

World Rank List of Male Judokas and its Relation to Results of Tokyo Olympic Games (2020)

Dr. Mahmoud E. Baioumy¹, Dr. Ahmed M. Nada² & Dr. Ahmed M. Ghazy³

¹ Assistant professor – Department of Combat and Individual Sports - Faculty of Physical Education – Tanta University. dr.baioumy@phed.tanta.edu.eg

² Lecturer – Department of Sports Training and Kinesiology – Faculty of Physical Education – Tanta University. ahmed.mostafa@phed.tanta.edu.eg

³ PhD in Physical Education, Lecturer of Judo, Faculty of Physical Education – Tanta University and Head Coach of Tanta University Judo Team. dr.ghazy@unv.tanta.edu.eg

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Abstract

Aim: This research aimed to identify the relationship between male judokas' rank according to World Ranking List (WRL) and their results in Tokyo Olympic Games (2020) competitions. **Methods:** The researchers used the descriptive approach to analyze competition data of Tokyo Olympic Games (2020) for (201) male judokas in all weight categories with total of (222) matches. Win/Lose frequency and percentages were extracted for high-rank and low-rank judokas according to WRL. χ^2 was used for identifying correlations between the judokas' ranks on WRL and their match results (win/lose). **Results:** results indicated that high-rank judokas won (162) matches (72%) as χ^2 value reached (48.005) which was statistically significant on $P \leq 0.01$ in favor of high-rank judokas. Winning percentages for judokas in (-60, -66, -73, -81, -90, -100 and +100) kg weight categories were (80.77%, 66.67%, 76.92, 65.79%, 75%, 75% and 72%) respectively. Results of χ^2 indicated statistically significant correlations on $P \leq 0.01$ in favor of high-rank judokas in (-60, -73, -90, -100 and +100) kg, while the same value was significant on $P \leq 0.05$ for (-66 and -81) kg weight categories. Accordingly, the researchers concluded a statistically significant correlation between the judokas' ranking and their results in Tokyo Olympic Games (2020) as the higher the rank on WRL the higher the chance for a judoka to gain an advanced rank in the Olympics. It is also noticed that lower-rank judokas may have the chance to win, despite the vast gap in ranking, if they have the required abilities, talent and motivation to win.

Keywords: World Ranking List - Qualification System - Competition results - male judoka

Introduction:

In May 1882, "Jigoro Kano" invented a method for physical, intellectual, and ethical education out of traditional methods of combat and called it "Judo". Judo became one of the recognizable Martial Arts due to its educational, physical, and personal benefits. It is now an Olympic sport with an international federation including (207) national federations and (5) continental federations (**IJF 2021a; Callan et al 2022**).

IJF is interested in developing Judo as a sport. Since 2009, the IJF started the ranking of judokas in all weight categories and developed what is known now as "The World Ranking List" (WRL) for the highest (10) points gained by the judokas during (24) months before the Olympic Games (**Ferreira Julio et al. 2013**).

This is the first time in judo to establish systematic standards for comparing athletes of different countries according to an officially recognized ranking list. The main use of this list is to order judokas for qualification in the Olympics, to place judokas in specific places inside competitions and to distribute them to avoid competition among best judokas during preliminary matches of the competition (**Franchini & Julio 2015; Franchini & Takito 2014**).

Judo competitions are different from other individual – non-combat – sports. This is not limited to gender only. Instead, there are different weight categories where seven different competitors win the first place in the world ranking in both genders. Therefore, each weight category is considered as a separate competition. According to rules of world championships, any national judo federation selects one judoka for each weight category with maximum of nine judokas of the same gender. This means that two judokas can be selected in only two weight

categories while the only one judoka is selected for the rest five weight categories. Therefore, it is important for the judoka to consider his/her chances to be chosen in his/her national team in his/her weight category and other weight categories (Krumer, 2017).

The World Ranking List (WRL) was studied in several previous studies to evaluate its ability to predict judokas' performance during several competitions (Ghazy et al. 2023a; Velloso Breviglieri et al.2018; Courel-Ibáñez et al. 2018; Franchini et al. 2017).

Olympic competitions are the best model for summarizing results of years of training and details of advancement in technical/tactical performance of judokas, that should be studied to identify recent requirements and challenges that coaches and athletes should consider improving themselves and induce advance (Ghazy et al. 2023a).

There is no digital record to evaluate performance in seconds or centimeters in martial arts. Therefore, Olympic and World competitions are the major indicators for evaluating peak athletic performance (Franchini et al. 2020).

It is important to encourage young male and female judokas to participate in international tournaments suitable for their age groups to improve their rank on the WRL, increase their competitive experience and postpone their early Olympic or World participation with older judokas to maintain health and musculoskeletal structure (Wakwak et al. 2023; Ghazy et al. 2023b).

Judokas fight several matches in a single competition. One match may end in a few seconds in case of winning with full point (Ippon). Others may go longer if the competitors don't score. Each judoka tries his/her best to win each match and score better result to win a medal (Baoumy & Ghazy 2015).

Some judo matches may exceed (4) minutes when playing "The Gold Score". For example, some female- and male-matches lasted for (16.41 and 12.15 minutes) respectively during Tokyo Olympic Games (Kons et al. 2022).

Many researchers studied the relationship between World Ranking List, predicting performance and winning medals during the Olympic Games using several methods like simple frequency and multiple regression analysis. This led to various conclusions (Ghazy et. Al. 2023; Guilherme, & Franchini 2017; Franchini E.,& Julio, Daniel & Daniel 2013).

In Tokyo Olympics 2020, (352) male and female judokas qualified either through WRL, direct qualification or continental qualification. Another (41) male and female judokas qualified through host country places or tripartite commission places. Table (1) shows judokas qualified to Tokyo Olympics either through WRL or other means (IJF 2021b).

Table (1): Qualified Judokas in Tokyo Olympics 2020 According WRL and Other Means of Qualification

Type of qualification Gender	WRL Qualification Places				Other Qualification Places				Total
	DIR	CTL	Total	%	HST	TPC	Sum	Percentage %	
Females	126	50	176	91.67	7	9	16	8.33	192
Males	127	49	176	87.56	7	18	25	12.44	201
Total	253	99	352	89.57	14	27	41	10.43	393

DIR =Direct Qualification; CTL= Continental Qualification; HST = Host Country Places; TPC = Tripartite Commission Invitation Places

Table (1) indicated the qualification portions of judokas participating in Tokyo Olympics 2020. The largest portion was for WRL as (352) male and female judokas (89.57%) qualified that way with (176) female judokas (91.67%) and (176) male judokas (87.56%). Other judokas qualified either through host country places or tripartite commission places with total number of (41) judokas (10.43%) with percentages of female and male judokas of (8.33% and 12.44%)

respectively. This indicates the importance of advancing in WRL for judokas of all national federations to ensure their qualification to Olympic and World championships and to get a suitable distribution inside the match sheet. This led the researchers to try to identify the relationship between the judokas' ranking on WRL and results of Tokyo Olympic Games 2020.

Aim:

The current research aims to identify the relationship between the judokas' ranking on World Ranking List (WRL) and results of Tokyo Olympic Games 2020.

Research Question:

What is the relationship between the judokas' ranking on World Ranking List (WRL) and results of Tokyo Olympic Games 2020?

Methods:

Approach:

The researchers used the descriptive (analytical) approach.

Research Community:

Research community included data of (435) matches for (393) male and female judokas who participated in Tokyo Olympic Games 2020, representing (128) countries and (5) continents. Matches were held between July 24th and 31st 2021. Table (2) shows the numbers of judokas and numbers of female and male matches during Tokyo Olympic Games 2020.

Table (2): Number of Judokas and Matches During Tokyo Olympics 2020

Continents	Countries	Competitors	Female matches	Male matches	Total matches
5	128	393	213	222	435

Research Sample:

Sample included data of (222) matches for (201) male judokas who participated in Tokyo Olympic Games 2020 in all weight categories. Table (3) shows number of matches and qualification portions for each weight category in Judo competition of Tokyo Olympics 2020.

Table (3): Number of Matches and Portions of Qualification for Male Judokas in Tokyo Olympic Games 2020

S	Weight Category	WRL Qualification Places				Other Qualification Places				Sum	Matches (n)
		DIR	CTL	Total	%	HST	TPC	Total	%		
1	-60 kg	18	3	21	10.45	1	1	2	1.00	23	26
2	-66 kg	19	6	25	12.44	1	1	2	1.00	27	30
3	-73 kg	18	11	29	14.43	1	6	7	3.48	36	39
4	-81 kg	18	12	30	14.93	1	4	5	2.49	35	38
5	-90 kg	18	9	27	13.43	1	5	6	2.99	33	36
6	-100 kg	18	6	24	11.94	1	-	1	0.50	25	28
7	+100 kg	18	2	20	9.95	1	1	2	1.00	22	25
-	Total	127	49	176	87.56	7	18	25	12.44	201	222

DIR =Direct Qualification; CTL= Continental Qualification; HST = Host Country Places; TPC = Tripartite Commission Invitation Places

Table (3) showed the number of matches and qualification portions for judokas participating in Tokyo Olympic Games for each weight category. WRL portion was (176) judokas (87.56%) while other portions qualified (25) judokas (12.44%). The least number of judokas was in (+100 kg) weight category while the highest number was in (-73 kg) weight category.

Scientific Ethics:

Data analyzed in this research was obtained from the IJF official website (<http://www.ijf.org>) and Tokyo Olympic Games official website (<http://olympics.com>). There were no conflict of interests or other ethical issues that prevent the use of this open-access data.

Statistical Treatment:

All data was tabulated and treated in Microsoft Excel software to calculate frequency, percentage and Chi².

Results:

Results indicated higher winning percentages in favor of high-rank judokas according to WRL during Tokyo Olympic Games 2020. Table (4) shows winning frequency and percentages for high-rank and low-rank judokas during Tokyo Olympic Games 2020 in addition to Chi² values.

Table (4): Winning Frequency, Percentages and Chi² values for high-rank and low-rank judokas according to WRL in Tokyo Olympic Games 2020

S	Weight Category	Matches (n)	Winning (High-Rank)		Winning (Low-Rank)		Chi ²	P-value
			Frequency	Percentage %	Frequency	Percentage %		
1	-60 kg	26	21	% 80.77	5	% 19.23	9.846**	0.002
2	-66 kg	30	20	% 66.67	10	% 33.33	3.333*	0.038
3	-73 kg	39	30	% 76.92	8	% 20.51	12.737**	0.000
4	-81 kg	38	25	65.79%	13	% 34.21	3.789*	0.042
5	-90 kg	36	27	% 75.00	9	% 25.00	9.000**	0.003
6	-100 kg	28	21	% 75.00	7	% 25.00	7.000**	0.008
7	+100 kg	25	18	% 72.00	7	% 28.00	4.840**	0.028
-	Total	222	162	% 73.30	59	% 26.70	48.005**	0.000

* Significant on $P \leq 0.05$, ** Significant on $P \leq 0.01$,

Note: Fourth match in 73 kg weight category was not accounted for due to absence of both judokas.

Table (4) showed that high-rank judokas won (162) matches (73.30%) while low-rank judokas won (59) matches (26.70%). Chi² results indicated a statistically significant correlation on $P \leq 0.01$ in favor of high-rank judokas in winning. The following are some details of the results concluded for each weight category.

(-60) kg weight category: This weight category included (26) matches. High-rank judokas won (21) matches (80.77%) while low-rank judokas won (5) matches (19.23%). Chi² value was (9.846) which was statistically significant on $P \leq 0.01$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (8), Tsjakadoea Tornike (Netherlands) (rank 13) defeated Mshvidobadze Robert (ROC) (rank 3) and in Match (11), Lesiuk Artem (Ukraine) (rank 25) defeated Lutifillaev Sharafuddin (Uzbekistan) (rank 8) in addition to three other matches where low-rank judokas defeated high-rank ones.

(-66) kg weight category: This weight category included (30) matches. High-rank judokas won (20) matches (66.67%) while low-rank judokas won (10) matches (33.33%). Chi² value was (3.333) which was statistically significant on $P \leq 0.05$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (20), Cargnin Daniel (Brazil) (rank 13) defeated Lombardo Manuel (Italy) (rank 1) in addition to another (9) matches where low-rank judokas defeated high-rank ones.

(-73) kg weight category: This weight category included (38) matches after excluding match (4) due to absence of both opponents. High-rank judokas won (30) matches (76.92%) while low-rank judokas won (8) matches (20.51%). Chi² value was (12.737) which was statistically significant on $P \leq 0.01$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (29), Ono Shohei (Japan) (rank 13) defeated Orujov Rustam (Azerbaijan) (rank 2) in addition to another (7) matches where low-rank judokas defeated high-rank ones.

(-81) kg weight category: This weight category included (38) matches. High-rank

judokas won (25) matches (65.79%) while low-rank judokas won (13) matches (34.21%). χ^2 value was (3.737) which was statistically significant on $P \leq 0.05$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (24), Borchashvili Shamil (Austria) (rank 22) defeated Muki Sagi (Israel) (rank 2) and in match (39), Nagase Takanori (Japan) (rank 13) defeated Casse Matthias (Belgium) (rank 1) in addition to another (11) matches where low-rank judokas defeated high-rank ones.

(-90) kg weight category: This weight category included (36) matches. High-rank judokas won (27) matches (75%) while low-rank judokas won (9) matches (25%). χ^2 value was (9.000) which was statistically significant on $P \leq 0.01$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (26), Igolnikov Mikhail (ROC) (rank 10) defeated Sherazadishvili Nikoloz (Spain) (rank 1), in match (28) Zgank Mihael (Turkey) (rank 14) defeated van T End Noel (Netherlands) (rank 2) and in match (29), Irippel Eduard (Georgia) (rank 15) defeated Toth Krisztian (Hungary) (rank 3) in addition to another (6) matches where low-rank judokas defeated high-rank ones.

(-100) kg weight category: This weight category included (28) matches. High-rank judokas won (21) matches (75%) while low-rank judokas won (7) matches (25%). χ^2 value was (7.000) which was statistically significant on $P \leq 0.01$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (16), Frey Karl-Richard (Germany) (rank 24) defeated Korrel Michael (Netherlands) (rank 3) in addition to another (6) matches where low-rank judokas defeated high-rank ones.

(+100) kg weight category: This weight category included (25) matches. High-rank judokas won (18) matches (72%) while low-rank judokas won (7) matches (28%). χ^2 value was (4.840) which was statistically significant on $P \leq 0.01$ in favor of high-rank judokas. In some matches, low-rank judokas won despite the rank gap between competitors. For example: in match (5), Mahjoub Javad (Refugee Olympic Team) (rank 100) defeated Frey Johannes (Germany) (rank 22), in match (22), Oltiboev Bekmurod (Uzbekistan) (rank 21) defeated (Grol Henk (Netherlands) (rank 9) and in match (35), Riner Teddy (France) (rank 16) defeated Harasawa Hisayoshi (Japan) (rank 2) in addition to another (4) matches where low-rank judokas defeated high-rank ones.

According to this data analysis of male judokas matches in Tokyo Olympic Games and examples of some low-rank judokas defeating high-rank judokas despite the large ranking gap among them, we may think that high rank on WRL may not be a conclusive indicator for winning or better results.

The low ranking of some judokas on WRL may be due to the difficulties they are facing to participate in many international championships that may increase their world rank. This is due to the lack of financial resources in some national federations to participate (Ferreira Julio et al. 2013).

Judokas may participate in many major international competitions including Grand Slam, Grand Prize and World Cup, most of which are held in Europe. A few countries have the chance to host such competitions. Therefore, geographic location of championships may be of serious concern as it represents a difficulty for competitors from other continents to participate in such competitions and gain points that increase their world rank. In addition, hosting countries make use of the homeland advantage as homeland audience is a major factor in motivating their judokas to win. So, it is better for the International Judo Federation (IJF) to reconsider distributing major international championships over all continents, especially Africa.

Conclusions:

After analyzing (222) matches for (201) male judokas who participated in Tokyo Olympic Games 2020 in all weight categories and obtaining winning frequency, percentages and Chi², a statistically significant correlation was concluded between high-rank and winning as Chi² value was statistically significant on $P \leq 0.01$ in favor of high-rank judokas in (-60, -66, -73, -81, -90, -100 and +100) kg weight categories while it was statistically significant correlations on $P \leq 0.05$ in favor of high-rank judokas in (-60, -73, -90, -100 and +100) kg weight categories. Accordingly, the researchers concluded the higher the rank of a judoka on WRL, the better his chances to win become in the Olympics.

Some lower-rank judokas may have the chance to win, despite the vast gap in ranking on WRL, if they have the required abilities, talent, and motivation to win. This is consistent with results of previous studies (Ghazy et al. 2023a; Velloso Breviglieri et al. 2018; Franchini, & Julio 2015).

Recommendations:

The researchers think that it is important to organize participation of male and female judokas in international competitions to increase their competitive experiences and to improve their world ranking in judo as this may honor them with a chance for Olympic participation. It is also important to reconsider the distribution map of IJF championships over different countries and continents to provide judokas of low-resources national federations with equal chances to participate in these championships. In addition, coaches should increase their judokas' self-confidence and motivation to face high-rank judo champions and defeat them. This can be done through examples of low-rank judokas who defeated high-rank opponents in Tokyo Olympic Games 2020, in preparation to Paris Olympic Games 2024 and Los Angeles Olympic Games 2028.

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