk region			17					17	6

Symbols: PR - Russian Championship, MAE - All-Russian competitions in memory of Aslambek Enalдиеv, UK - Ural Cup, BC - Baltic Cup, AFC - Armed Forces Cup, PYUP - All-Russian competitions for the prizes of Yu.N. Puzakova, FCK - Friendship Cup of Kalmykia.

the team ranked higher in the first level competitions will be ranked higher, then the second, and so on.

A different system has been developed to rank the best athletes. The individual coefficient of effectiveness of competitive activity was calculated. The equivalence criterion for creating a pool of applicants is the victory of a participant in the Russian Championship in a given year. Further, additional indicators were used, and points were awarded for the first six places on a regressing scale in accordance with the Competition Rules [3] (Table 3).

Various approaches were considered related to the determination of places in the event of a tie. The majority of experts (80%) of the total number of those who took part in evaluating the effectiveness of the criteria identified the density of results in the main competition, the Russian Championship, as a priority. The density of the results reflects the degree of concentration of the result of the performance on the left and right hands. According to the indicated indicator, I. Matyushenko was classified above, taking higher places in comparison with E. Farniev and N. Khusainov. The ranking of athletes by assigning a certain rating to each of them comprehensively evaluates the results of the performances of athletes and teams, allows you to determine the best federations and the best armwrestlers at the end of the year, and more effectively evaluate the activities of coaches.

Conclusions. An integrated system for determining the best athletes and teams in armwrestling has been developed in the context of limited international competitions. The integrated system takes into account the results of all official all-Russian competitions of the subject's combined team and individual athletes in various tournaments over a certain period of time (classification period) - a calendar year. Criteria for determining the rating of the best teams of the constituent entities of the Russian Federation during the competitive season have been developed, providing for the ranking of official all-Russian competitions in a hierarchy into four levels of significance, taking into account three age groups: cadets, juniors and adults.

When calculating the ranking of the best athletes in terms of sports results, it is necessary first of all to

take into account: 1) the status of official all-Russian sports competitions; 2) the number and skill level of rivals, that is, the sports potential of the competition.

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