

Study on the Global Geographical Distribution Characteristics of Medals in Tokyo 2020 Paralympic Games

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Abstract

Taking the methods of literature and mathematical statistics as the main research methods, this paper analyzes the medal distribution characteristics of the 2021 Tokyo summer Paralympic Games (hereinafter referred to as the "Tokyo Paralympic Games"), and explores the main items of medals won by each participating country in the Tokyo Paralympic Games and the global geographical distribution characteristics of medals. The results show that the main winning events in China, Russia and the United States are reflected in track and field and swimming, involving more events; The winning events in Ukraine mainly focus on swimming projects, while other projects are weak. British award-winning projects are involved in almost every project. The characteristics of intercontinental competitive strength are that Europe is the strongest, followed by Asia, America and Oceania, and Africa is the weakest. China competitive strength in the current Paralympic Games shows that the traditional advantageous projects play a stable role, the advantageous projects remain ahead, and breakthroughs have been made in some new projects.

Keywords

Tokyo Paralympic Games; Medal; Geographical distribution.

1. Introduction

Most of the world cognition of the Olympic Games is reflected in the Olympic Games of normal people, and the Paralympic Games are also quite wonderful. Although the world does not give the disabled a sound body, they can still use sports. The disabled athletes with dreams have opened a door to the broad world. In the face of physical deformity, they have extraordinary perseverance and commendable courage, constantly surpass them and rush to the dream stage. The holding of the Paralympic Games reflects the tolerance and kindness of the whole society. Only when the rights and interests of the disabled are guaranteed and the society gives sufficient care and support, can the sports cause of the disabled flourish and the athletes fly high.

At the 16th Tokyo Paralympic Games, the Chinese delegation united as one, and the disabled athletes worked hard for self-improvement. They achieved 96 gold medals, 60 silver medals and 51 bronze medals, achieved a bumper harvest of sports achievements and spiritual civilization, and won new honors for the motherland and the people. Since the establishment of the Paralympic Games in 1960, the number of medals in the Paralympic Games has been the focus of attention all over the world. As a comprehensive event with the highest level of international competitive sports for the disabled, its achievements have become an important symbol to measure the development level of competitive sports in all countries or regions of the world, The number of medals won by countries all over the world also reflects the sports competitive strength of participating countries, which has attracted close attention all over the world. In 2021, a total of 162 delegations and 4400 athletes participated in the 16th Tokyo

Paralympic Games, three more than the 15th Rio Paralympic Games. Among the 162 delegations, 5 countries participated for the first time, and a refugee delegation was also gratifying. There are 22 major events and 539 minor events in the Tokyo Paralympic Games, of which 59 delegations won gold medals and 78 delegations won medals. This paper studies the global geographical distribution characteristics of medals in the 16th Tokyo Paralympic Games, so as to provide some reference for the development of disabled competitive sports in China and even the world.

2. The Object and Method of Study

2.1. Object

The Medals in Tokyo 2020 Paralympic Games

2.2. Methods

2.2.1. Documentation Method

In CNKI, with "Olympic medals", "Paralympic medals", "regional distribution characteristics of Olympic medals" and "regional distribution characteristics of Paralympic medals" as the key words, consult relevant literature and sort out relevant literature. A detailed reading of the representative articles provides theoretical support for the study of the distribution characteristics of medals in the Tokyo Paralympic Games.

2.2.2. Mathematical statistics

Use Excel 2010 and SPSS 22 to count, summarize and sort out the relevant data, and make the charts required for this study.

3. Results and Analysis

3.1. Analysis of the Number of Participants and the Number of Events in the Tokyo Paralympic Games

3.1.1. The number of participants in the Paralympic Games and the Change Trend of Events

The Paralympic Games have undergone many changes since it was founded in 1960. China participated in the summer Paralympic Games for the first time in 1984 and has participated in the 10th Paralympic Games by 2021. From only 23 participating countries in the first Paralympic Games in 1960 to 162 delegations in the Tokyo summer Paralympic Games in 2021, the number of participating countries and regions is increasing year by year; More than 400 athletes participated in the 1960 Summer Paralympic Games, while 4400 athletes participated in the 2021 Tokyo Paralympic Games. The number of athletes has increased nearly 11 times; At the same time, the setting of events in the summer Paralympic Games is also changing. The number of major events in the Tokyo Paralympic Games is maintained at 22, and the number of minor events is constantly adjusted. From 57 minor events in the first summer Paralympic Games in 1960 to 975 minor events in the seventh summer Paralympic Games in 1984, to 537 minor events in the 16th Tokyo Paralympic Games in 2021, This series of changes shows that the summer Paralympic Games have been "slimming down" in small events since the 7th summer Paralympic Games in 1984, and the number of small events in the last three Paralympic Games has remained at about 500. Obviously, more and more countries and regions have begun to pay attention to the Paralympic Games and develop the sports cause of the disabled. The number of countries and regions participating in the Paralympic Games and the number of athletes participating in the events are increasing. At the same time, the competition items and rules are constantly adjusted and improved.

3.1.2. Project Setting of Tokyo Paralympic Games

The setting of major events in the Paralympic Games has experienced four stages: start, development, adjustment and stability. The setting of minor events is mainly affected by medical and functional grading. The number of delegations and participants in the 16th Tokyo Paralympic Games reached a new record. The number of medals in physical dominated track and field, swimming and cycling events occupied an absolute advantage, followed by skill antagonistic events, such as table tennis, judo, wheelchair fencing, shooting, equestrian and so on.

3.2. Distribution of Medals of Tokyo Paralympic Games

As we all know, the high correlation between the medal distribution of large-scale sports events and the economic level or competitive strength of the corresponding countries or regions has become the consensus of the academic community. In the 16th Paralympic Games, 59 countries or regions won gold medals and 86 countries or regions won medals. Among them, 4 countries that won more than 30 gold medals, namely China, Britain, the United States and Russia, won 210 gold medals, accounting for 38.75% of the total gold medals. 4 countries that won 20-29 gold medals, namely the Netherlands, Ukraine, Brazil and Australia, These four countries won 92 gold medals, accounting for about 16.97% of the total number of gold medals. Six countries won 10-19 gold medals, namely Italy, Azerbaijan, Japan, Germany, Iran and France. These six countries won 77 gold medals, accounting for about 14.21% of the total number of gold medals. There were 13 countries that won 5-9 gold medals, including Spain, Uzbekistan, Poland Hungary, Switzerland, Mexico, New Zealand, Israel, Canada, India, Thailand, Slovakia and Belarus won 82 gold medals, accounting for 15.13% of the total number of gold medals. 35 countries won 1-4 gold medals, and 78 gold medals, accounting for 14.39% of the total number of gold medals. Compared with the 14th London Paralympic Games and the 15th Rio Paralympic Games, the number of countries or regions that won more than 30 gold medals has decreased year by year. From the 14th London Paralympic Games, 6 countries can win more than 30 gold medals, to the 15th Rio Paralympic Games and the 16th Tokyo Paralympic Games, 4 countries can win more than 30 gold medals, China and the UK have remained the first group in the last three Paralympic Games, which shows that China and the UK are quite stable in the field of disabled people. The number of countries or regions that have won 20-29 gold medals, 10-19 gold medals and 5-9 gold medals is gradually increasing, while the number of countries or regions that have won 1-4 gold medals is gradually decreasing, This shows that the national competitive strength of the second and third group of Paralympic gold medals is gradually increasing, and the competitive strength of the fourth group of countries is not stable enough. 57 countries or regions won gold medals in the 14th Paralympic Games, 75 countries or regions won medals, 63 countries or regions won gold medals and 83 countries or regions won medals in the 15th Paralympic Games, 59 countries or regions won gold medals and 86 countries or regions won medals in the 16th Paralympic Games. The number of countries or regions that won gold medals in the 16th session is slightly higher than that in the 14th session, but slightly lower than that in the 15th session, but the overall gap is small and tends to be a stable value. This shows that the number of countries at the world top level of some projects is increasing, and the number of countries with gold medal competitiveness tends to be stable.

3.3. Intercontinental Distribution of Medals

24 European countries won gold medals in the Paralympic Games, accounting for 42.01% of the total number of gold medal countries; A total of 226 gold medals were won, accounting for 42.01% of the total number of gold medals. 33 countries won medals, accounting for 39.29% of the total number of countries won medals; A total of 779 medals were won, accounting for 47.10% of the total number of medals. Europe is obviously much better than other continents

in terms of the number of gold medals, the number of medals, the number of countries that win gold medals and the number of countries that win medals, which also shows Europe strong competitive strength in the sports world and fully shows Europe huge advantageous position in the field of competitive sports. However, compared with 28 countries that won gold medals, 226 gold medals, 673 medals and 30 medal countries in Europe in the last Paralympic Games, the number of gold medals remained unchanged. On the contrary, the number of gold medal countries and medal countries decreased, but the number of medals increased, It shows that the competitive strength of gold medals in other continents is gradually improving, and the competitive strength of gold medals in Europe is also continuously improving. It also shows that while the overall strength of competitive sports in Europe in other continents is gradually improving, it is also constantly improving its own competitive sports strength.

North American countries and regions led by the United States won 54 gold medals, accounting for 10.04% of the total number of gold medals; The number of gold medal winning countries and regions is 5, accounting for 8.19% of the total number of gold medal winning countries; A total of 154 medals were won, accounting for 9.31% of the total number of medals. Six countries won medals, accounting for 7.14% of all countries. However, compared with 5 countries that won gold medals, 61 gold medals, 5 countries that won medals, 177 medals and 6 countries that won medals in the last Paralympic Games, the number of gold medals and medals has decreased, which shows that the competitive sports strength of North America is gradually becoming stable.

Asian countries and regions led by China won 178 gold medals, accounting for 33.09% of the total gold medals; The number of countries and regions that won gold medals was 18, accounting for 29.51% of the total number of countries that won gold medals; 444 medals were won, accounting for 26.84% of all medals; The number of countries that won medals was 26, accounting for 30.95% of the total number of countries that won medals. Compared with 158 gold medals, 18 countries won gold medals, 446 medals and 29 countries won medals in the last Paralympic Games, the number of gold medals increased slightly, but the increase was not very large; The total number of gold medals in Asia in the 16-year Rio Paralympic Games and the 21-year Tokyo Paralympic Games exceeds the sum of all gold medals in Africa, Oceania, South America and North America, which shows that the competitive strength of Asian sports is gradually improving, and also represents that Asia sports in the world is slowly rising.

The difference in the total number of medals between Africa and Oceania is not very large, but among the participating countries in Oceania, only Australia and New Zealand won medals, with a total of 27 gold medals and 92 medals. Compared with the previous 31 gold medals and 102 medals, there is not a big gap, but only two countries won medals in these two sessions. Africa won 21 gold medals and 63 medals this time; among them, 6 countries won gold medals and 10 countries won medals. Compared with 28 gold medals and 87 medals, 7 countries won gold medals and 12 countries won medals in the previous Paralympic Games, they have basically decreased, indicating that the strength of competitive sports education in Africa needs to be improved. It can also be seen that the sports competitive strength of most countries in Oceania and Africa needs to be improved.

3.4. Classification and Statistics of Paralympic Events on all Continents

Medal list is a yardstick to measure the sports competitive strength of regional countries. Taking medal ownership as the data source to explore the characteristics and evolution trend of regional and national competitive level is a general research means. It has certain academic value and practical effect on understanding the world competitive sports pattern and development context. Explore the regional characteristics of Paralympic events, find the advantageous events on all continents, and collect the data of gold, silver and bronze medals won in each event of the 16th Paralympic Games. It is worth noting that domestic research in

this area mainly focuses on the analysis of gold medal data, but foreign countries mainly focus on the analysis of all medal data, which may be caused by the differences in sports concepts between the two.

The Paralympic events are classified according to their sports characteristics and are mainly divided into five categories.

3.4.1. Classification of Ball Games

It is obvious from table 5 that Asian badminton and table tennis events have obvious advantages. Among them, all badminton medals are won by Asia, indicating that Asia has absolute dominance in these two events, and athletes from other continents cannot make a breakthrough in these two events.

The advantages of table tennis in Europe are declining. Among them, the number of gold medals in Europe is constantly approaching Asia, and the number of medals exceeds the total number of Asia, which also shows that the leading position of table tennis in Asia has been strongly impacted, and also shows that the competitiveness of table tennis in other countries is constantly improving.

North America, led by the United States, has won three gold medals in ball games, one of which is wheelchair basketball and the other is volleyball. Wheelchair basketball, as a sport with large gold content in the sports for the disabled, has once again given full proof of the leading position of the United States in the field of basketball.

North America won a gold medal in their strong "football" and a gold medal in gate ball.

Oceania won three gold medals, and only one country in Oceania won the gold medal, which shows that the strength of Oceania is weak as a whole. Of course, it also has a certain relationship with the small number of Oceanian countries.

Africa is a weak sport in ball games and did not win a gold medal in the Paralympic Games.

3.4.2. Classification of Skill Items

The medals of skill events were basically won by Asia and Europe. Among them, China performance in wheelchair fencing is particularly excellent. China alone won all 11 gold medals in Asia and won more medals for Asia together with other Asian countries, widening the geographical gap between other countries or indeed in this project. North America and South America won three medals, of which North America won a gold medal. Due to environmental reasons, Africa and Oceania are not good at skill projects, so it is regrettable that neither continent has won medals in this kind of projects.

3.4.3. Classification of Confrontation Items

Asia has an absolute advantage in confrontation events. Judo Asia won 10 gold medals, but Azerbaijan won 6 gold medals in this event. Although the birthplaces of judo and Taekwondo are Japan and South Korea, it also shows that other countries have begun to pay attention to confrontation projects in Asia and began professional training for them. China has obvious strength in difficult and confrontational projects, but it is weak in gold winning projects, so it needs to continue to strengthen the improvement in this regard.

Although the European countries are not prominent, the number of gold medals won by Europe in the above-mentioned is not large, but the medals are scattered in many countries. The judo project is scattered in eight countries, and the strength of the eight countries is relatively average. Although the number of medals in North and South America is small, the medals are also scattered to many countries. Due to environmental factors, Africa and Oceania are weak in confrontation projects and won few gold medals, but Algeria in Africa made a breakthrough and won a gold medal for Africa.

3.4.4. Classification of Water Projects

Europe is the strongest in water sports, which can almost be described as monopolistic awards, especially in swimming. Europe has the most countries that have won medals, indicating that Europe dominant position in water sports is difficult to be shaken by other regions in the short term.

In water sports, Asia only won almost all medals in swimming, which also shows Asia "partial branch" behavior in water sports.

North America has achieved good results in this type of events, among which the United States, as a world swimming power, won 15 gold medals.

South America and Oceania have achieved poor results in class I projects, both of which are 11 gold medals, which is far from the strength of Asia and Europe, and there is little difference in other medals, indicating that there is still much room for improvement in water projects in South America and Oceania.

Africa did not win medals in this kind of projects due to geographical and ethnic factors, which once again proves that there may be obvious geographical preference or ethnic preference in aquatic projects.

3.4.5. Classification of Other Items

It is obvious that weightlifting has always been an advantageous project in Asia. China has performed particularly well in weightlifting, winning half of the weightlifting gold medals.

Europe has strong advantages in cycling, equestrian and triathlon. Most of the medals of cycling have been taken away by Europe, and two-thirds of the medals of equestrian and triathlon have been pocketed by Europe. And most of the medals in track and field events are pocketed by Asia and Europe. The performance of North America, South America and Africa is mediocre. Although North America and Africa have great advantages in track and field events of the Olympic Games, their performance in the Paralympic Games is too mediocre and there is no more outstanding performance. Oceania may not have won medals in weightlifting and equestrian events due to its special geographical location. Only Australia and New Zealand won medals in Oceania. In short, the uneven distribution of Paralympic medals and the unbalanced level of sports development may be related to the sports policies of various countries or regions to a great extent.

4. Conclusions and Suggestions

4.1. Conclusion

In the past five Paralympic Games, China has always ranked first in the medal list. The first tier countries maintain obvious advantages. One or two positions of the tier countries will change slightly every year, but the change is small. The first tier group of the Paralympic Games has basically taken shape, and this trend will continue. In today world sports powers, in order to win the top of the Olympic medal list, we must maintain our traditional strengths and enhance the competitiveness of some vulnerable projects. The overall characteristics of the regional distribution of medals in this Paralympic Games are as follows: the overall strength of Europe is strong, and the progress of sports in Asia is obvious. European sports can maintain the position of the first sports continent because it has outstanding advantages in many events, the traditional advantageous events remain ahead, and the distribution of medals is the most abundant. China, an Asian country, stands out from the rest of the world. It can maintain its own advantageous projects and gradually tap potential projects and new projects. Other countries are also making slow progress, and have won many more medals than the 15th Paralympic Games. Asia position in the world has been gradually strengthened.

4.2. Recommendations

(1) Continue to popularize and publicize the spirit of the Paralympic Games. The misconception that the Paralympic Games are only a grand event for the disabled still exists. But in fact, the Paralympic Games is not just a "minority" event, and the results are not the only focus. The significance of the Paralympic Games is far beyond the sport itself. The theme of this Tokyo Paralympic Games is "we have wings". Even if we have broken our wings, we can fly with the wings of dreams. Only when the world has more and deeper understanding of the disabled can it arouse greater resonance and attract more people attention to the disabled group.

(2) Improve the protection of the rights and interests of female disabled athletes. In many countries or regions, there is a large deviation in the cognition of female disabled groups, and there may be more prejudice against female disabled athletes. With the closing of the Paralympic Games, we expect more countries and regions to effectively improve the protection of the rights and interests of disabled athletes, especially for female disabled athletes, we should increase the protection to protect the rights and interests of athletes and related rights.

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