

Exploring a century of the Olympics games

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Introduction

We have performed analysis on the Olympic Games held from 1896 to 2016.

games and most noteworthy trends have been presented below in the form of intuitive images and graphs. The Olympic games have been in existence for over a century, which makes it interesting to discover the underlying patterns which can potentially describe the evolution of sports over time. Furthermore, such data can also point towards other social factors which may have developed or recessed since the 19th Century.

Analysis

Participating Countries

In Figure 1 above, we can see all the countries, which have participated in the Olympics from 1896 to 2016. We can observe that participating countries are almost evenly distributed across the globe.

Distribution of Athletes

Figure 2 shows a bubble chart that shows the distribution of athletes across the participating countries. The size of each bubble represents the number of athletes engaging in the Olympics from the respective countries. It can be observed that comparatively greater number of the athletes belong to the USA, Russia and Germany. These countries are followed by Australia, France, Canada, Japan,

Figure 1



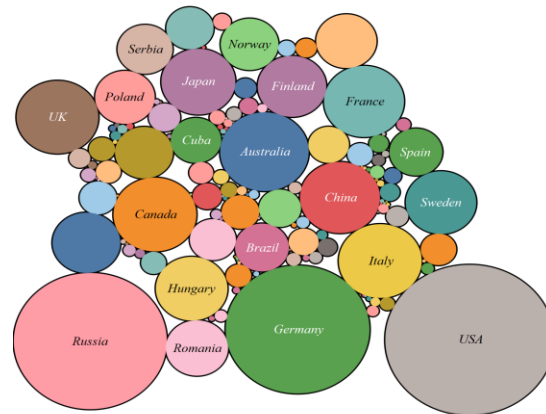
[1] Through our analysis we will uncover various trends in the Olympic

China, Finland and Italy all contributing similar number of participants to the

Olympic Games. Generally, we can see that higher number of athletes come from developed parts of the world. Furthermore, some of the East European countries show similar distribution.

Figure 2

Global Distribution of Athletes



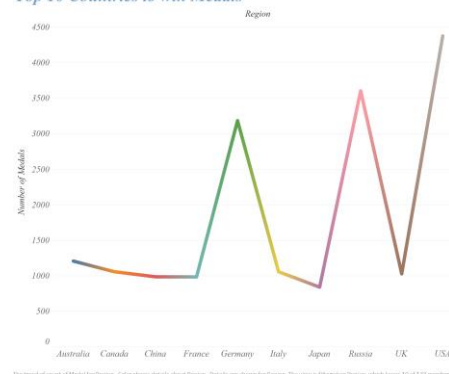
Region. Color shows details about Region. Size shows count of Sex. The marks are labeled by Region.

Top 10 Countries

In Figure 3, we can see some obvious results. Highest number of medals are bestowed upon American, Russian and German athletes, while China, France and Japan won the least medals. The USA dominated other countries and has earned around 20% more medals than the Runner Up, Russia.

Figure 3

Top 10 Countries to win Medals

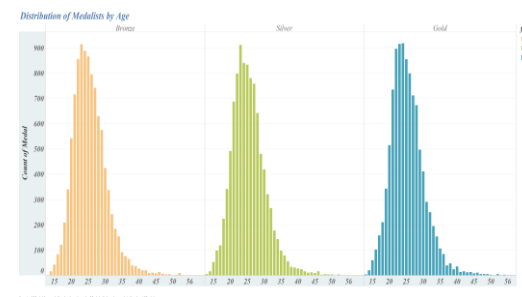


Age-wise distribution of medallists

Following figure shows us the distribution of 3 different medals earned by athletes in different age groups. It is evident that the youngest athletes have earned the greatest number of medals in the past century. Athletes in their prime

years, i.e., those aged between 22-27 have outperformed their competition. Younger participants can be seen getting more medals than older counterparts. But we can also state that older athletes tend to earn more silver medals than gold or bronze. Moreover, the highest number of each medal won is almost the same. 914 bronze and 912 silver medals have been earned by 23-year-olds while 919 have been earned by 24-year-olds.

Figure 4

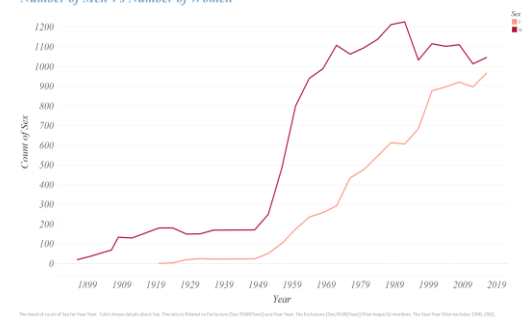


Number of Men Vs Women in Olympics

Figure 5 shows us that data for female participants from 1896-1919 is not available. The number of male participants increased considerably and linearly in for 10 years and has almost doubled by 1949, although the growth has been slow and erratic. The number of female participants increased slightly from 1919 to 1949. After 1949 the number of male participants shows a dramatic increase followed by a rapid and progressive growth in the number of female athletes up to the very end of the 20th century. Around the year 2000 the number of male athletes fell by 20%, whereas the number of female athletes has continued to grow.

Figure 5

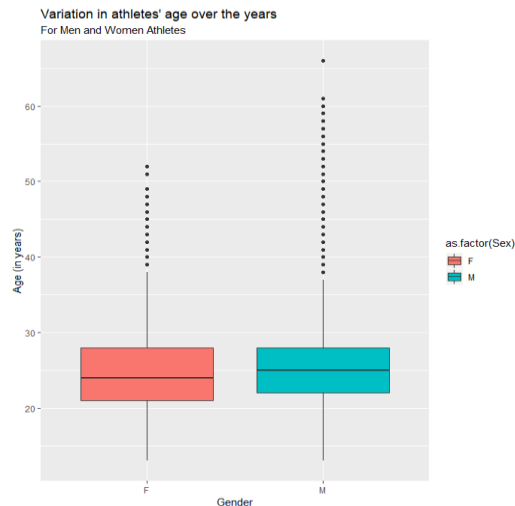
Number of Men Vs Number of Women



Variation in athletes' age over time

From Figure 6 we can see a boxplot that shows the age distribution for male and female athletes is approximately the same. Male athletes are definitely participating in the Olympics until a much later age than women.

Figure 6



Variation in athletes' height and weight over time and seasons

Figure 7 shows surprising results. The average weight and height of both male and female athletes has remained almost the same over 100 years during the Summer games. Slight fluctuations are seen in the average weight of women in the beginning of the 20th century. Average weight of men competing in the Summer games has increased steadily from 1959 to 2016. Women who participated in the Winter games were

shorter and weighed less than from 1919 to 1959. Male athletes remained of the same height but weighed less until 1959 during the Winter Olympic games.

Relation between height and weight of athletes

Figure 8 shows a scatterplot similar to the one showed here [2]. It shows a linear relation between both the measures, meaning that the taller the athletes are the more they weight, with a considerably amount of exceptions. We can also see that women have always been significantly shorter than men.

Figure 8

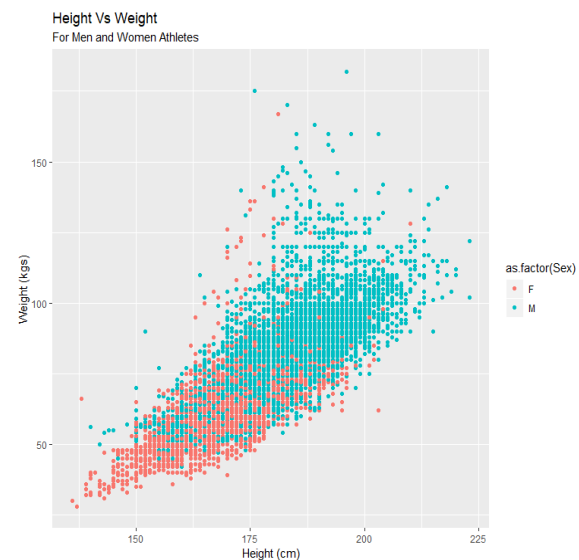
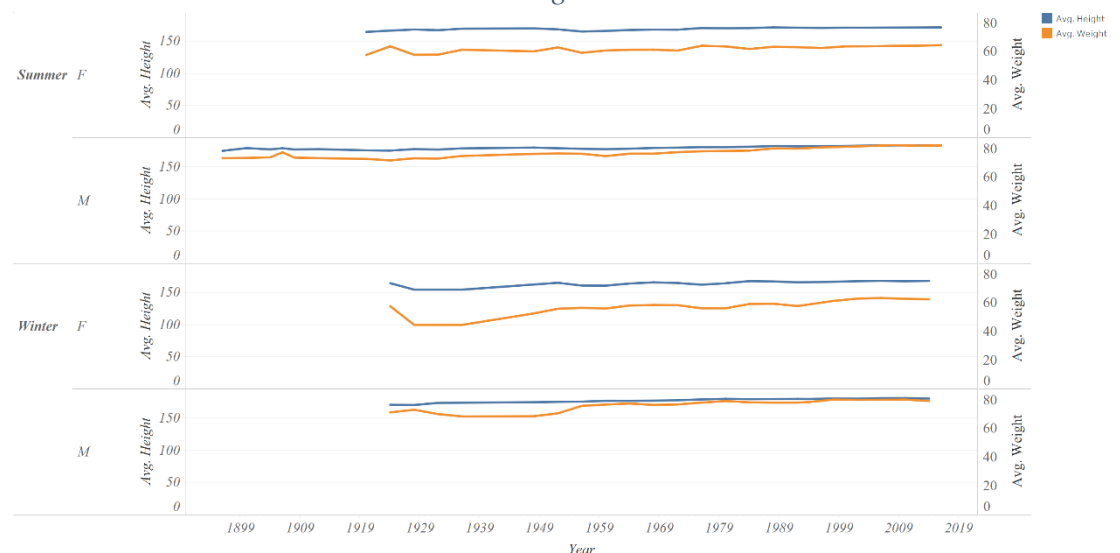


Figure 7

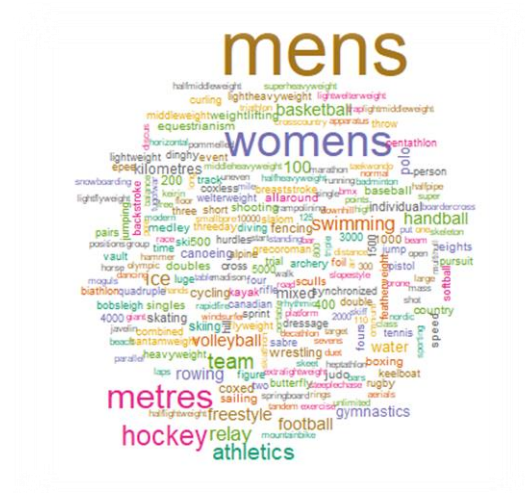


The trends of Avg. Height and Avg. Weight, for Year Quarter broken down by Season and Sex. Color shows details about Avg. Height and Avg. Weight. The view is filtered on Seasons, which keeps Summer and Winter.

olympic-games. [Accessed 21 02 2019].

From the word-cloud below it is clear that a greater number of men have played in the Olympics. Swimming, Hockey, Athletics, Football and Gymnastics appear to be the most played games in the Olympics.

Figure 9



Conclusion

Since the 19th Century the popularity of the modern Olympic games has increased, and larger number of athletes are participating every year. While there has been no considerable change in average height and weight of the athletes over the century the number of participants has increased drastically.

References

[1 R. H. Griffin, “120 years of Olympic history: athletes and results,” 15 06 2018. [Online]. Available: <https://www.kaggle.com/heesoo37/120-years-of-olympic-history-athletes-and-results/home>. [Accessed 21 02 2019].

[2 M. G. d. Pinto, “Data exploration about the recent history of the Olympic Games,” 23 09 2018. [Online]. Available: <https://www.kaggle.com/marcogdepinto/let-s-discover-more-about-the->