

HOW SUCCESSFUL ARE MEN ALL-AROUND OLYMPIC MEDALISTS ON APPARATUS EVENTS AT OLYMPIC GAMES FROM 1924 TO 2016

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Abstract

At Olympic Games (OG) 1896 in Athens all-around competition in gymnastics was not a discipline. First time all-around title in gymnastics at OG was awarded in Paris in the year of 1900, however there were no apparatus awards given until OG 1924 in Paris. The article shows a historical research and follows development of OG all-around medallists and their success with relation to winning medals on individual apparatus. In Paris 1924 Leon Štukelj (Slovenia, ex-Yugoslavia) won all-around and horizontal bar gold medal. Since then all-around medallists shared very different success in apparatus ranking. The last multiple winner was Vitaly Scherbo (Belarus, ex-Soviet Union) who at OG 1992 won all-around and three apparatus finals (rings, vault and parallel bars). Since then such achievement has not been repeated yet. With open-ended difficulty value in the Code of Points and special competitions held by FIG for apparatus specialist, the doors are opening to more apparatus specialists to attend OG and chances to repeat Scherbo's success are getting smaller

Key words: *history, men artistic gymnastics, Olympic Games, medallists.*

INTRODUCTION

Gymnastics for men was on the schedule of the first modern Olympic Games in 1896, and it has been on the Olympic agenda continually since 1924 (Strauss, 2017). Development of disciplines in artistic gymnastics at Olympic Games (OG) went through burning beginning and since 1932 it became constant as number of disciplines, but a format of how winners were determined has been changing until nowadays. At the first OG of modern age in 1896 in Athens (Greece), medals were given

only for apparatus results on pommel horse, still rings, vault, parallel bars and high bar. At OG 1900 in Paris (France), only medals for all-around results were awarded. At next OG in St. Louis (USA) in 1904 competitions were organized separately and months apart for all-around and for apparatus (without floor exercise). At OG 1906 in Athens celebrating 10 years of the first OG only all-around results were awarded. Next OG from 1908 London (UK) up to OG 1920 Antwerp (Netherlands) again

only all-around medals were awarded (Wallechinsky, 2004). Next two OG in Paris (1924) and Amsterdam (1928, Netherland) besides all-around medals, also apparatus medals were awarded for all disciplines except for floor exercise (Štukelj, 1989). Leon Štukelj (Slovenia, ex Yougoslavia) was the first Olympic champion in all-around who also won the apparatus gold medal for horizontal bar. Since OG in 1932 (Los Angeles, USA) onward for all-around and six apparatus disciplines – floor exercise, pommel horse, rings, vault, parallel bars, horizontal bar – medals were awarded. Later up to OG in Melbourne (Australia) 1956 team competition served also to determine all-around and apparatus medallists. At OG in Rome (Italy) 1960 apparatus finals competition began, with all-around finals gymnasts started at OG 1972 in Munich (Germany). Since then the format of disciplines is the same, with changes of number of gymnasts in all-around finals (drop from 36 to 24) and apparatus finals (rise from 6 to 8) (Wallechinsky, 2004). For the last OG 2016 in Rio (Brazil) International gymnastics federation's (FIG) selection process of gymnasts who can compete at OG was as follows (FIG, 2015): 12 teams of 5 gymnasts, World championship apparatus medallists (7 gymnasts fulfilled this criteria; 2 of them would qualify also via all-around) who are not part of any competing team, host nation representative (who was already a member from host team qualified), tripartite invitation (invited gymnast from Monaco, who competed in all-around), a gymnast from Africa (all-around gymnast), and 29 gymnasts qualified via all-around results either in 2015 at World Championship either at 2016 Olympic test event. At Rio OG 98 gymnasts competed, half of them (49) competed in all-around, in teams; one to three gymnasts competed in all-around (BBC Sport, 2017). It is worth to notice that all-around gymnasts competing at OG tend to be older at OG comparing to previous ones (Atiković, Delaš Kalinski & Čuk, 2017).

Code of Points (COP) determined the rules of how to evaluate routines. Between 1924 and 1996, gymnasts had to perform two routines - compulsory and optional - on each apparatus. Despite the fact that in the past many changes were made in the COP, but until 2006 the highest value of gymnast's score limited towards fixed number (mostly towards 10.0 points). After 2006, the difficulty values of the score are evaluated upon open end of the score (each gymnasts have his theoretical maximum score determined with content of his exercise) (FIG, 2013, Kunčič & Mešl, 2017). The rise of precision of judging and its regulation was paralleled by the fact that values of difficulty elements increased (Čuk, & Atiković, 2009; Čuk, & Forbes, 2010; Bučar Pajek, Čuk, Pajek, Karácsony & Leskošek, 2012; Bučar Pajek, Čuk, Pajek, Kovač, & Leskošek, 2013; Delaš Kalinski, Atiković, Jelaska, & Milić, 2016). It is important to notice that apparatus events are designed according to gymnast's main position obtained on apparatus. In such we distinguish apparatus with dominant support on their feet (floor exercise, vault), dominant support on arms (pommel horse, parallel bars) and dominant hang (rings, horizontal bar). According to Arkaev & Suchilin (2003), gymnastics cannot be performed without the ability to jump with high level of development of the muscles of upper back, lower back and the trunk. There were many changes also in apparatus design - changes of apparatus materials or physical characteristics of apparatus at the competitions - all gymnasts competed at particular OG on the apparatus with same characteristics. Up to now, it was found that with open difficulty value in the COP the highest predictive value at 2009 European Championship for all-around results were results for difficulty value on parallel bars (Čuk, Forbes, 2010).

The aim of our historical research is to follow the development of OG all-around medallists and their success with relation to winning medals on individual apparatus, addressing their possible causes and future impacts.

METHODS

All data from Wallechinsky (2004) were collected. The time span we analysed is from OG 1924 up to OG 2016, as from 1924 all-around and apparatus medals were awarded. Following variables per each OG were analysed: number of participants, number of participant's nation, name of gymnasts who won medals in all-around and apparatus, sum of all medals won by all-around medallists, sum of gold medals won by all-around medallists, sum of silver medals won by all-around medallists, sum of bronze medals won by all-around medallists, sum of all medals won by Olympic champion, percentage of all medals won by all-around medallists

(excluding team medals) on apparatus (for individuals altogether it is possible to gain 18 medals), percentage of all medals won by Olympic Champion (out of 18 possible apparatus medals), as a gymnast can earn maximum 6 apparatus medals, it was calculated also Olympic Champion efficiency (all apparatus medals divided by 6). From results, we determined on which all-around champions took most apparatus medals.

RESULTS

Results are shown in Figures 1 to 7, Tables 1 and 2.

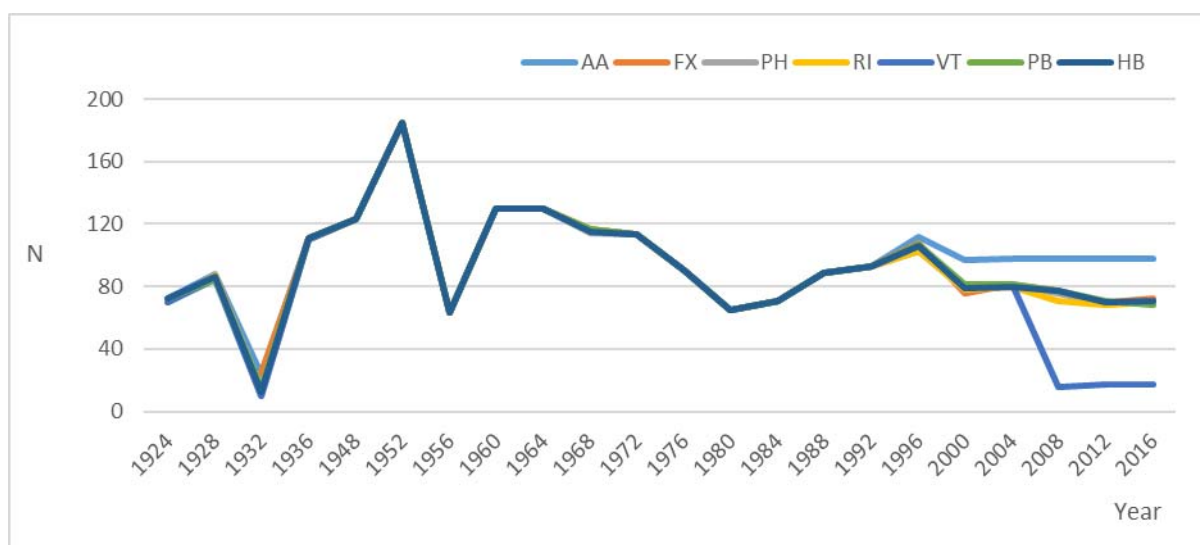


Figure 1. Number of gymnasts competing at OG between 1924 and 2016.

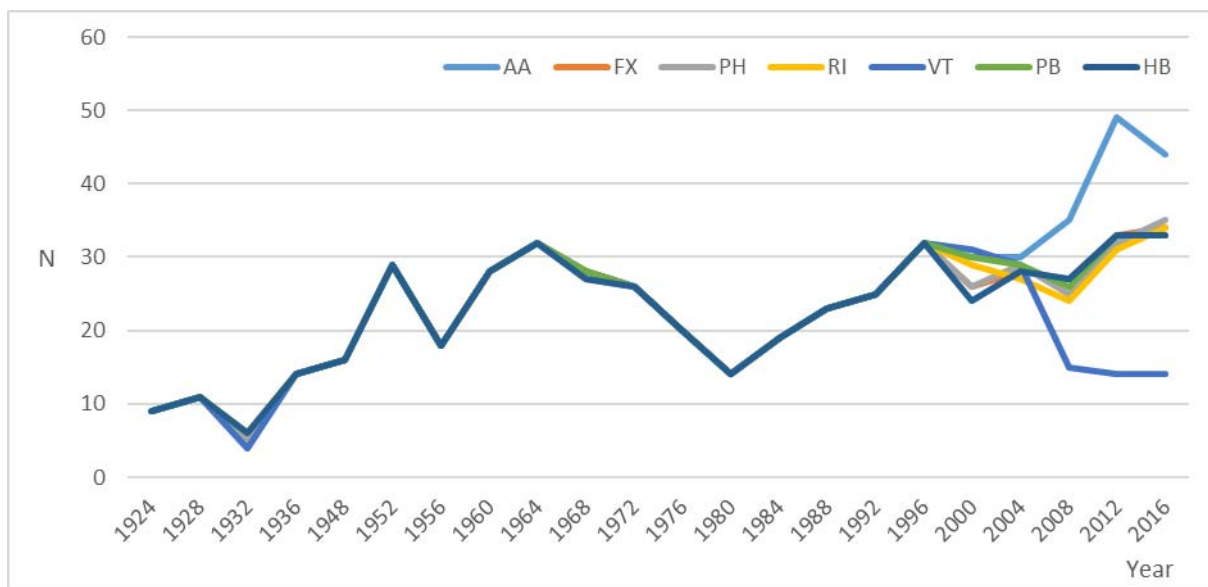


Figure 2. Number of participating nations at OG between 1924 and 2016.

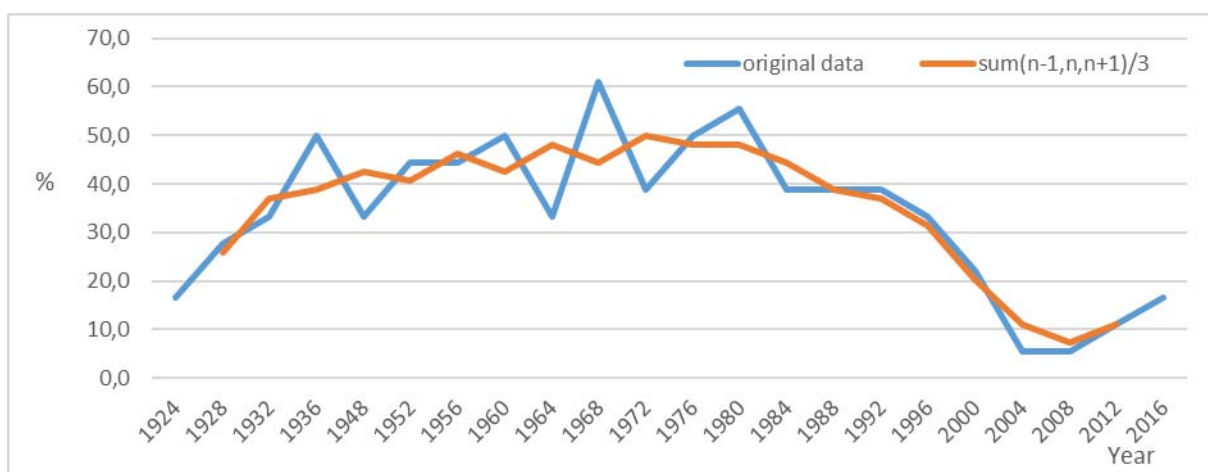


Figure 3. Percentage of individual medals won by AA medallists between 1924 and 2016
 Legend: Blue line denotes the absolute sum of medals. Orange line denotes trends (sum of medals at previous (n-1), recent (n) and next (n+1) OG divided by 3.

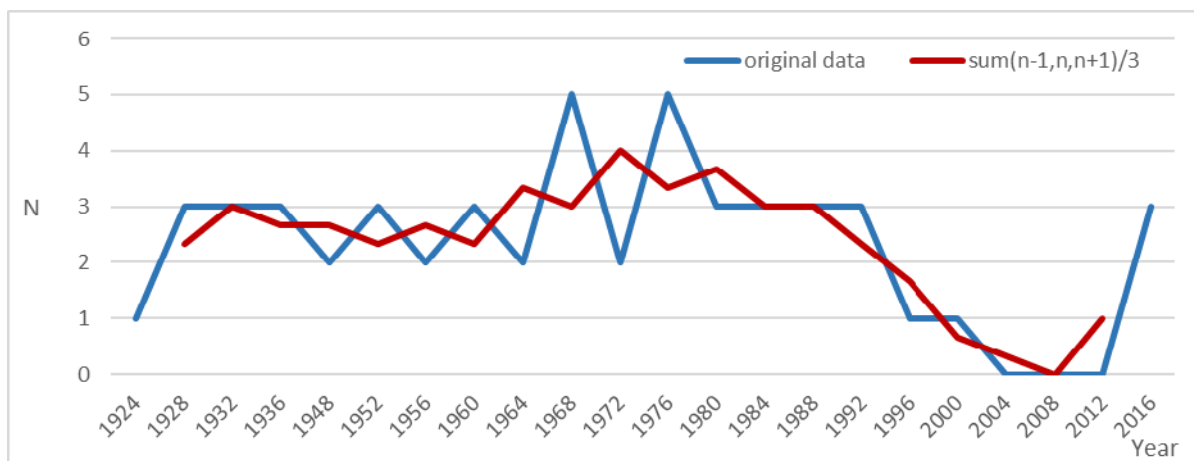


Figure 4. All-around medallists with gold apparatus medals between 1924 and 2016; Legend: Blue line denotes the absolute sum of medals. Red line denotes trends (sum of medals at previous (n-1), recent (n) and next (n+1) OG divided by 3).

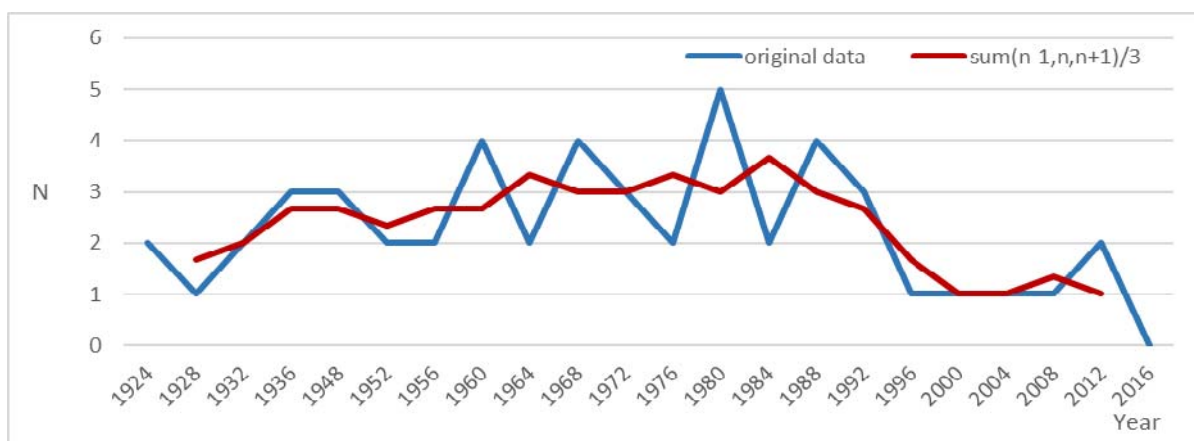


Figure 5. All-around medallists with silver apparatus medals between 1924 and 2016; Legend: Blue line denotes the absolute sum of medals. Red line denotes trends (sum of medals at previous (n-1), recent (n) and next (n+1) OG divided by 3).

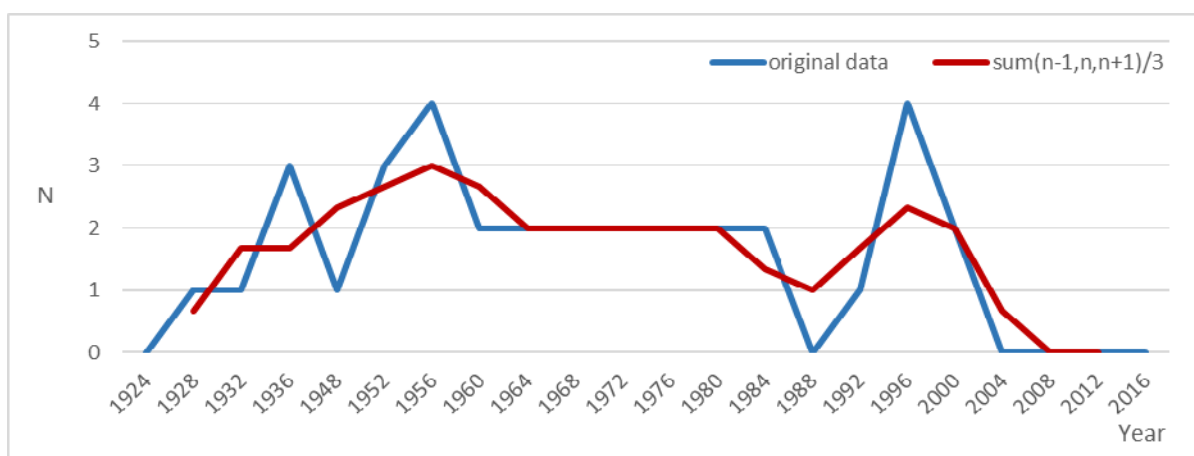


Figure 6. All-around medallists with bronze apparatus medals between 1924 and 2016; Legend: Blue line denotes the absolute sum of medals. Red line denotes trends (sum of medals at previous (n-1), recent (n) and next (n+1) OG divided by 3).

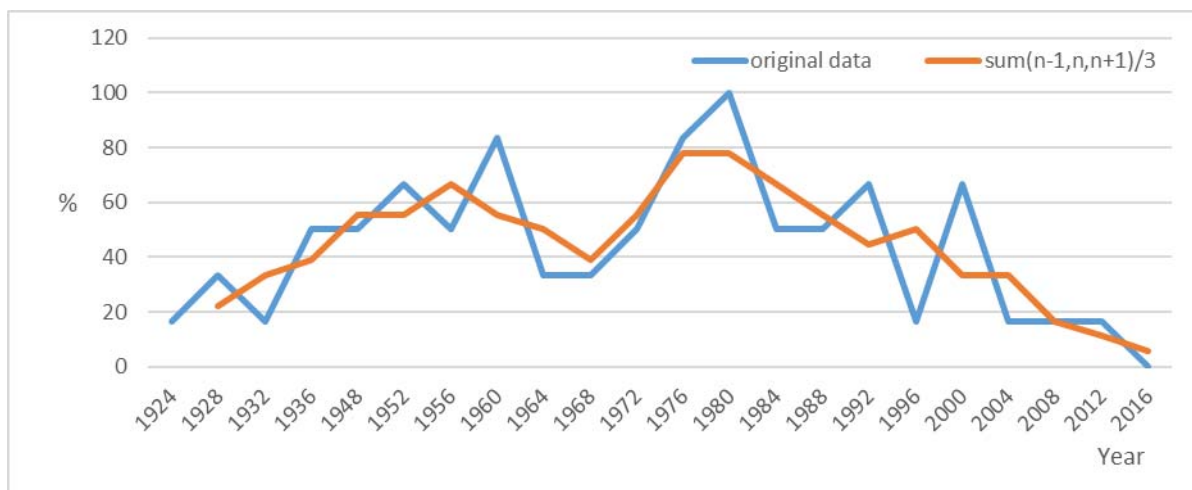


Figure 7. Efficiency of Olympic champions on winning apparatus medals between 1924 and 2016; Legend: Blue line denotes the absolute sum of medals. Orange line denotes trends (sum of medals at previous (n-1), recent (n) and next (n+1) OG divided by 3).

Table 1 shows the year and place of each OG, names of gymnasts who won medals in all-around competitions and individual apparatuses. Names of medalists are shown in the sequence related to the place they

achieved: first name identifies first place (gold medal), second name identifies second place (silver medal) and third name identifies third place (bronze medal).

Table 1

Names of gymnasts winning medals in all-around and apparatus finals.

Year	Place	All-around	Floor	Pommel horse	Rings	Vault	Parallel bars	Horizontal bar
1924	Paris	Štukelj Leon Pražak Robert Supčih Bedrich		Wilhelm Josef Gutwenigen Jean Rebetez Antoine	Martino Francesco Pražak Robert Vacha Ladislav	Kriz Frank Koutny Jan Morkovsky Bohumil	Guttinger August Pražak Robert Zampori Giorgio	Štukelj Leon Gutweniger Jean Higelin Andre
1928	Amsterdam	Miez Georges Hangi Hermann Štukelj Leon		Hanggi Hermann Miez Georges Savolainen Heikki	Štukelj Leon Vacha Ladislav Loffler Emanuel	Mack Eugen Loffler Emanuel Derganc Stane	Vacha Ladislav Primožič Josip Hanggi Hermann	Miez Georges Neri Romeo Mack Eugen
1932	Los Angeles	Neri Romeo Pelle Istvan Savolainen Heikki	Pelle Istvan Miez Georges Lertora Mario	Pelle Istvan Bonoli Omero Haubold Frank	Gulack George Denton William Lattuada Giovanni	Guglielmetti Savino Jochim Alfred Carmichael Edward	Neri Romeo Pelle Istvan Savolainen Heikki	Bixler Dallas Savolainen Heikki Terasvirta Einari
1936	Berlin	Schwarzmann Alfred Mack Eugen Frey Konrad	Miez Georges Josef Walter Frey Konrad	Frey Konrad Mack Eugen Bachmann Albert	Hudec Alois Štukelj Leon Volz Matthias	Schwarzmann Alfred Mack Eugen Volz Matthias	Frey Konrad Reusch Michael Schwarzmann Alfred	Saarvala Aleksanteri Frey Konrad Schwarzmann Alfred
1948	London	Huhtanen Veikko Lehmann Walter Aaltonen Paavo	Pataki Fenenc Mogyorosi-Klencs Janos Ružička Zdenek	Aaltonen Paavo Huhtanen Veikko Savolainen Heikki	Frei Karl Reusch Michael Ružička Zdenek	Aaltonen Paavo Rove Olavi Mogyorosi-Klencs Janos	Reusch Michael Huhtanen Veikko Kipfer Christian	Stalder Josef Lehmann Huhtanen Veikko Gunthard Jack
1952	Helsinki	Chukarin Viktor Shaginyan Grant Stalder Josef	Thoresson K William Jokiel Jerzy Uesako Tadao	Chukarin Viktor Korolkov Yevgeny Shaginyan Grant	Shaginyan Grant Chukarin Viktor Eugster Hans	Chukarin Viktor Takemoto Masao Ono Takashi	Eugster Hans Chukarin Viktor Stalder Josef	Gunthard Jack Schwarzmann Alfred Stalder Josef
1956	Melbourne	Chukarin Viktor Ono Takashi Tytov Yuri	Muratov Valentin Aihara Nobuyoki Chukarin Viktor	Shaklin Borys Ono Takashi Chukarin Viktor	Azaryan Albert Muratov Valentin Kubota Masami	Bantz Helmut Muratov Valentin Tytov Yuti	Chukarin Viktor Kubota Masami Ono Takashi	Ono Takashi Tytov Yuti Takemoto Masao
1960	Rome	Shaklin Borys Ono Takashi Tytov Yuri	Aihara Nobuyoki Tytov Yuri Menichelli Franco	Ekman Eugen Shaklin Borys Tsurumi Shuji	Azaryan Albert Shaklin Borys Kapsazov Velik	Ono Takashi Shaklin Borys Portnoy Vladimir	Shaklin Borys Carminucci Giovanni Ono Takashi	Ono Takashi Takemoto Masao Shaklin Borys
1964	Tokio	Endo Yukio Lisitsky Vikton Shaklin Borys	Menichelli Franco Endo Yukio Lisitsky Viktor	Cerar Miroslav Tsurumi Shuji Tsapenko Yuri	Haytta Takuji Menichelli Franco Shaklin Borys	Yamashita Haruhiro Lisitsky Viktor Rantakari Hannu	Endo Yukio Tsurumi Shuji Menichelli Franco	Shaklin Borys Tytov Yuti Cerar Miroslav
1968	Mexico City	Kato Sawao Voronin Mikhail Nakayama Akinori	Kato Sawao Nakayama Akinori Kato Takeshi	Cerar Miroslav Eino Laiho Olli Voronin Mikhail	Nakayama Akinori Voronin Mikhail Kato Sawao	Voronin Mikhail Endo Yukio Diomidov Sergei	Nakayama Akinori Voronin Mikhail Klimenko Vladimir	Nakayama Akinori Voronin Mikhail Kenmotsu Eizo
1972	Munich	Kato Sawao Kenmotsu Eizo Nakayama Akinori	Andrianov Nikolai Nakayama Akinori Kasamatsu Shigeru	Klimenko Viktor Kato Sawao Kenmotsu Eizo	Nakayama Akinori Voronin Mikhail Tsukahara Mitsuo	Koaste Klaus Klimenko Viktor Andrianov Nikolai	Kato Sawao Kasamatsu Shigeru Kenmotsu Eizo	Tsukahara Mitsuo Kato Sawao Kasamatsu Shigeru

<i>Year</i>	<i>Place</i>	<i>All-around</i>	<i>Floor</i>	<i>Pommel horse</i>	<i>Rings</i>	<i>Vault</i>	<i>Parallel bars</i>	<i>Horizontal bar</i>
1976	Montreal	Andrianov Nikolai Kato Sawao Tsukahara Mitsuo	Andrianov Nikolai Marchenko Vladimir Kormann Peter	Magyar Zoltan Kenmotsu Eizo Andrianov Nikolai	Andrianov Nikolai Dityatin Alexandr Grecu Danut	Andrianov Nikolai Tsukahara Mitsuo Kajiyama Hiroshi	Kato Sawao Andrianov Nikolai Tsukahara Mitsuo	Tsukahara Mitsuo Kenmotsu Eizo Boerio Henry
1980	Moscow	Dityatin Aleksandr Andrianov Nikolai Deltchev Stoyan	Bruecker Roland Andrianov Nikolai Dityatin Aleksandr	Magyar Zoltan Dityatin Alexandr Nikolay Michael	Dityatin Alexandr Tkachyov Aleksandr Tabak Jiri	Andrianov Nikolai Dityatin Alexandr Bruecknen Roland	Tkachyov Aleksandr Dityatin Alexandr Bruecknen Roland	Deltchev Stoyan Dityatin Alexandr Andrianov Nikolai
1984	Los Angeles	Gushiken Koji Vidmar Peter Ning Li	Ning Li Yun Lou Sotomura Koji	Ning Li Vidmar Peter Dagget Timothy	Gushiken Koji Ning Li Gaylord Mitchell	Yun Lou Gaylord Mitchell Gushiken Koji	Conner Bart Kajitani Nobuyuku Gaylord Mitchell	Morisue Shinji Fei Tong Gushiken Koji
1988	Seoul	Artemov Vladimir Lyukin Valery Bilozherchev Dmitri	Kharkov Sergei Artemov Vladimir Iketani Yukio	Bilozherchev Dmitri Borkai Zsolt Geraskov Lubomir	Behrendt Holger Bilozherchev Dmitri Tippelt Sven	Yun Lou Kroll Sylvio Jong-hoon Park	Artemov Vladimir Lyukin Valery Tippelt Sven	Artemov Vladimir Lyukin Valery Behrendt Holgen
1992	Barcelona	Scherbo Vitaly Misyutin Hryhoriy Belenki Valeri	Xiaoshuang Li Iketani Yukio Misyutin Hryhoriy	Gil-su Pae Scherbo Vitaly Wecker Andreas	Scherbo Vitaly Jing Li Xiaoshuang Li	Scherbo Vitaly Misyutin Hryhoriy Ok-ryul Yoo	Scherbo Vitaly Jing Li Linyao Guo	Dimas Trent Misyutin Hryhoriy Wecker Andreas
1996	Atlanta	Xiaoshuang Li Nemov Aleksei Scherbo Vitaly	Melissanidis Ioannis Xiaoshuang Li Nemov Aleksei	Li Donghua Urzica Marius Nemov Aleksei	Chechi Jury Burinca Dan Csollaany Szilveszter	Nemov Aleksei Hong-chul Yeo Scherbo Vitaly	Sharipov Rustam Lynch Jair Scherbo Vitaly	Wecker Andreas Dunев Krasimir Bin Fan
2000	Sydney	Nemov Aleksei Yang Wei Beresh Oleksandr	Vihrovs Igers Nemov Aleksei Yovchev Yordan	Urzica Marius Poujade Eric Nemov Aleksei	Csollaany Szilveszter Tampakos Dimosthenis Yovchev Yordan	Deferr Angel Gervasio Bondarenko Aleksei Blanik Leszek	Xiaopeng Li Joo-hyung Lee Nemov Aleksei	Nemov Aleksei Varonian Benjamin Joo-hyung Lee
2004	Athens	Hamm Paul Kim Dae Eun Yang Tae Young	Shewfelt Kyle Dragulescu Marian Jovtchev Jordan	Teng Haibin Urzica Marius Daniel Kashima Takehiro	Tampakos Dimosthenis Jovtchev Jordan Chechi Yuri	Deferr Gervasio Sapronenko Evgeni Dragulescu Marian	Goncharov Valeri Tomita Hiroyuki Xiaopeng Li	Cassina Igor Hamm Paul Yoneda Isao
2008	Beijing	Yang Wei Uchimura Kohei Caranobe Benoit	Zou Kai Deferr Gervasio Golotsutskov Anton	Xiao Qin Ude Filip Smith Louis	Chen Yibing Yang Wie Vorobiov Oleksandr	Blanik Leszek Bouhail Thomas Golotsutskov Anton	Xiaopeng Li Yoo Wonchul Fokin Anton	Zou Kai Horton Jonathan Hambuechen Fabian
2012	London	Uchimura Kohei Nguyen Marcel Leyva Danell	Zou Kai Uchimura Kohei Abylazin Denis	Berki Krisztian Smith Louis Whitlock Max	Zanetti Arthur Chen Yibing Morandi Matteo	Yang Hak Seon Abylazin Denis Radivilov Igor	Feng Zhe Nguyen Marcel Sabot Hamilton	Zonderland Epke Hambuchen Fabian Zou Kai
2016	Rio de Janeiro	Uchimura Kohei Verniaiev Oleg Whitlock Max	Whitlock Max Hypolito Diego Mariano Arthur	Whitlock Max Smith Louis Naddour Alexander	Petrounias Eleftherios Zanetti Arthur Abylazin Denis	Ri Se Gwang Abylazin Denis Shirai Kenzo	Verniaiev Oleg Leyva Danell Belyavskiy David	Hambuchen Fabian Leyva Danell Wilson Nile

Table 2

Sum of medals per apparatus for all-around medallists, all-around champions and basic gymnast's position on apparatus.

	Gold	Silver	Bronze	Sum
All-around medallists				
Floor	5	9	6	20
Pommel horse	8	9	7	24
Rings	7	7	2	16
Vault	9	5	3	17
Parallel bars	12	10	10	32
High bar	10	10	6	26
Support feet	14	14	9	37
Support arms	20	19	17	56
Hang	19	17	8	42
All-around Champion				
Floor	2	5	2	9
Pommel horse	1	6	3	10
Rings	4	3	1	8
Vault	4	2	1	7
Parallel bars	7	4	2	13
High bar	4	3	4	11
Support feet	6	7	3	16
Support arms	8	10	5	23
Hang	8	6	5	19

DISCUSSION

Number of gymnasts and number of nations participating at OG varies during observed period of time (Figure 1 and Figure 2). Greater declines are detected for OG 1932 (Los Angeles, USA) and OG 1956 (Melbourne, Australia) as many, mostly European countries were not of such economic prosperity to send teams so far away; e.g. Yugoslavia, France, Italy did not participate at least in one of them. After OG 1960 (Rome, Italy) number of nations systematically declined until OG 1980 (Moscow, Soviet Union), mostly due to political reasons. With the next OG 1984 (Los Angeles) (still due to political reasons) number of participating nations slightly raised and later rose until OG 1996 (Atlanta, USA), and again up to OG 2012 (London,

UK), with slight decline at OG 2016 (Rio, Brazil). It is important to notice, that after OG 1988 (Seoul, South Korea), Soviet Union, Yugoslavia, and Czechoslovakia split into many smaller states, and this is one of reasons of increasing number of nations at OG afterwards. Until OG 1996 number of gymnasts and nations competing at all disciplines is the same, mostly because of selection of gymnasts towards OG and as the competing programme included optional and compulsory exercises. In 1992 in Paris (France) FIG organized the first World Championship per apparatus, which was a huge success for the development of the sport. Since then gymnasts are highly specialized into one up to three apparatus, which is recognized in Figures 1 and 2, that in all-around results list also gymnasts who competed at least in one apparatus are listed,

while on apparatus list of results are only those who actually performed on apparatus. Since OG 2004 (Athens, Greece), number of participants on vault dropped significantly, mostly with introducing the rule that those who want to qualify to vault finals, have to perform two different vaults. Consequently, with open-ended COP those with less difficult vaults do not even attempt to qualify.

Table 1 shows names of all medalist from observed period at all around competitions and apparatus finals. We can see there were 3 competitors in 92 years of Olympic history who won all-around title twice in a row: Viktor Chukarin in OG 1952 in Helsinki and 1956 in Melbourne, Sawao Kato in OG 1986 in Mexico City and 1972 in Munich, and Kohei Uchimura in the last two OG 2012 in London and 2016 in Rio de Janeiro. While in women artistic gymnastics is rare for a gymnast to compete at two consecutive OG (Delaš Kalinski, 2017) for men it is not unusual to compete at more than two consecutive OG. In the beginning of Olympic competitions, the dominant male gymnasts were from Germany, Sweden, Italy, and Switzerland, the countries where the sport first developed. By the 1950s, Japan, the Soviet Union, and the Eastern European countries began to produce the leading male and female gymnasts (Strauss, 2017), after 1984, also Chinese gymnasts took one of the leading part.

Up to OG in 1992 (in Barcelona, Spain) all-around gymnasts (Figure 3. to Figure 6.) were also very important contenders in apparatus events and almost all the time they were also very successful in winning medals on apparatus (between 35 and 50%). It is important to note, that despite limited number of apparatus specialists (except for World champions) at OG in Beijing 2008 (China), OG in London 2012 and OG in Rio 2016 (where medallists from last World Championship were allowed to participate at OG), the number of medals on apparatus for all-around gymnasts declined severely in all medal categories; gold, silver and bronze. Since OG 1992, apparatus

specialists made an important role in development of this sport, while all-around gymnasts have less and less influence on apparatus. We can connect it to the pathway in track and field sport noticed in decathlon. Decathlon in track and field is similar to gymnastics all-around. Athletes compete in ten disciplines, while gymnasts in six. Olympic champion in decathlon has actually no chances of winning any event medal, as their results are far from the best specialists (IAAF, 2017; IAAF, 2017). Zurc (2017) discovered that in the ending part of gymnast's career, it does not matter to a gymnast, whether they have chosen to train and compete in all-around or specific apparatus, this is the path they would not change and would do it all over again. Despite the fact that in OG in Rio 2016 all-around medallists took three gold medals (Max Whitlock (UK) on floor and pommel horse, Oleg Verniaiev (Ukraine) on parallel bars) it is to acknowledge coaches brilliant planning. Olympic champion Kōhei Uchimura (Japan) despite him being well prepared and in excellent shape was not awarded with any apparatus medal. With efficiency of Olympic champions (Figure 7), we wanted to point out how champions were also taking part at apparatus events. The exact names of the all-around champions and their success at individual apparatus competitions are shown in the table 1. Besides all-around medal, gymnasts also have the possibility to win another medal on each individual apparatus, which can all together be six apparatus medals. As we consider six apparatus medal as 100% efficient gymnast, in whole gymnastics history only one gymnast achieved a perfect efficiency – Aleksander Dityatin (Russia, ex-Soviet Union) at OG 1980 in Moscow. The all-around Olympic champion from OG 1924 up to OG 1960 inclined their efficiency, with huge battle between Japan and Soviet Union gymnasts it declined until OG 1968 (New Mexico, Mexico), later rose again until OG 1980 and since then it declines again, and in last OG in Rio all-around Olympic champion was not successful winning medals on apparatus.

The last all-around Olympic champion with multiple gold medals on apparatus was Vitaly Scherbo (Belarus, ex. Unified Team of the ex-Soviet Union) who won 5 medals – 4 gold and one silver at OG 1992 in Barcelona. The last all-around champion who also won gold apparatus medal was Aleksei Nemov (Russia) at OG 2000 in Sydney who was also the best on horizontal bar.

When analysing which apparatus medals have mostly been won by all-around gymnasts (Table 1.) it is to notice, that apparatus with support on arms were dominant comparing to hang and support on feet apparatus. Results on parallel bars are by far most dominant where all-around medallists and Olympic champions were most successful. Comparing these results to research of Čuk and Forbes (2010) it seems that movements on parallel bars, which contain mostly combinations of rotations around longitudinal and transversal axis in support, upper arm support and hang, there is also certain amount of acrobatic flight elements; basically determine the ability also to control gymnasts own body on other apparatus. On the other side vault is also interesting, where all-around medallists and Olympic champions are less successful. Small amount of medals on vault mostly shows all-around gymnasts are focused on all-around results and with one good vault they can win all-around title, while to be good at vault gymnasts need to perform two different difficult vaults, where it can be seen it is something all-around gymnasts do not or cannot give special attention to as it requires too much work. Last all-around OG medallist winning also the vault medal was Alexei Nemov (Russia) at OG 1996 in Atlanta.

CONCLUSIONS

Number of gymnasts and participating nations at OG during history changed. It is important that number of participating gymnasts is stable for last decades while, number of participating nations is growing. It is important to notice that number of all-

around gymnasts is dropping, while number of apparatus specialists is rising. From the whole history of artistic gymnastics for public, winner in all-around is considered as the king of gymnastics. In the past all-around gymnasts were also very successful on apparatus, but since the first World Championship for apparatus specialists in 1992 their success on apparatus is descending. All-around gymnasts are becoming slightly more and more similar to decathlon athletes, where Olympic Champion is not among the best in specific disciplines. With results of our research, gymnastics community could easier decide for further directions for the development of our sport.

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