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A Comparison of Age Average of Iranian Medal Winners in Olympic and Asian Games to their Counterparts from Selected Countries

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ABSTRACT

This study attempted to draw a comparison between the age average of Iranian medal winners in Olympic and Asian games and their counterparts from selected countries. The statistical population of the study included Olympic medal winners from the past 100 years and the Iranian who had won medals in 3 rounds of Asian games. The findings indicated that the age average of Iranian medal winners of 3 events (wrestling, weight lifting and taekwondo) at the Olympic games was 24.9 years, while the lowest age average in 3 rounds of Asian games was observed in Boxing (21.8), Karate (23.5), Track and Field (23.5), Fencing (24), Basketball (24), Taekwondo (24.4), Volleyball (24.5), Canoeing (24.6), Judo (24.7), Cycling (24.9) and Soccer (25). The age average of Iranian medal winners showed changes in a reversed U- shape in which the best performance was observed in the 21-28 years age range, while the corresponding age average of Olympic medal winners of the past 100 years in team games was 26-29 years. The age range for speed and strength sports was 22-25 years, while the age range in games requiring not only strength and speed but also high levels of concentration and experience was slightly higher. Professionals, coaches and trainers can utilize the findings of this research to help with scouting, practice planning and development of specialized training protocols for athletes to achieve their set goals.

Key Words: Age Average, Iranian, Medal Winners, Olympic Games, Asian Games.

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INTRODUCTION

Science development and advancement is a defining characteristic of the era in which we are living. Of the vast number of individuals attempting a variety of sports and games, only a few become champions. Professional sports as a field of physical education have attracted many activists and managers, even from social, cultural and political arenas. Achieving success in international events requires sports trainers and professionals to garner relevant and up-to-date information from multiple sources (physiological profile in particular) to help with scouting, nurturing and honing the talents and finally winning continental, world and Olympic medals (1, 2).

Studying and recording the age range for championship success in Olympic and continental events is one of the methods for determining one's period of peak performance. Age plays a determinant role in the comprehensive planning of scouting and development of programs for reaching one's performance peak, which in turn is influenced by a number of factors such as sex, environment and characteristics of the target sport. Weight lifting for instance, requires reaching one's peak in strength which occurs in the 20 -30 years age range; while in some athletic disciplines such as shooting, car racing, golf and billiards, the peak period is observed in older ages as speed and strength are overshadowed by experience and practice (1-5).

Generally, athletics are younger in disciplines requiring higher levels of physical activities such as speed and flexibility (for instance in sprint, gymnastics, taekwondo, boxing and karate) (6).

Nybo *et al.* (2014) investigated the physiological basis of continued world-class performance of a world-class rower who won medals (3 gold and 2 bronze) at five consecutive Olympic Games. They reported that until the age of 40 years a steady

increase in the oxygen pulse may have compensated for the significant decline in maximal heart frequency. The maintenance of aerobic and anaerobic exercise capacities allowed this Olympic athlete to compete at the highest level for almost two decades (1).

Siegle *et al.* (1994) analyzed 388 baseball players active in 1965 "to determine the age of peak performance" for skills required to play baseball, to derive age-performance curves for athletic productivity and to assess the magnitude of individual differences among elite and less able players. They examined starting age, exit age and ability relative to career length. They found that the age curve of peak performance rose between ages 19 to 27 and dropped afterwards. This has been associated with the interaction between experience, physiological capacity and motivation levels (3). After examining the profile of Iranian taekwondo contingents at the 2000 Sydney Olympic, Kazemi *et al.* (2006) reported the ages for male winners and losers to be 24.4 and 25.2 years, respectively. The corresponding ages for female players were 23.1 and 24.9 years, respectively (6) while the age averages of U.S and Czech Republic taekwondo delegates were 25.6 and 18.5 years, respectively. Jafari *et al.* (2007) reported the corresponding age for Iranian players to be 21 (7). Numerous studies have been carried out regarding the age range of Iranian elite athletes, yet with different accentuation and focus. These studies have reported the age averages for karate, volleyball, table tennis, soccer and wrestling to be 22.25, 24.15, 24.33, 24.83 and 24.4 years, respectively (8-11).

Although individual and physiologic characteristics of elite athletes active in different athletic disciplines have always been investigated in most researches, age is yet to receive considerable research attention (4, 12). Thus, this study attempts to compare age averages of Iranian Olympic and Asian

games medal winners to champions of various countries from different athletic disciplines to heighten the awareness of athletes, trainers and professionals in this regard and help them in the development of sophisticated and regular plans to facilitate transition from physiological peak to performance peak and demonstrate age as a relative indicator for future planning and prediction.

MATERIALS AND METHODS

The research design is descriptive-comparative.

Participants. The statistical population comprised 2514 non-Iranian Olympic medal winners from the past 100 years and Iranians who had won medals in 3 rounds of the Asian Olympics (13).

Data Collection. For data collection of Iranian medal winners, we referred to library resources and records of the Iranian National Olympic Academy, Iranian National Olympic Committee (INOC) and relevant Federations. For non-Iranian athletes, data were collected from library resources and authentic, reputable websites (13).

Statistical Analysis. Descriptive statistics methods in form of tables, diagrams and average indicators were employed for data presentation.

RESULTS

Age averages of Olympic medal winners from across the world. The lowest age averages for men were observed in Asia, America, Africa and Europe, respectively while the lowest age averages for women were in Asia, America, Africa, Oceania and Europe, respectively (Table 1).

The age average of medal winners (both sexes) in Olympic Games in various athletic disciplines. The age averages of medal winners in the Olympic Games during

the past 100 years for both men and women were 24.5 and 23 years, respectively. The lowest average for men were observed in table tennis, aquatics, gymnastics, boxing, taekwondo, pentathlon, soccer, judo, kayaking, triathlon, badminton, hockey, wrestling, rowing, weight lifting, track and field, cycling, archery, water polo, baseball, basketball, volleyball, handball, tennis, surfing and horse racing, respectively. For women, the lowest age average was observed in archery, gymnastics, aquatics, wrestling, tennis, taekwondo, table tennis, badminton, volleyball, fencing, judo, swimming, weight lifting, kayaking, track and field, shooting, handball, rowing, soccer, hockey, pentathlon, surfing, basketball, cycling, triathlon and horse racing, respectively (Tables 2).

The age average of Iranian medal winners in Olympics and Asian games. The age average of Iranian male medal winners in Asian Games was 24.1, with the lowest average was observed in boxing, karate, track and field, fencing, basketball, weight lifting, wrestling, handball, taekwondo, volleyball, rowing, judo, cycling and soccer while for women , it was observed only in taekwondo (24.7 years). Also, the age average of Iranian male medal winners in the Olympic Games was reported to be 24.9 in wrestling, weight lifting and taekwondo (Tables 1 and 3).

The age average of Iranian medal winners in Olympic and Asian games (Case Studies). The results showed the beginning of peak performance to be in the age range of 20-22 years, winning bronze and silver medals in between and to lesser extent, gold medals. However, the highest levels of success are achieved in 23-26 years age range, followed by a drop in form from age 26 to 28 and as a result, less number of medals are won (Table 4).

Table 1. The age average of olympic medal winners across the world.

No	mainland & Country	Age Average (yr)		No	Country	Age Average (yr)		No	Country	Age Average (yr)	
		Female	Male			Female	Male			Female	Male
1	Asia	21.9	23.4	11	Thailand	25	23.5	26	Russia	26.2	26.3
2	Oceania	24.2	24.3	12	Uzbekistan	-	25.3	27	Turkey	21	25.3
3	America	23.1	24.6	13	Azerbaijan	33	25	28	Brazil	23.	26
4	Africa	24	25.4	14	Belorussia	28.2	22.5	30	Chile	-	24.5
5	Europe	25.4	27	15	Bulgaria	26.3	26	31	Columbia	35	-
1	Iran	-	24.9	16	Denmark	26.4	27.7	32	Jamaica	25	26.5
2	China	21.8	22.3	17	Spain	27.5	25.8	33	The U.S	22.7	24.3
3	Hong Kong	26	-	18	Finland	26	27.1	34	Cameroon	28	-
4	Indonesia	21	25.2	19	France	25.3	28.7	35	Egypt	-	25
5	India	-	24.5	20	Germany	24.1	26.8	36	Nigeria	26	-
6	Japan	-	23.6	21	Greece	26.4	24.1	37	R.S.A	-	23.4
7	Kazakhstan	32	24.2	22	Ireland	26	24	38	Ethiopia	21.3	29.5
8	S. Korea	19.4	24.6	23	Italy	28.1	25.6	39	Algeria	24	26
9	N. Korea	18	24.7	24	Poland	20.8	25.8	40	Australia	26.3	24.2
10	Syria	24	-	25	Romania	24.2	25.2	-	-	-	-

Table 2. The age average of medal winners (both sexes) in Olympic Games in various athletic disciplines.

No	Discipline	Age Average (yr)		No	Discipline	Age Average (yr)	
		Female	Male			Female	Male
1	Archery	19.2	26.9	20	Pentathlon	27	23.7
2	Track and Field	25.4	25.7	21	Rowing	26.6	-
3	Badminton	23.5	25.4	22	Sail boat	27.1	25.6
4	Baseball	-	27.7	23	Shooting	26.1	31.8
5	Basketball	27.3	28	24	Softball	27.2	29.4
6	Boxing	23.7	25	25	Aquatics	20	21.6
7	Kayaking	24.8	25	26	Table Tennis	21.6	26.4
8	Cycling	29.9	26.6	27	Tennis	21.4	23.7
9	Horse Racing	36.8	35.7	28	Taekwondo	20.9	29.3
10	Fencing	24.4	25.6	29	Triathlon	34	25
11	Soccer	26.8	24.1	30	Volleyball	24	28.3
12	Gymnastics	20	23.3	21	Weight Lifting	24.8	25.7
13	Handball	4.26	28.3	22	Wrestling	20.3	25.6
14	Hockey	26.8	25.5	23	Swimming	24.7	-
15	Judo	24.6	24.8	24	Water Polo	28.6	27.5

Table 3. The age average of Iranian medal winners in Asian games.

No	Dis.	N of athletes		Age Average (yr)		No	Dis.	N of athletes		Age Average (yr)	
		F	M	F	M			F	M	F	M
1	wrestling	-	25	19.2	26.9	8	Weight lifting	-	13	-	24
2	Soccer	-	66	25.4	25.7	9	Boxing	-	6	-	21.8
3	Basketball	-	12	23.5	25.4	10	Rowing	-	4	-	24.8
4	Volleyball	-	12	-	27.7	11	Karate	-	14	-	23.5
5	Handball	-	14	27.3	28	12	Cycling	-	12	-	24.9
6	Judo	-	12	23.7		13	Fencing	-	6	-	24
7	Taekwondo	3	14	24.8	25	14	Track and Field	-	5	-	23.5

Table 4. Case Studies of Iranian Medal Winners in Olympics and Asian games.

Dis.	Athlete	Medal	1 st yr	2 nd yr	3 rd yr	4 th yr	Dis.	Athlete	Medal	1 st yr	2 nd yr	3 rd yr	4 th yr
Wrestling	Takhtijit G.R	Date	1952	1954	1956	1960	Taekwondo	Saei H	Date	2000	2002	2004	2008
		Medal	S	G	G	S		Medal	B	G	G	G	
		Age	22	24	26	30		Age	24	26	28	32	
	Khadem R	Date	1990	1992	1994	1996		Karami Y	Date	2004	2006	2008	2012
		Medal	S	B	G	G		Medal	S	G	-	-	
		Age	21	23	25	26		Age	21	23	25	29	
	Jadidyy A	Date	1996	1998	2002	-		Reza H Zadeh	Date	1998	2000	2002	2004
		Medal	S	G	S	-		Medal	B	G	G	G	
		Age	23	25	27	-		Age	20	22	24	26	
	Dabir A	Date	2000	2002	-	-		Tavakkoli H	Date	2000	2002	-	-
		Medal	G	S	-	-		Medal	G	B	-	-	
		Age	23	25	-	-		Age	25	27	-	-	
	Mostafa Jokar	Date	2004	-	-	-		Barkhah M.H	Date	1998	2002	-	-
		Medal	S	-	-	-		Medal	S	S	-	-	
		Age	27	-	-	-		Age	22	26	-	-	
	Heydari A	Date	1998	2002	2004	2008		Panzowani M	Date	1998	2002	-	-
		Medal	G	G	B	G		Medal	B	B	-	-	
		Age	23	27	29	33		Age	23	27	-	-	
	Jadidi A	Date	1998	2004	-	-		Bagheri K	Date	1998	2002	-	-
		Medal	G	S	-	-		Medal	S	S	-	-	
		Age	22	28	-	-		Age	23	27	-	-	
	Hashem zadeh M	Date	2002	2006	-	-		Haddadi E	Date	2006	2008	2012	-
		Medal	B	S	-	-		Medal	G	-	S	-	
		Age	22	26	-	-		Age	22	24	28	-	

DISCUSSION AND CONCLUSION

The findings indicate that the age averages of Iranian medal winners in individual events and team games in

Olympics and Asian games were 24.9 and 24.1 years, respectively, thus revealing the 22-27 age range as the period of peak performance and winning medals in both

Olympic and Asian games. The age average of medal winners in the last 100 years in the Olympics turned out to be 24.5 for males and 23 for females, with the variance of ranges based on the nature and characteristics of any given sport.

Players are in the age range of 26-29 in men's team games such as basketball, volleyball and handball where team work rates and experience contribute to success. Lower age averages have been reported for soccer players due to its physical and psychological characteristics. There are even variances in different positions with striking department possessing the lowest average (6, 7). The age range is 22-25 years in individual disciplines such as boxing, wrestling, judo, taekwondo, table tennis and karate in which speed and strength are primary factors.

Where higher levels of concentration and experience are also the case, such as in weight lifting and fencing, the age range goes slightly higher to 24-26 years while the corresponding age range for women is 1 to 2 years lower. Iranian medal winners' age range in team games such as basketball, volleyball and handball is lower compared to the medal winners for the country in the Olympics. The findings highlight the importance of physical and physiological fitness and individual skills performance for inclusion in national levels. However, world-level championship success is within reach if team tactics and individual techniques receive equal levels of importance and attention and experience levels are emphasized as well.

Similar results were observed after drawing a comparison between Iranian champions in individual sports such as taekwondo, judo, wrestling and boxing with the country's champions in the Olympics which encourage the employment of talented youths in world and Asian games in these sports. The case studies revealed 20-22 years age range as the period when Iranian

athletes' begin to flourish and reach their performance peak which results in winning Asian and/or Olympic silver or bronze medals. Age range 23-26 years is the climax of their performance profile during which most gold and silver medals are won. The dip in form is observed in 26-28 age range which is influenced by a number of physical and physiological characteristics and talent level as well.

There is no saying that a number of external factors such as the general atmosphere of any given sport, facilities and domestic and international rivals in particular, play important roles. A study of age changes over a historical course revealed a reversed U- shape pattern in championship and winning medals, broken down in a 3-phase time period from age 21 to 28 years . For instance, the profiles of Iranian high-profile athletes such as Gholam Reza Takhty, Rasool Khadem, Masoud HashemZadeh, Mohammad MostafaJokar and Alireza Dabir in the Olympics and Asian games clearly reflect this pattern. The pattern has also been noticed in some other disciplines such as weight lifting, taekwondo and boxing which Iran have won medals in international games and tournaments. This raises an important question: could the performance profiles of Iranian athletes in a number of disciplines, namely boxing, taekwondo, weight lifting and karate and even track and field be predicted based on the analyses of their age? The examination of the age average of different continents and countries revealed that while Asian countries had the lowest age range, the European countries possesses the highest age range. This is probably due to geographical and environmental differences and employment of different training and scouting programs. For instance China starts its scouting program when children are in their early ages. Chinese athletes deliver the best in 18-24 years age range, while the Europeans reach their peak performance in

24-28 years. Note that adolescents reach puberty sooner in cold climates than hot climates. Thus we could come to the conclusion that in every society there is a reigning code of behavior and set of beliefs which affects overall planning, expectation and challenges.

CONCLUSION

Considering the results of the study, it is up to Iranian senior decision-makers in the field to continue with the status quo or take some measures to lower the age average of Iranian candidates competing for a place in the national squads and alter their plans based on the decisions made. However,

further research should be conducted in this regards to inform decision making.

APPLICABLE REMARKS

- The age average of Iranian medal winners showed changes in a reversed U- shape in which the best performance was observed in the 21-28 years age range.
- The age average of Olympic medal winners of the past 100 years in team games was 26-29 years.

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تازه‌های علوم کاربردی ورزش

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مقایسه‌ی میانگین سنی قهرمانان و مdal آوران ایرانی در بازی‌های المپیک و آسیایی با سایر کشورها

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چکیده

هدف از این تحقیق مقایسه میانگین سنی قهرمانان و مdal آوران ایرانی با مdal آوران سایر کشورها طی بازی‌های المپیک و آسیایی بود. جامعه آماری تحقیق شامل مdal آوران المپیک طی ۱۰۰ سال گذشته و مdal آوران ایرانی طی سه دوره از بازی‌های آسیایی می‌باشد. بر اساس یافته‌های پژوهش، میانگین سنی مdal آوران ایرانی در رشته‌های کشتی، وزنه برداری و تکواندو بازی‌های المپیک ۲۴/۹ سال گزارش شد، همچنین کمترین میانگین سنی در سه دوره از بازی‌های آسیایی بترتیب در رشته‌های بوکس (۲۱/۸)، کاراته (۲۳/۵)، دو و میدانی (۲۳/۵)، شمشیربازی (۲۴)، بسکتبال (۲۴)، وزنه برداری (۲۴)، هندبال (۲۴/۱)، تکواندو (۲۴/۴)، والیبال (۲۴/۵)، قایقرانی (۲۴/۶)، جودو (۲۴/۷)، دوچرخه‌سواری (۲۴/۹) و فوتبال (۲۵) مشاهده شد. در مطالعه موردی میانگین سنی Mdal آوران ایرانی افت و خیزی مانند U وارونه را در یک دامنه سنی ۲۸-۲۱ سالگی در کسب بهترین Mdal‌های قهرمانی و عملکرد خود در بیشتر رشته‌ها مشاهده شد، در حالی که در مطالعه میانگین سنی Mdal آوران طی ۱۰۰ سال گذشته المپیک در رشته‌های تیمی دامنه میانگین سنی ۲۶ سال بود و در ورزش‌های سرعتی و توانی انفرادی دامنه میانگین سنی ۲۲ تا ۲۵ سال گزارش شد هم چنین رشته‌هایی که در آن‌ها علاوه بر سرعت و توان، تمرکز و تجربه نیز اهمیت داشت، دامنه میانگین سنی اندکی بیشتر گزارش شد. بر این اساس مربیان و دست اندکاران ورزشی می‌توانند؛ سن را بعنوان یکی از معیارهای احتمالی در کشف و پرورش استعدادها، برنامه‌ریزی تمرینی، آینده‌نگری و نگرش درست و منطقی در مورد ورزشکاران رشته‌های مختلف ورزشی طی دوران پیشرفت و افت آن‌ها مد نظر داشته باشند.

واژگان کلیدی: سن، Mdal آوران ایرانی، بازی‌های المپیک، بازی‌های آسیایی.

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