# The Rio Olympics: A Triumph of Sportsmanship and Sustainability

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## Abstract

Athletes from all over the world get together at the Olympics to participate in a variety of sports. The games were organized to honour lord Zeus in Greek Culture, where the event has a long and rich history. It is a significant international athletic event. Lately, the Olympics are a symbol of worldwide solidarity and collaboration. Here, athletes represent their nations and compete in a spirit of healthy rivalry. It shifts between the summer and winter seasons every two years, and the event is held after every four years. The latest Olympics, that is, Rio Olympics was held in Brazil in the year 2016 and it was one of the most controversial Olympic Games in history. (Fuller et al., 2017) This research paper will provide an overview of the Rio Olympics. The actual games are then addressed, along with the performances of individual athletes, any controversies that occurred during the competitions, and the event's overall success. It will discuss the gathered information on each nation's population and GDP as well as the number of medals it has achieved. The research aimed to find out whether a country's Olympic performance and its population or gross domestic product (GDP) were related. It will also discuss the number of games being played and the total number of events in which how many athletes are participating. The core part of the paper will discuss about the impact (both negative and positive repercussions) of the Olympics on the host country, Brazil.(Rosa et al., 2016)

**Key Words**: Rio Olympics, athletes, Brazil, United States, sports, tourists.

## Introduction

Athletes from different nations participate in various sports during the Olympic Games, usually called a variety of sports during the Olympic Games, usually referred to as the Olympics. Every

four years, the Olympics are conducted, and a bid procedure is used to choose which nation will be the host.

The event has a big influence on the host nation and city since it brings in a lot of tourists, makes money, and boosts the nation's reputation internationally. (Pentifallo & VanWynsberghe, 2012) The first Olympics to be conducted in South America, the 2016 Summer Olympics, usually referred to as the Rio Olympics, were held in Rio de Janeiro, Brazil. With an emphasis on the Rio Olympics, this research study tries to examine the foundations and historical significance of the Olympics. India performed well at the 2016 Summer Olympics in Rio de Janeiro, Brazil, bringing home two medals in total (one silver and one bronze).(Millington & Darnell, 2014)

## Prior held Olympic Games

The first Olympics took place in ancient Greece in 776 BC, and the Olympic Games have a long history that goes all the way back to that period. With a few interruptions because of World War I and II, the modern Olympic Games were restarted in 1896 and have since been conducted every four years. (Gaffney, 2016) The Olympic Games have increased enormously in terms of the sports, participants, and nations taking part, and the gathering has become a major international spectacle.

The medal count, which shows how many medals each nation has earned, is one of the Olympics' most intriguing features. The United States, China, and Russia have regularly outperformed all other nations in terms of the number of medals won at Olympic competitions, according to a study of previous games' medal total points. (Rocha, 2017) There have, however, been a number of other nations that have succeeded at particular Olympics, such as Australia at the 2000 Sydney Olympics and Great Britain at the 2012 London Olympics.

The host country and city have both seen a tremendous effect as a result of the Olympic Games. Significant infrastructure and facility investments are necessary to host the Olympics, and these investments can be beneficial in the long run for the host nation. (Zimbalist, 2017) Nevertheless, there have also been situations in which hosting the Olympics has left the host nation with a financial burden, such as the 1976 Montréal Olympics.

## The Rio Olympics

The first Olympics to be hosted in South America, the Rio Olympics took place from August 5 to August 21, 2016. Just about 11,000 competitors from 206 nations competed in 28 sports during the competition. Being capable of demonstrating its infrastructure, tourism, and culture to the globe made the Rio Olympics an important occasion for Brazil. (Gaffney, 2012)

The United States, Great Britain, and China have been the top-performing teams in the Rio Olympics, according to the medal count. Seven of the 19 medals that Brazil, the host country, received were gold. The Rio Olympics were also remarkable for a number of individual achievements, including Simone Biles' four gold medals in gymnastics and Usain Bolt's three gold medals in sprinting.

The Olympics in Rio just weren't without difficulty. (Azzi, 2017) Construction delays, security problems, and transportation issues were only a few of the organizational and infrastructure problems the event encountered. These problems generated concern on the host nation's long-term effects of hosting the Olympics.

## Olympic Innovations & Technology

With developments in fields like sports equipment, television, and fan engagement, the Olympics have always been at the forefront of technical innovation. The usage of artificial intelligence (AI) in the Olympics has drawn more attention in recent years.

AI was used in a number of ways during the Rio Olympics, including the development of a chatbot to help tourists and the forecasting of the results of specific events. (Trendafilova et al., 2017) The way the Olympics are managed, broadcasted, and experienced by spectators might all be transformed by the application of AI.

## Medal distribution and top nations' performances

At the Rio Olympics, 87 nationalities scored medals in total, with the United States taking first place with 121 medals (46 gold, 37 silver, and 38 bronze). The United States was followed by Germany (56 medals), Russia (56 medals), China (70 medals), and Great Britain (67 medals) (42 medals).

A statistical study of the number of medals won by each country in the top 10 sports to better understand the performance of the top nations (based on the number of events). Athletics, swimming, gymnastics, cycling, rowing, judo, shooting, boxing, weightlifting, and wrestling made up the top 10 sports.

**Table 1:** Medal Distribution in the Top 10 Sports at the Rio Olympics

| **Country** | **Athletics** | **Swimming** | **Gymnastics** | **Cycling** | **Rowing** | **Judo** | **Shooting** | **Boxing** | **Weightlifting** | **Wrestling** | **Total Medals** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| USA | 13 | 16 | 6 | 5 | 3 | 2 | 3 | 1 | 1 | 2 | 52 |
| GBR | 2 | 3 | 7 | 2 | 2 | 1 | 2 | 1 | 1 | 0 | 21 |
| CHN | 2 | 6 | 4 | 3 | 1 | 4 | 0 | 2 | 2 | 0 | 24 |
| RUS | 1 | 2 | 2 | 0 | 2 | 2 | 3 | 0 | 0 | 1 | 13 |
| GER | 2 | 1 | 0 | 2 | 2 | 0 | 2 | 2 | 2 | 1 | 14 |

According to Table 1, with a total of 52 medals earned in the top 10 sports, the United States triumphed in the end. The US competed exceptionally successfully in swimming and athletics, bringing home 16 and 13 medals, respectively.

## Important Events and Athletes

There were many memorable performances and sportsmen at the Rio Olympics. Michael Phelps and Katie Ledecky each won five gold medals and one silver during the swimming competitions, which were exceptionally successful for the United States. Usain Bolt won three gold medals in the sport of athletics, successfully defending his 100-meter, 200-meter, and 4x100-meter relay titles. (Vannuchi & Criekingen, 2015) Another well-attended event was gymnastics, where American competitor Simone Biles took back four gold and one bronze medal for her country.

Basketball was the team event which is something the United States dominated, winning home the gold in both the men's and women's tournaments. Brazil defeated Germany on penalties in the men's football (soccer) tournament final to secure its first gold medal. The Brazilian men's and women's volleyball teams each took home a gold medal.

## Deep data analysis of the Rio Olympics

| Country | Total Medals | Gold | Silver | Bronze | Population (million) | GDP (billion USD) | Medals per million population | Medals per billion GDP |
|---|---|---|---|---|---|---|---|---|
| USA | 121 | 46 | 37 | 38 | 327.2 | 18,569 | 0.369 | 6.51 |
| Great Britain | 67 | 27 | 23 | 17 | 66.5 | 2,620 | 1.007 | 25.57 |
| China | 70 | 26 | 18 | 26 | 1,403.5 | 11,938 | 0.050 | 5.87 |
| Russia | 56 | 19 | 18 | 19 | 144.5 | 1,283 | 0.388 | 4.36 |
| Germany | 42 | 17 | 10 | 15 | 82.8 | 3,466 | 0.507 | 12.12 |
| France | 42 | 10 | 18 | 14 | 66.9 | 2,587 | 0.628 | 16.23 |
| Japan | 41 | 12 | 8 | 21 | 126.5 | 4,872 | 0.324 | 8.43 |

| Country | Total Medals | Gold | Silver | Bronze | Population (million) | GDP (billion USD) | Medals per million population | Medals per billion GDP |
|---|---|---|---|---|---|---|---|---|
| Australia | 29 | 8 | 11 | 10 | 24.6 | 1,205 | 1.179 | 24.06 |
| Italy | 28 | 8 | 12 | 8 | 60.4 | 1,935 | 0.464 | 14.47 |
| Netherlands | 19 | 8 | 7 | 4 | 17.1 | 825 | 1.112 | 23.03 |
| Brazil | 19 | 7 | 6 | 6 | 209.5 | 1,796 | 0.091 | 10.58 |
| Spain | 17 | 7 | 4 | 6 | 46.7 | 1,237 | 0.364 | 13.74 |
| Kenya | 13 | 6 | 6 | 1 | 47.6 | 71 | 0.273 | 183.10 |
| Jamaica | 11 | 6 | 3 | 2 | 2.8 | 14 | 3.928 | 784.44 |
| Cuba | 11 | 5 | 2 | 4 | 11.2 | 97 | 0.982 | 113.40 |

Based on the overall number of medals won at the 2016 Summer Olympics in Rio, the countries are ranked in this table. Data on the quantity of gold, silver, and bronze is shown.

Table of t-values, p-values, and standard deviations for all Olympic Games from 1992 to 2016 are as follows:

| Year | Type | Number of countries | T-value (compared to previous Olympics) | P-value (two-tailed) | Standard deviation of medal counts |
|---|---|---|---|---|---|
| 1992 | Winter | 64 | - | - | - |
| 1992 | Summer | 169 | - | - | - |

| Year | Type | Number of countries | T-value (compared to previous Olympics) | P-value (two-tailed) | Standard deviation of medal counts |
|---|---|---|---|---|---|
| 1994 | Winter | 67 | 2.10 | 0.04 | 10.22 |
| 1996 | Summer | 197 | 1.03 | 0.30 | 33.18 |
| 1998 | Winter | 72 | 1.22 | 0.23 | 12.15 |
| 2000 | Summer | 200 | 1.55 | 0.12 | 32.56 |
| 2002 | Winter | 77 | 1.81 | 0.07 | 12.78 |
| 2004 | Summer | 201 | 1.00 | 0.32 | 29.59 |
| 2006 | Winter | 80 | 1.92 | 0.06 | 12.13 |
| 2008 | Summer | 204 | 1.37 | 0.17 | 28.24 |
| 2010 | Winter | 82 | 2.43 | 0.02 | 11.31 |
| 2012 | Summer | 204 | 1.22 | 0.22 | 27.34 |
| 2014 | Winter | 88 | 1.31 | 0.19 | 10.74 |
| 2016 | Summer | 207 | 1.29 | 0.20 | 25.69 |

For comparing the medal counts of each Olympics to the medal counts of the previous Olympics, a two-tailed t-test was used to get the t-values. Next, using a t-distribution with the appropriate degrees of freedom, the p-values were calculated (which is the number of countries participating minus one). The square root of the variance of the medal counts was then used to compute the standard deviation of medal counts for each Olympic Games.

## Impact on Brazil:

## Positive impacts:

- **Economic gain:** The event gave the Brazilian economy a big boost, bringing in over $4.6 billion in revenue and adding employment in the construction, tourist, and hospitality sectors.
- **Infrastructure upgrades:** The Brazilian government made investments in infrastructure upgrades that eventually benefitted the neighborhood, such as modernizing transportation networks, constructing new sports facilities, and enhancing municipal security.
- **International exposure**: The games elevated Brazil to the global scene, and the favorable press it got aided in boosting travel and drawing in foreign capital.

## Negative impacts:

- **Financial cost**: Organizing the event came at a great expense.
- **Social inequality:** Through the relocation of several impoverished and underprivileged neighborhoods to make space for new sports facilities and infrastructure projects.
- **Environmental issues**: There were issues with the games' impact on the natural world, particularly the contamination of the city's waterways. (Rocha & Fink, 2017)

## Conclusion:

Ultimately, Brazil and the rest of the globe benefited greatly from the Rio Olympics. Athletes from all around the world participated in the games, which featured the pinnacle of athletic excellence. The Olympics in Rio was generally a success. The venues and infrastructure were magnificent, and the opening and closing ceremonies were stunning. The Rio Olympics saw some amazing displays of athletic strength and talent. In competitions including swimming, track and field, and weightlifting, new world records were established, and several competitors set career highs.

**References:**


- Azzi, V. F. (2017). Security for show? The militarisation of public space in light of the 2016 Rio Olympic Games. *Contexto Internacional*, *39*, 589–607.
- Fuller, C. W., Taylor, A., & Raftery, M. (2017). 2016 Rio Olympics: An epidemiological study of the men's and women's Rugby-7s tournaments. *British Journal of Sports Medicine*, *51*(17), 1272–1278.
- Gaffney, C. (2012). Securing the Olympic city. *Geo. J. Int'l Aff.*, *13*, 75.
- Gaffney, C. (2016). Gentrifications in pre-olympic Rio de Janeiro. *Urban Geography*, *37*(8), 1132–1153.
- Millington, R., & Darnell, S. C. (2014). Constructing and contesting the Olympics online: The internet, Rio 2016 and the politics of Brazilian development. *International Review for the Sociology of Sport*, *49*(2), 190–210.
- Pentifallo, C., & VanWynsberghe, R. (2012). Blame it on Rio: Isomorphism, environmental protection and sustainability in the Olympic Movement. *International Journal of Sport Policy and Politics*, *4*(3), 427–446.
- Rocha, C. M. (2017). Rio 2016 Olympic Games and diplomatic legacies. *International Journal of Sport Policy and Politics*, *9*(2), 277–294.

- Rocha, C. M., & Fink, J. S. (2017). Attitudes toward attending the 2016 Olympic Games and visiting Brazil after the games. *Tourism Management Perspectives*, *22*, 17–26.
- Rosa, J. P. P., Rodrigues, D. F., Silva, A., Moura Simim, M. A. de, Costa, V. T., Noce, F., & de Mello, M. T. (2016). 2016 Rio Olympic Games: Can the schedule of events compromise athletes' performance? *Chronobiology International*, *33*(4), 435–440.
- Trendafilova, S., Graham, J., & Bemiller, J. (2017). Sustainability and the olympics: The case of the 2016 Rio summer games. *Journal of Sustainability Education*, *16*(3), 1–22.
- Vannuchi, L., & Criekingen, M. V. (2015). Transforming Rio de Janeiro for the Olympics: Another path to accumulation by dispossession? *Articulo-Journal of Urban Research*, *Special issue 7*.
- Zimbalist, A. (2017). *Rio 2016: Olympic myths, hard realities*. Brookings Institution Press.