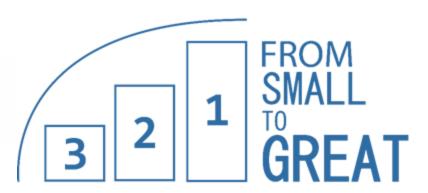


Co-funded by the Erasmus+ Programme of the European Union



Historical trends of the age in artistic gymnastic across World Championships and the Olympic Games – a cross-sectional data analysis

Almir ATIKOVIĆ

Content

- History of age requirements in artistic gymnastics (AG)
- Reasons for age restrictions
- Current regulations
- Age falsification
- Olympic Games (OG) from 1896 to 2016
- World Championships (WC) from 1903 to 2015
- Age trends in AG across WC and the OG from 2003 to 2016
- The differences between teams in MAG and WAG medalists and non-medalists at the OG tournament from 1996 to 2016

History of age requirements in AG

- Up until **1981** the minimum age for participating in senior competitions was **14** years of age.
- At the 58th FIG Congress held in July 1980, a short time before the OG in Moscow, the minimum age rose from 14 to 15 years of age.
- This rule came into force in 1981 and the gymnasts had to be at least 15 years old, within a calendar year, in order to take part in the competition as seniors.
- These age requirements have not changed until **1997** when the minimum age rose from **15** to **16** years of age (Anderson, 1997).

Current regulations

- Since **1997** the gymnasts had to be at least **16** years old or to be turning 16 within the calendar year in order to take part in the competition as seniors.
- Today, in order to participate in MAG-WAG and RG:
 - male MAG have to be 18 years old,
 - while female WAG and RG have to be 16 years old,
 - for participating in the TRA the limit is 17 years of age (18 at the OG),
 - for AER the limit is 18 years of age,
 - for ACRO gymnastics it is necessary to be **15** years old (FIG).

 The oldest female gymnast currently competing in senior international events is Uzbekistan's Oksana Chusovitina, 41 (b. 1975) old at the (seven) OG. She was 17 years, 1 month old at her first Olympics, the 1992 Summer Olympics. Bulgaria's Yordan Yovchev, 39 (b. 1973), who became the first ever male gymnast to compete in (six) OG.



1ST SEVEN TIME OLYMPIAN IN GYMNASTICS

Turner, Amanda (June 19, 2008). "Ageless Chusovitina Turns". International Gymnast. Archived from the original on 2008-08-20. Retrieved 2008-06-24. http://www.novinite.com/articles/142583/Legendary+Bulgarian+Gymnast+Yovchev+Retires+at+39 http://popularartistall.blogspot.hr/2012/06/yordan-yovchev-minibio-and-pictures.html

List of athletes with at least 6 Olympic appearances from Slovenia

- Rajmond Debevec Shooting Yugoslavia (2) and Slovenia (6)
- Born 1963; OG 1984/2012;
- Age of first and last OG (21/49)
- Merlene Ottey Athletics Jamaica (6) and Slovenia (1)
- Born 1960; OG 1980/2004;
- Age of first and last OG (20/44)



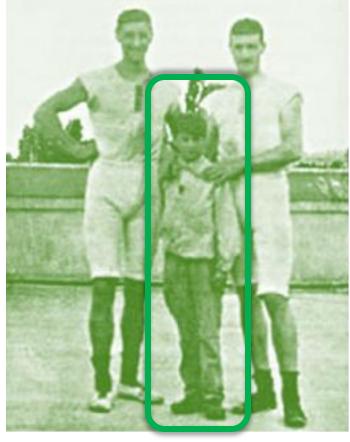


https://en.wikipedia.org/wiki/Slovenia at the Olympics

https://en.wikipedia.org/wiki/List of athletes with the most appearances at Olympic Games

Who Is The **Oldest** and **Youngest** Olympian Ever To Compete?





Oscar Gomer Swahn

(20 October 1847 – 1 May 1927) At the age of 72, he was the oldest sportsman to compete in the 1920 Summer Olympics.

Dimitrios Loundras

(6 September 1885 – 15 February 1970) At 10 years 218 days he remains the youngest medalist and competitor in Olympic history.

Reasons for age requiment

- Younger gymnasts, especially the ones who have not went through puberty yet, have a tendency to be lighter, smaller, more flexible and bendable which aids them in performing more complex elements and routines and gives them a better relation between strength and weight (Paul, 2010).
- When a female gymnast enters puberty her growth and weight gain can affect her gravity which causes mental and physical stress that needs adjustment and in some cases she has to learn her moves again in order to compensate for them (Paul, 2010).

 Michel Leglise stated, "The period when (gymnasts) are at the top (as competitors) is also the time when their growth is not finished, and the cartilage is not completely structured; it means a certain fragility for the articulations.

 First, the growth process itself can cause an imbalance between strength and flexibility, a possible factor in injury (Anderson, 1997). Another reason for the age minimum may be to prevent child exploitation that can occur in the limelight of senior international competition.

However, the age limitations were introduced to gymnastics for (Anderson, 1997; Paul, 2010).

- physiological reasons,
- protecting children from harmful exposure,
- time training,
- early growth,
- growth of body segments,
- pubertal growth and maturation,

- sex characteristics,
- menarche,
- nutritional status,
- weight-for-height,
- gymnastics training environment,
- familial factors, etc...

The basic elements of development CoP and differences in the distribution of the total number elements

- **1956-1976**: A-C;
- **1979**: A-C^r;
- **1985-1989**: A-D;
- **1992**: A-E,
- **1996-7**: A-E,
- 2001: A-super E;
- **2006**: male: A- F, female: A-G;
- 2009: A-G,
- **2013**: male: A-G, female: A-H,
- 2017: men's skills A to H and women's skills A to I

Atiković, A. (2014). Development and Analysis Code of Points (COP) in Men's Artistic Gymnastics (MAG) from the 1964 to 2013 year. V: BUČAR PAJEK, Maja (Eds.), et al. Final program, invited proceedings, book of abstracts and book of proceedings. Ljubljana: Slovenian Gymnastics Federation, Portorož, 24.1.2014, 22-35.

Ethics and moral imperatives in sport

CODE OF ETHICS 2019 Edition FIG Code of Ethics and the IOC Code of Ethics



His victims were less than **15 years** old when he abused them between **1998 and 2015**. Pedophile Larry Nassar, 54, who is already serving a **60-year prison sentence**, was sentenced today in a separate case for molesting American gymnasts. **He** was sentenced to a single prison sentence of **175** years.

https://www.gymnastics.sport/publicdir/rules/files/en_Code%20of%20Ethics%202019.pd https://net.hr/danas/svijet/pedofil-koji-je-zlostavljao-gimnasticarke-dobio-175-godina-zatvora-potpisala-sam-vasu-smrtnu-presudu/#f

Major verified cases of age falsification

- Gymnasts who have falsified their documents and spoke out about their experiences said that **they had no other choice** concerning the matter (Norescu, 2003; Normile, 2002, 2006).
- In some cases, gymnasts stepped out themselves and publicly confirmed the falsifications.
- In other cases, the documents that revealed inconsistencies, as are the original birth certificates, were researched and revealed in the press (Flumenbaum, 2011).

Norescu A. (2003). The Secrets of a Gymnast. Romanian Sport Press Association.

Normile, D. (2002). Age before honesty? Int Gymnast, 44:45.

Normile, D. (2006). 10 bizarre (and mostly embarrassing) World Championships moments. Int Gymnast, 48(8):32.

Flumenbaum, D. (2011). The Huffington Post. Scandal of the Ages: Documents Reveal Underage Chinese Gymnast. <u>http://www.huffingtonpost.com/david-flumenbaum/scandal-of-the-ages-docum_b_118842.html</u> (Accessed 25 May 2011).

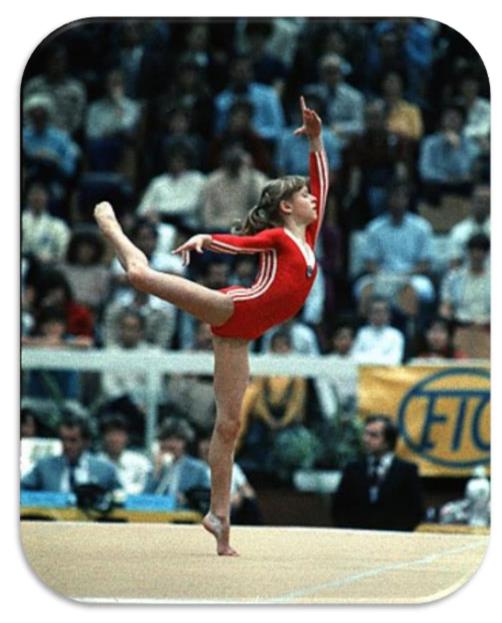
Olga Bicherova (Soviet Union):

Bicherova, the 1981 World Champion in the all-around event, was introduced at an early 1981 meet as a **12-year-old**, but was claimed to have been born in 1966 at the 1981 World Championships later in the same year.



Olga Mostepanova (Soviet Union):

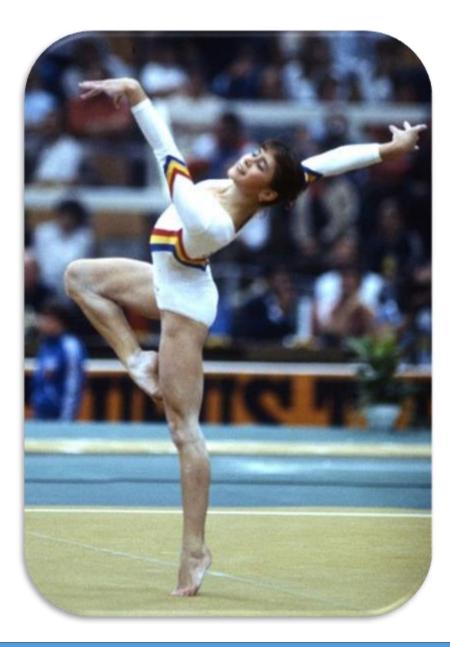
Mostepanova, who competed at the 1983 and 1985 World Championships and was the all-around gold medalist at the 1984 Friendship Games, has been reported as having 1968 and 1969 birth dates, but has stated that she was actually born in 1970.



Lavina Agache (Romania):

Agache competed at the 1981 World Championships at the age of **13**, under a passport which gave her year of birth as 1967. She was in fact born in 1968. The falsification was suspected as early as 1981.

Agache confirmed her 1968 birthdate to **International Gymnast magazine** in 2000.



Rift Over Underage Gymnasts" Neil Amdur, The New York Times, December 7, 1981 Whatever happened to Lavinia Agache? Archived November 11, 2010, at the Wayback Machine. Gymnastics Greats Former Romanian Star Pities Raducan" International Gymnast, December 23, 2000

Daniela Silivaş

(Romania):

Silivaş, a multiple World and Olympic gold medalist, competed as a junior until 1985, when her birth year was changed from 1972 to 1970. She went on to compete at the 1985 World Championships at the age of **13**. Silivaş revealed the falsification to the media in 2002.



Gina Gogean (Romania):

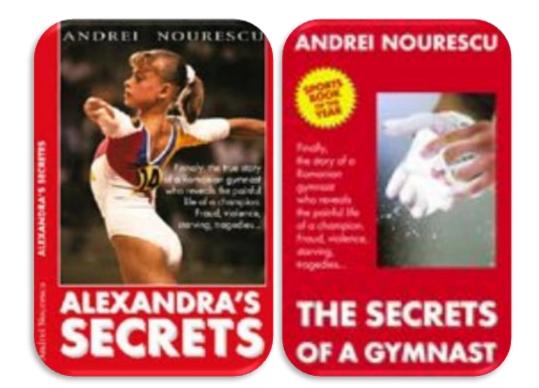
Gogean competed in the 1992 Olympics with a passport with a 1977 birth year. However, in 2002 her original birth certificate was uncovered by the media, revealing she had been born in 1978.



Alexandra Marinescu

(Romania):

Marinescu, a World and team Olympic medalist in the mid-1990s, had her birth year advanced from 1982 to 1981 in order to be eligible for the 1995 World Championships and 1996 Olympic Games.



Kim Gwang Suk

(North Korea):

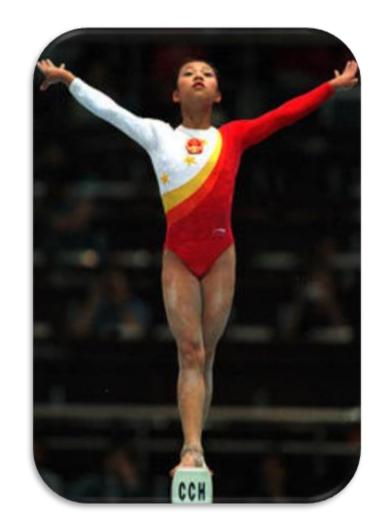
The FIG punished the North Korean gymnastics federation by barring their women's team from the 1993 World Championships. She competed in the 1989 World Championships at the estimated age of **11** or **12**.



Dong Fangxiao

(People's Republic of China):

Dong was a member of the bronze-medal winning Chinese team at the 2000 Summer Olympics. An FIG investigation determined in 2010 that Dong was 14 during the 2000 Olympics and the Chinese team should be stripped of its bronze medal. 1999 World Championships and World Cup results were vacated.



In April 2010, the IOC nullified both the Chinese team's bronze medal and Dong's individual Olympic placement.

Hong Su Jong (North Korea):

The 2007 WC silver medalist on vault, was investigated for age discrepancies in 2010. The F.I.G. responded in 2010 by provisionally banning North Korea from competition for one month. In 2010, the F.I.G. extended the ban until October 5, **2012, fined the North Korean Federation \$20,800**, and banned Hong from competing even in national competition within North Korea.



He Kexin (China):

He Kexin He's age was reported by the Chinese press, including the state news service, Xinhua, as **13** in 2007 and **14** in 2008 in news articles that were later taken off-line.





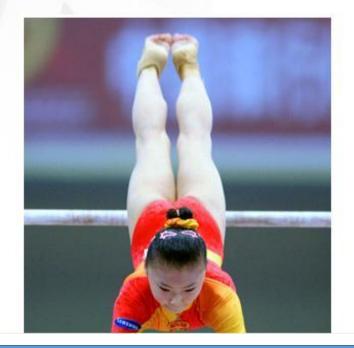
Are Chinese gymnasts too young for Olympics?". USA Today/Associated Press. 2008-07-27. Retrieved 2008-07-27. Uneven-bars queen the new star in town". China Daily. May 23, 2008. Retrieved 2008-07-27. Macur, Juliet (2008-07-27). "Records Suggest Chinese Gymnasts May Be Under Age". The New York Times. Retrieved 2008-07-27. Age of Chinese gymnasts stirs more talk". Associated Press. August 14, 2008. Retrieved 2008-08-20. Harris, Nick (2008-08-19). "Tweddle the loser as age doubts mar He's triumph". The Independent. Retrieved 2008-08-19. Tim Reid (2008-08-22). "International Olympic Committee launches probe into He Kexin's age". London: timesonline.co.uk. Retrieved 2008-08-22. http://alchetron.com/He-Kexin-606613-W

OLYMPICS/ Team China

Uneven-bars queen the new star in town

Olympic gymnastics title contenders suddenly have one more thing to worry about other than the eight gold medals China claimed at the Tianjin World Cup last week. Her name is **He Kexin**.

The 14-year-old newcomer to the national team, who was recruited last year, has raised a lot of eyebrows recently after she broke two world records on the uneven bars in as many months. She will be just one more weapon on an already star-studded Chinese Olympic squad.





录取通知书是最好的证明:"祝贺你被录取!"

OLYMPICS / Team China

Uneven-bars queen the new star in town By Zhao Rui

China Daily Updated: 2008-05-23 11:01

Olympic gymnastics title contenders suddenly have one more thing to worry about other than the eight gold medals China claimed at the Tianjin World Cup last week Her name is He Kexin.

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http://www.huffingtonpost.com/david-flumenbaum/scandal-of-the-ages-docum b 118842.html

图文-第六届城运会十大新星 何可欣打动国家队教头

http://sports.sina.com.cn 2007年11月03日22:38 新华社



中国竞技体育不断进步,后备人才层出不穷。第六届全国城运会上,明日之星脱颖而出,等 待他们的将是更大更高的舞台。

何可欣(体操)

13岁的武汉选手何可欣在女子高低杠比赛中的对手是国家队的杨伊琳。在主场观众的支持 下,这个小姑娘在决赛中出色地完成了"李娅空翻"的全套动作,险胜已经得到高分的世锦赛季军

运动员交流交流协议名单

Agreed Roster of Athletes on Exchange

Gymnastics

		项目]: 体操					No
	_					_	p i	1
姓名	性别	出生年月日	原注册单位	现交流单位	交流 时间	备注		2
李资	男	1991□1□4	广西体育局	武汉体育局	2年			-
申良云	男	1990 2 6	广西体育局	武汉体育局	2年			3
吕敏	女	1992□5□2	广西体育局	武汉体育局	2年			4
江颖	女	1992 1 12	广西体育局	武汉体育局	2年			4
覃 燕	女	1992□3□9	广西体育局	武汉体育局	2年			5
田梦斯	女	1993 1 13	广西体育局	武汉体育局	2年			6
黄小源	女	1993□12□8	广西体育局	武汉体育局	2年	Π		6
许吉多	女	1993□1□18	北京体育局	武汉体育局	2年	Π		7
张婧	女	1994□1□6	北京体育局	武汉体育局	2年	Ē		
何可欣	女	1994□1□1	北京体育局	武汉体育局	2年			8
	男	1991 9	贵州体育局	武汉体育局	2年		1	9
邓琳琳	女	1992 4 21	安徽体育局	武汉体育局	2年	Π	1	-
邓枭枭	男	1991□1	安徽体育局	武汉体育局	2年	Januari I.		10
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No.	Name	Sex	Birth date	Original Registered Workgroup	Current Exchange Workgroup	Duration of Exchange	Remarks
1	Li Zi			Wuhan Sports Administration	2 Years		
2	Shen Liangyun M		ngyun M February 6, 1990 Guangxi Sports Wuhan Sports Administration		2 Years		
3	Lü Min F		F May 2, 1992 Guangxi Sports Wuhan Sports Administration		2 Years		
4	Jiang Ying F		Ying F January 12, 1992 Guangxi Sports Wuhan Sports Administration		2 Years		
5	Tan Yan F		F March 9, 1992 Guangxi Sports Wuhan Sports Administration 2 Ye		2 Years		
6	Tian Mengsi	F	January 13, 1993	Guangxi Sports Administration	Wuhan Sports Administration	2 Years	
7	Huang Xiaoyuan	F	December 8, 1993	Guangxi Sports Administration	Wuhan Sports Administration	2 Years	
8	Xu Jiduo	F	January 18, 1993	Beijing Sports Administration	Wuhan Sports Administration	2 Years	
9	Zhang Qing	F	January 6, 1994	Beijing Sports Administration	Wuhan Sports Administration	2 Years	
10	He Kexin	F	January 1, 1994	Beijing Sports Administration	Wuhan Sports Administration	2 Years	
11	Deng Shudi M S		September 1991	Guizhou Sports Administration	Wuhan Sports Administration	2 Years	
40	Barra Dalla	F	A	Anhui Sports	Wuhan Sports	0.V	

项目: 皮划艇

During the **2008 Summer Olympics** the age of four **Chinese gymnasts** — He Kexin, Jiang Yuyuan, Deng Linlin, and Yang Yilin — was brought into question, with many foreign media outlets speculating that they were **underage during the Olympics**.



Macur, Juliet (2008-08-09). "Teeny-Tiny Matter of Age for China's Gymnasts". New York Times. Retrieved 2008-10-06. Hutcheon, Stephen (2008-08-22). "IOC calls for investigation into gymnast's age". smh.com.au. Archived from the original on 22 August 2008. Retrieved 2008-08-22. Kent, Jo Ling (2008-08-22). "International Olympic Committee Investigates Underage Gymnasts Claims". ABC News. Retrieved 2008-10-06. Officials say Chinese Olympic gymnasts not underage". International Herald Tribune. 2008-10-02. Retrieved 2008-10-06. Macur, Juliet (October 1, 2008). "Ruling Backs Chinese Gymnasts". The New York Times. Retrieved 2008-10-01. Macur, Juliet (2008-08-24). "China Cites Paperwork Error in Age of Gymnast". New York Times. Retrieved 2008-10-06. https://www.pinterest.com/pin/54887689179322870/

Cha Yong-Hwa

(North Korea):

In 2014, North Korean gymnast Cha Yong-Hwa was a subject of disciplinary hearing because of false passport used to falsify her age. The FIG decided to withdraw her license and nullify all her results, including the results from 2008 Olympics.



DPRKGF is ordered to pay a fine of **CHF 25,000 to the FIG**. The DPRKGF is ordered to pay the costs of these disciplinary proceedings.

LAUSANNE, September 18, 2014 - The FIG Disciplinary Commission has made the decision to withdraw Cha Yong Hwa's license, pursuant to Article 43.2 of the FIG Statutes. http://www.sbs.com.au/news/article/2014/09/18/nkorean-gymnast-banned-age-cheating

Previous research

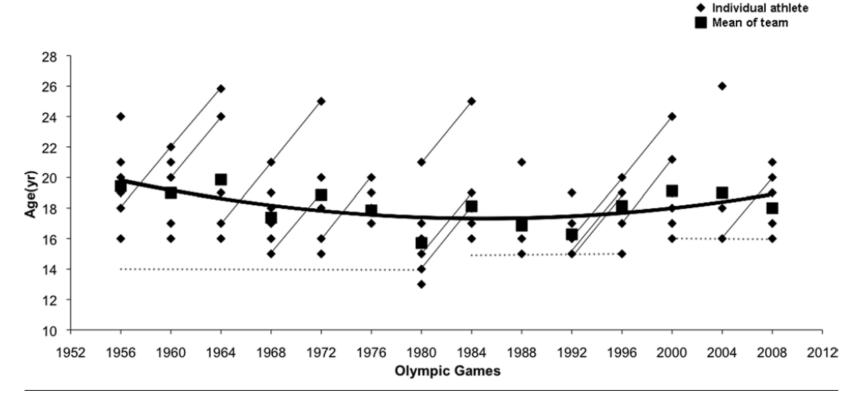


Figure 1 — US women's Olympic gymnastics teams' reported age, with second-order polynomial regression curve, 1956–2008. Gymnasts competing in more than 1 Olympiad are linked via diagonal lines. The dotted lines indicate the minimum age requirement. Note that the official age at the time of competition is not always the chronological age because according to the Fédération Internationale de Gymnastique's technical regulations, participants must reach the minimum age in the year of the competition.

Sands, W.A., Slater, C., McNeal, J.R., Murray, S.R., Stone, M.H. (2012). Historical trends in the size of US Olympic female a rtistic gymnasts. Int J Sports Physiol Perform, Dec;7(4):350-356. Epub 2012 May 29.

Methodology

- The intent was to collect current data of female and male gymnasts from past and recent years. All the data concerning the medallists were gathered at: Wikipedia OG from 1896 to 2016, Wikipedia WC from 1903 to 2015, Longines web page for results in AG, The International Gymnastics Federation (FIG), National Gymnastic federations of the country that won medals or received by e-mail from the General federation's secretary, over direct contact or over email.
- The following variables were included: date of birth, qualification date of the OG, qualification date of the WC.

Statistical Analysis

Data processing in this research and the application of the statistically mathematical procedures were conducted in the programme package of Microsoft Office Excel 2013 and SPSS 23.0 (SPSS Inc., Chicago, IL, USA).

- **a. number of days** Calculation formula = DATEDIF (A1; B1; "d")
- **b.** number of years Calculation formula = DATEDIF (days x 0.0027397260273973 years)
- **c.** number of years, months and days Calculation formula = DATEDIF (A1; B1; "Y") & "years", &DATEDIF (A1; B1; "YM") &" months, "&DATEDIF (A1; B1; "MD") &" days"

AGE TRENDS IN ARTISTIC GYMNASTIC ACROSS WORLD CHAMPIONSHIPS AND THE OLYMPIC GAMES FROM 2003 TO 2016

Almir Atiković¹, Sunčica Delaš Kalinski², Ivan Čuk³

¹ Faculty of Physical Education and Sport, University of Tuzla, Bosnia and Herzegovina

² Faculty of Kinesiology, University of Split, Croatia

³ Faculty of Sport, University of Ljubljana

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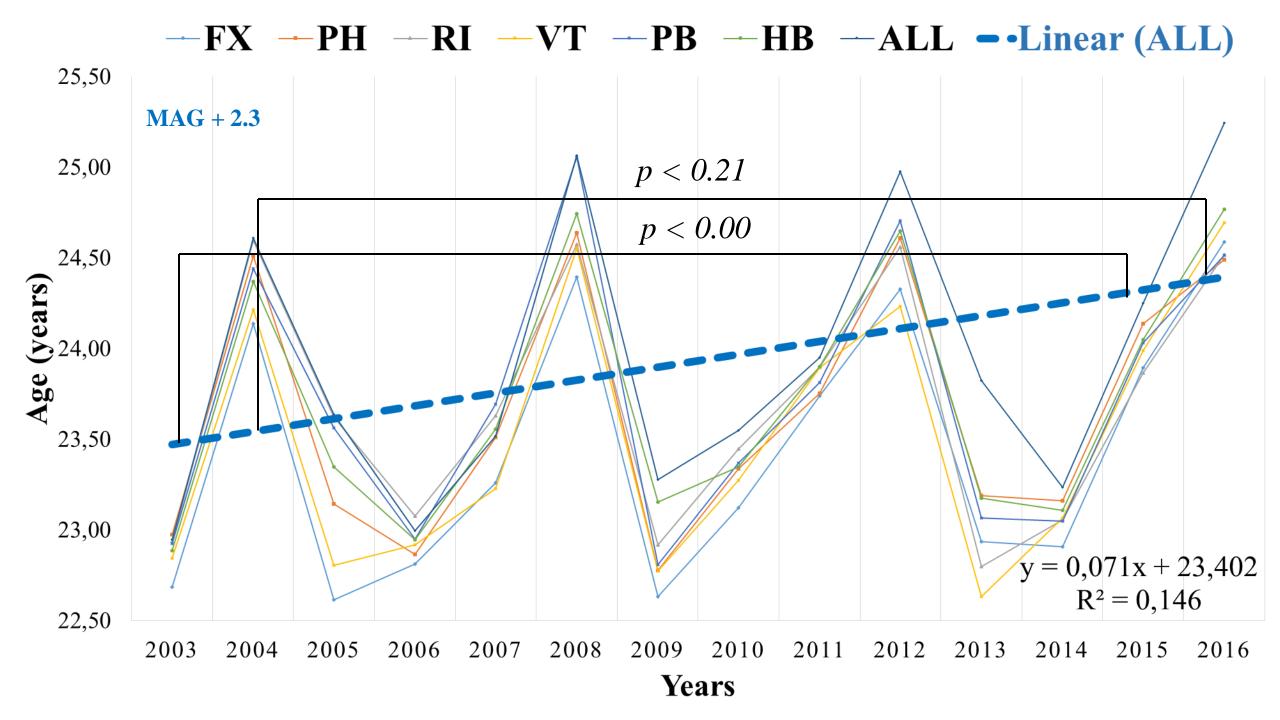
http://www.fsp.uni-lj.si/en/research/scientific-magazines/science-of-gymnastics/

Age (years) of the competitors (Mean ± SD) at the World Championships 2003–2015

Sex	Years Events	2003	2005	2006	2007	2009	2010	2011	2013	2014	2015
	N	318	177	278	253	243	299	262	261	311	276
	FX	22.68±3.35	22.61±3.46	22.81±3.80	23.26±4.00	22.63±3.13	23.12±4.06	23.73±3.91	22.93±3.57	22.90±3.35	23.89±3.93
	РН	22.97±3.44	24.51±3.20	23.14±3.84	23.51±4.07	22.78±3.24	23.33±4.09	23.75±3.85	23.18±3.87	23.16±3.63	24.13±4.18
	RI	22.93±3.43	23.62±3.85	23.07±3.96	23.63±3.99	22.93±3.63	23.44±4.17	23.89±4.05	22.79±3.69	23.05±3.42	23.86±4.03
Men	VT	22.84±3.44	22.80±3.55	22.91±3.86	23.23±4.01	22.77±3.45	23.27±3.92	23.89±4.02	22.63±3.48	22.06±3.55	23.99±4.07
	РВ	22.92±3.42	23.56±3.78	22.95±3.92	23.69±4.16	22.84±3.47	23.37±4.23	23.81±4.02	23.06±3.97	23.04±3.57	24.03±4.13
	НВ	22.88±3.42	23.34±3.77	22.94±3.88	23.55±4.11	23.19±3.70	23.34±4.16	23.90±3.94	23.17±3.75	23.10±3.59	24.04±4.11
	ALLMAG	22.94±3.42	23.63±3.69	22.99±3.94	23.51±4.16	23.30±3.67	23.54±4.19	23.95±3.99	23.82±3.89	23.23±3.67	24.25±4.17

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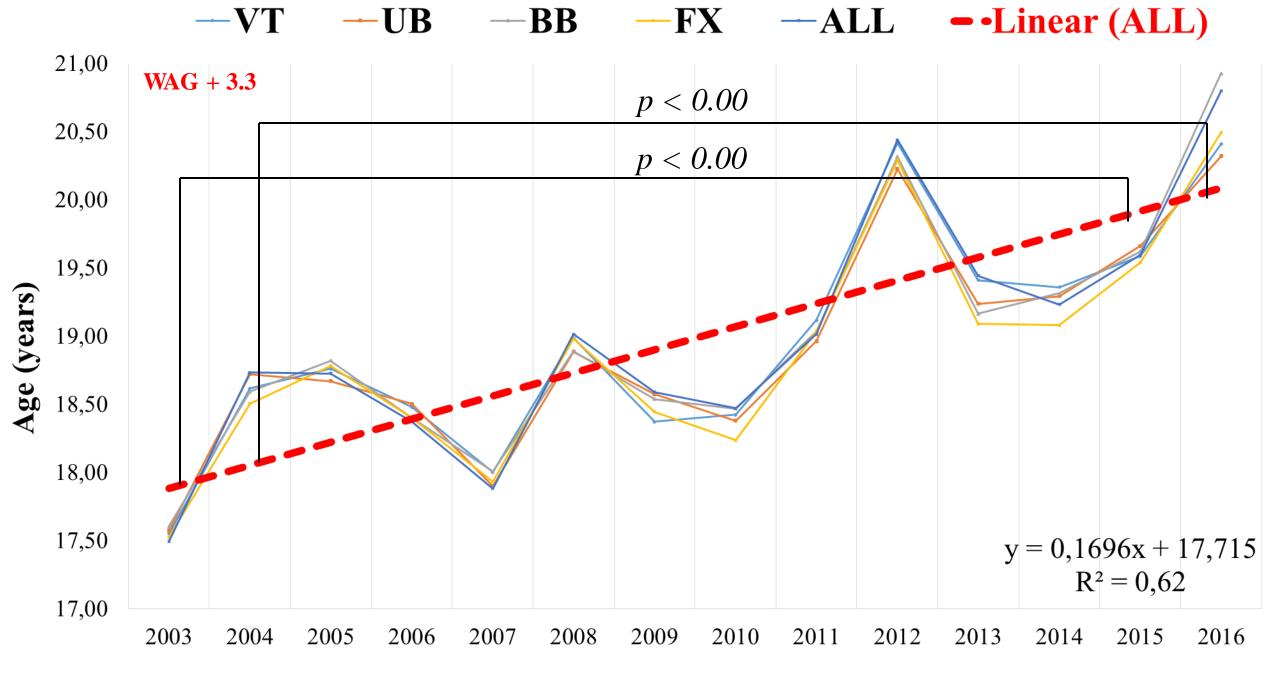
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Age (years) of the competitors (Mean ± SD) at the World Championships 2003–2015

	Years										
Sex	Events	2003	2005	2006	2007	2009	2010	2011	2013	2014	2015
	N	224	95	223	214	146	218	216	134	250	261
	VT	17.55±2.34	18.76±2.51	18.48±2.56	18.00±2.80	18.37±2.23	18.42±2.62	19.12±3.03	19.41±3.43	19.36±3.15	19.58±3.22
	UB	17.57±2.37	18.67±2.61	18.50±2.53	17.90±2.73	18.57±2.42	18.38±2.37	18.96±2.78	19.23±2.93	19.29±3.07	19.66±3.35
Women	BB	17.60±2.39	18.82±2.66	18.40±2.51	18.00±2.82	18.54±2.37	18.49±2.59	19.03±2.90	19.16±2.87	19.31±3.14	19.62±3.35
	FX	17.52±2.35	18.78±2.30	18.40±2.52	17.93±2.88	18.44±2.28	18.23±2.29	19.03±2.90	19.09±2.80	19.08±2.96	19.54±3.31
	ALL WAG	17.49±2.32	18.72±2.66	18.37±2.45	17.88±2.78	18.59±2.38	18.47±2.60	19.01±2.97	19.44±3.39	19.23±3.07	19.59±3.33

6



Years

THE DIFFERENCES BETWEEN TEAMS IN MEN'S AND WOMEN'S MEDALISTS AND NON-MEDALISTS AT THE 1996 - 2016 OLYMPIC GAMES ARTISTIC GYMNASTICS TOURNAMENT

Subjects

The sample of the examinees also included all the participants in MAG in the following competitions: OG1996, N=83; OG2000, N=72; OG2004, N=72; OG2008, N=72; OG2012, N=60; OG2016, N=60; and in WAG: OG1996, N=82; OG2000, N=71; OG2004, N=72; OG 2008, N=72; OG2012, N=60; OG2016, N=60.

The total number of analysed OG participants in MAG amounted to N=419 and the WAG was N=417.

Descriptive Statistics Men's Artistic Gymnastics

Year	Ν	Min	Max	Μ	SD	Skew	Kurt
1996	83	17.70	31.00	23.49	2.56	.12	.01
2000	72	17.99	32.71	23.74	3.09	.45	.23
2004	72	16.81	34.86	24.35	3.26	.28	.59
2008	72	18.78	35.08	24.95	3.19	.46	.08
2012	60	18.35	33.84	24.06	3.70	.65	.02
2016	60	19.49	33.32	25.11	3.46	.22	54



Schmider, E., Ziegler, M., Danay, E., Beyer, L., Buhner, M. (2010). Is it really robust? Reinvestigating the robustness of ANOVA against violations of the normal distribution assumption. Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 6, 147–151.

Descriptive Statistics Women's Artistic Gymnastics

Year	Ν	Min	Max	Μ	SD	Skew	Kurt
1996	82	14.35	23.79	17.29	1.99	1.03	1.20
2000	71	15.72	23.84	18.07	1.91	.73	14
2004	72	14.46	26.18	18.33	2.50	1.45	2.02
2008	72	15.71	33.16	18.92	3.24	1.85	4.48
2012	60	15.62	37.13	19.69	3.85	2.14	6.52
2016	60	15.61	31.93	19.70	3.30	1.25	1.87



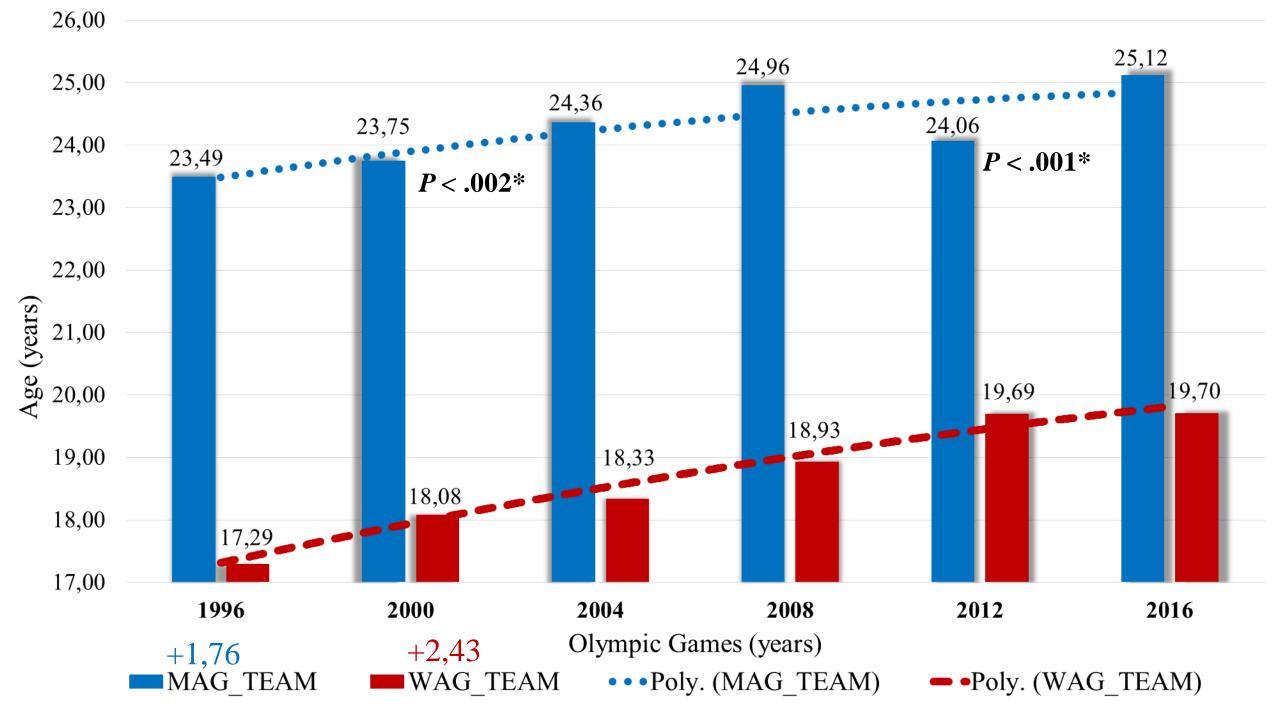
Schmider, E., Ziegler, M., Danay, E., Beyer, L., Buhner, M. (2010). Is it really robust? Reinvestigating the robustness of ANOVA against violations of the normal distribution assumption. Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 6, 147–151.

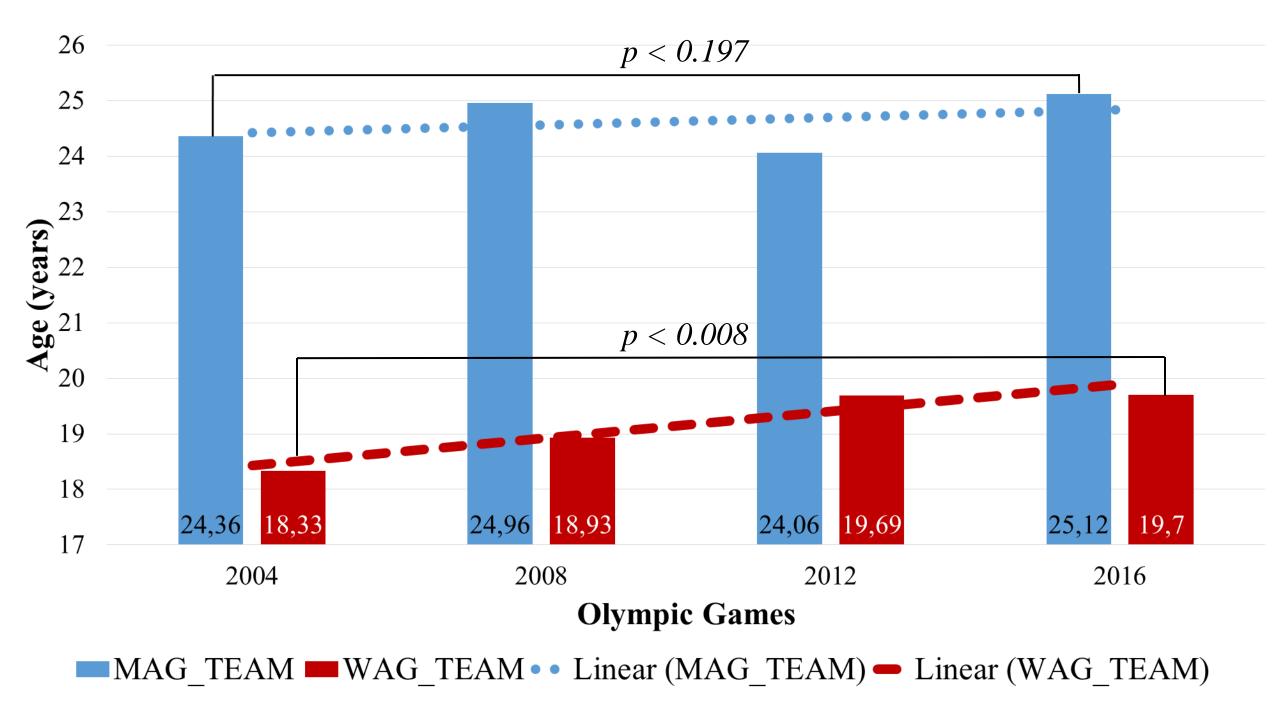
Descriptive Statistics and Independent Samples Test Men's Artistic Gymnastics

Group Statistics					Levene's Te Equality of Va		Equ		est for v of Means	Calculate d using t values	
Year	R	Ν	Μ	SD	F	Sig.	t	df	Sig. (2-tailed)	d	r
1996	1	21 62	22.67 23.77	2.57 2.52	.231	.632	-1.706	81	.092	37	.18
2000	1 2	18 54	21.81 24.38	2.27 3.08	1.884	.174	-3.248	70	.002*	77	.36*
2004	1 2	18 54	24.66 24.25		.508	.478	.461	70	.646	.11	.05
2008	1 2	18 54	24.47 25.11	3.29 3.17	.163	.688	738	70	.463	17	.08
2012	1 2	15 45	21.38 24.95	2.00 3.72	3.763	.057	-3.531	58	.001*	92	.42*
2016	1 2	15 45	24.20 25.42	2.77 3.64	2.814	.099	-1.188	58	.240	31	.15

Descriptive Statistics and Independent Samples Test Women's Artistic Gymnastics

Group Statistics					Levene's Te Equality of Va		Equa		st for of Means		culate d and r g t values and df
Year	R	Ν	Μ	SD	F	Sig.	t	df	Sig. (2-tailed)	d	r
1996	1	20	17.51	1.59	1.217	.273	.562	80	.576	.12	.06
1330	2	62	17.22	2.11	1.21/	.275	.502	00	.370		.00
2000	1	18	18.19	2.02	.688	.410	.297	69	.768	.07	.03
2000	2	53	18.03	1.89	.000	.410	.297	09	.700	.07	.05
2004	1	18	18.28	3.05	.033	.856	092	70	.927	02	.01
2004	2	54	18.35	2.33		.000	092	70	.527	02	.01
2008	1	18	18.63	3.33	.224	.637	436	70	.664	10	.05
2008	2	54	19.02	3.24	.224	.057	430	70	.004	10	.05
2012	1	15	18.19	1.75	4.065	.048	-1.770	58	.082	46	.22
2012	2	45	20.19	4.23	4.005	.040	-1.770	20	.002	40	.22
2016	1	15	15 18.81 2.12	3.352	.072	-1.194	58	.237	31	.15	
2010	2	45	20.00	3.63	3.332	.072	-1.194	20	.237	51	CI.





Conclusion

- in the last 15 years there has been a linear increase in the age structure of participants in MAG and WAG in the largest world competitions.
- changes in the General Rules and Code of Points by FIG have significantly influenced age rise compared to the previous Olympic cycles.
- male and female gymnasts ended their carriers in the past earlier, while today we have some athletes in professional gymnastics who are over 35 years of age.
- in the past, there was a noticeable downward trend in age of both male and female participants of the OG and WC.
- in the upcoming period we do expect (with apparatus specialization) age will be slightly higher.