

New sports and no spectators: Japan's performance at the Tokyo 2020 Olympic Games

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This document is the Accepted Version [AM]

Citation:

RAMCHANDANI, Girish, WILSON, Darryl, MILLAR, Robbie and ASHWORTH, Becky (2022). New sports and no spectators: Japan's performance at the Tokyo 2020 Olympic Games. *Managing Sport and Leisure*. [Article]

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New sports and no spectators: Japan's performance at the Tokyo 2020 Olympic Games

Abstract

Rationale: This paper examines Japan's performance at the Tokyo 2020 Olympic Games and considers whether the inclusion of new sports and the Games being staged behind closed doors influenced Japan performance as the host nation.

Approach: We analysed Japan's medal output and ranking at Tokyo 2020 in the context of its historical Summer Olympic performances and compared with other recent hosts. We also analysed how Japan's performance changed between Rio 2016 and Tokyo 2020 in different events (men, women and mixed) and in different sports.

Findings: Japan improved its performance at its home Games across multiple measures. Evidence of improvement between Rio 2016 and Tokyo 2020 was seen in men's, women's and mixed events and across the portfolio of sports that were common to both editions. Japan's home performance was amplified by its success in the new sports added to the programme.

Practical implications: To promote fair competition, the inclusion of new sports at future Games should be evaluated on the basis of their global appeal alongside their local popularity within the host nation.

Research contribution: Our findings somewhat challenge conventional wisdom that home crowd support is a key game location factor which contributes to home advantage.

Keywords: home advantage; COVID-19; multi-sport events; game location; social pressure.

Introduction

Tokyo 2020 marked the fourth occasion when the Summer Olympic Games have been hosted in Asia. Previous Asian hosts have included Japan (Tokyo 1964), South Korea (Seoul 1988) and China (Beijing 2008). In addition to hosting the Summer Olympic Games, Japan (Sapporo 1972 and Nagano 1998), South Korea (Pyeongchang 2018) and China (Beijing 2022) have also staged the Winter Olympic Games.

The prevalence of a 'home advantage', a term used to describe a situation where athletes/teams tend to perform better when competing at their home venues relative to when they compete at away venues, is well-documented in professional and elite sport settings. Such an effect has also been shown to exist in international multi-sport events like the Olympic and Paralympic Games (e.g. Wilson & Ramchandani, 2018). Common factors that are thought to contribute to the home advantage phenomenon include the positive influence of the home crowd on athletes (Nevill, Balmer & Winter, 2012), social pressure by home supporters leading to referee bias in favour of the home team (Balmer, Nevill & Williams, 2003), travel fatigue experienced by away teams (Balmer, Nevill & Williams, 2001) and home teams' familiarity with their own venues/conditions (Balmer et al., 2001).

Olympic Agenda 2020, the International Olympic Committee's (IOC) strategic roadmap for the future of the Olympic Movement, gives host cities the option of suggesting new sports and events for inclusion in their edition of the Games to encourage innovation in the Olympic programme. In response to this flexibility, five sports were proposed by the Organising Committee for Tokyo 2020: baseball/softball, karate, skateboarding, sport climbing and surfing (IOC, 2016a). The addition of these five sports to the Tokyo 2020 programme was approved unanimously at the 129th IOC Session in Rio de Janeiro considering the impact on gender equality, the youth appeal of the sports and the legacy value of adding them to the Tokyo Games (IOC, 2016b). The inclusion of these sports was also a

potential source of home advantage and presented an opportunity for Japan to improve upon its recent Summer Olympic performances. However, the extent to which the postponement of the Games, and more specifically the absence of spectators from Tokyo 2020 venues due to COVID-19 restrictions, would potentially constrain the level of success that Japan would have been expected to achieve at its home Games under normal circumstances was not known. Hence, the purpose of this paper is to examine Japan's performance as a host nation at Tokyo 2020 in order to make an informed assessment of the extent to which Japan benefitted from a home advantage effect and to investigate the underlying causes.

The rest of this paper is structured in the following order. First, we synthesise relevant literature, with a specific focus on empirical studies that have investigated the occurrence of home advantage within the context of the Olympic Games. Thereafter, we articulate the methods utilised in our research, including the key performance indicators considered and our analytical approach. Our results are then presented. Finally, the discussion focuses on the main findings, their conceptual and management implications as well as ideas for future research to tackle.

Literature Review

Several researchers have attempted to explain Olympic medal success with models that encapsulate various socioeconomic, political, and sporting variables. For example, Bernard and Busse (2004) found that economic resources and population size are important predictors for winning Olympics medals and Johnson and Ali (2004) reported that countries under single party and communist regimes win more medals in both Summer and Winter Olympics. Other predictors include (inter alia) the level of public expenditure on recreation, past Olympic performance and whether a country is the host, or the next to host, the Olympics (e.g. Bredtmann, Crede & Otten, 2016; Forrest, Sanz & Tena 2010, Scelles et al.,

2020; Vagenas & Vlachokyriakou, 2012). As such, home advantage associated with being the host country is one of several determinants of how nations perform in the Olympic Games.

The most well-researched conceptual model that attempts to explain the phenomenon of home advantage in sport was developed by Courneya and Carron (1992) and refined by Carron, Loughhead and Bray (2005). Courneya and Carron's (1992) original model had five major components: (1) game location (home or away); (2) game location factors; (3) critical psychological states; (4) critical behavioural states; and, (5) performance outcomes. Courneya and Carron (1992) theorised that four "game location factors" (home crowd support; familiarity with the home venue; travel fatigue; and, competition rules) contribute to the "psychological states" of competitors, coaches and officials that in turn influences the "behavioural states" (responses) of these individuals, which tend to favour home teams, thereby affecting "performance outcomes" at three different levels (primary; secondary; and, tertiary). Primary outcomes relate to fundamental skill execution, secondary outcomes reflect the scoring aspect of performance and tertiary outcomes represents the final result of the contest. Subsequently, Carron et al. (2005) added the "critical physiological states" of competitors and coaches that are associated with game location. This inclusion was informed by the work of Neave and Wolfson (2003), who proposed that the competitive context of organised sport invokes the natural protective response to territorial intrusion in human beings, combined with evidence provided by other researchers on the adverse effects of jet lag on athletic performance (Jehue et al., 1993; Recht et al., 1995).

Home advantage has been examined extensively in empirical studies and its prevalence has been documented in several professional team sports worldwide (e.g. Pollard, Prieto, & Gomez, 2017). There is also a critical mass of published academic literature concerning the prevalence and causes of home advantage in the one-off, international multi-sport events, including the Olympic Games (e.g. Balmer et al., 2003; Clarke, 2000; Franchini

& Takito, 2016; Nevill et al., 2012), the Paralympic Games (Wilson & Ramchandani, 2017a; Wilson & Ramchandani, 2017b) as well as the Commonwealth Games (Ramchandani & Wilson, 2010; Ramchandani & Wilson, 2011; Ramchandani & Wilson, 2012). We now provide an overview of what previous home advantage research featuring the Summer Olympic Games, which is the focus of this paper, has revealed.

Clarke's (2000) macro-level analysis revealed that 14 of the 17 countries to have hosted the Summer Olympic Games between 1896 and 1996 had won their greatest ever percentage of available medals at home. He also found that host countries typically won a greater percentage of medals at home compared with both their historical away average as well as their average in the Games immediately before and after their home Games. Shibli and Bingham (2008) reported that all host nations of the Summer Olympic Games from 1988 to 2004 won more gold medals and improved their medal table ranking relative to the edition prior to being host. They calculated the average host nation effect to be worth seven gold medals. Subsequently, Shibli, Gratton and Bingham (2012) calculated that all host nations in the Summer Olympic Games between 1988 and 2008 increased the number of sports and disciplines in which they won medals compared with the pre-hosting edition; for sports this average was four and for disciplines it was five.

Nevill, Balmer and Winter (2012) examined the number of medals won by the 14 countries that had hosted the Summer Olympic Games since the second world war until 2008. Using a logit regression model, they estimated the host nation's odds of winning medals will increase in proportion (ratio) to 1:2.05 relative to its historical away average. Balmer, Nevill and Williams (2003) carried out a study to assess the significance of home advantage for different event groups selected from the Summer Olympic Games between 1896 and 1996. They observed highly significant home advantage in event groups that were either subjectively judged (boxing and gymnastics) or relied on subjective decisions (team games).

Similarly, Franchini and Takito (2016) provided evidence for the home advantage effect in five combat sports - boxing, fencing, judo, taekwondo and wrestling - contested during the Summer Olympic Games between 1996 and 2012 for total number of medals, gold and silver medals.

Pettigrew and Reiche (2016) analysed home advantage in the Summer Olympic Games during 1952-2012 and in the Winter Olympic Games during 1952-2014. Pooling together the Summer and Winter results, they found that Olympic hosts tend to increase their number of gold medals by 4.4 and their total medals by 7.4 relative to their medal count in the previous Olympics four years earlier. Wilson and Ramchandani (2018) were the first to conduct a systematic comparative analysis of home advantage in the Olympic and Paralympic Games. They examined 16 editions (eight Summer Games and eight Winter Games) between 1988 and 2018 and reported a statistically significant overall host nation effect in both the Olympic and Paralympic Games. Their analysis also revealed that the size of the home advantage effect did not differ between able-bodied and para-sport events and that nations that experienced a large home advantage effect in the Olympic Games also had a large home advantage effect in the Paralympic Games.

Because the Olympic Games are awarded to a city/country several years in advance (e.g. Tokyo was selected as the host city of the 2020 Summer Olympics in 2013 and Paris was awarded the 2024 Summer Olympics in 2017), athletes representing that country tend to start preparing and training intensively leading up to the Games immediately prior to their home edition with the incentive of enhancing their performance four years later at their home Games. Early preparation can also help to raise a future host country's performance in its pre-home Games as illustrated by Scelles et al. (2020). Moreover, Olympic hosts typically have the right to contest more medals, tend to field larger teams and compete in a larger range of

events than usual at their home edition, which increases the opportunity to win more medals (Clarke, 2000; Shibli, Gratton & Bingham, 2012).

The overall impression from the literature is that nations do experience a measurable improvement in performance when competing in the Olympic Games on home soil. As a result of the unique circumstances presented by the COVID-19 pandemic, there have been some recent efforts by researchers to investigate how the absence of crowds from stadiums has affected home advantage in professional team sports like football (Ramchandani & Millar, 2021; Sors, Grassi, Agostini & Murgia, 2020; Tilp & Thaller, 2020), which have yielded some mixed results. We extend this emerging body of research by examining whether there is a step change in the magnitude of home advantage in the context of a one-off international sporting event like the Olympic Games when it is held behind closed doors using Tokyo 2020 as a case study.

Methods

Our study utilises multiple measures of sporting performance, namely: (1) the number of gold medals won; (2) gold medals won expressed as a ratio of the number of events contested; (3) the number of total medals won; (4) total medals won expressed as a ratio of the number of events contested; and, (5) medal table ranking. The number of gold medals and total medals are both absolute measures of achievement. The medals per event ratios control for the number of events contested and facilitate meaningful time-series comparisons of sporting performance. Medal table ranking is a relative measure of achievement based on how participating countries perform in relation to one another. While it is not recognised as an official order of merit, the medal table published by the IOC is conventionally sorted in descending order of the number of gold medals won by athletes representing a country. If two or more countries achieve the same number of gold medals, then the rankings are determined

by the highest number of silver medals, followed by the highest number of bronze medals.

The medal and ranking data for our study were sourced from <https://olympics.com/>.

Four types of analyses were conducted on the data. First, we analysed Japan's overall performance at Tokyo 2020 in the context of how the nation has performed historically in the Summer Olympic Games. This analysis is based on 23 editions of the Games in which Japan has participated since 1912. Second, we examined Japan's overall performance at Tokyo 2020 versus its performance at Rio 2016 and compared this with the overall performances of other recent hosts of the Summer Olympic Games at their home and pre-home editions, in order to assess whether Japan performed better, worse or in line with what might be expected for a host nation. This comparative analysis incorporated seven host countries: Spain (1992 home v 1988 away); USA (1996 home v 1992 away); Australia (2000 home v 1996 away); Greece (2004 home v 2000 away); China (2008 home v 2004 away); UK (2012 home v 2008 away); and, Brazil (2016 home v 2012 away). Third, we reviewed the medal performance of Japanese athletes at Tokyo 2020 versus Rio 2016 in three distinct event categories: men's events; women's events; and, mixed events. Fourth, we examined whether there were any sport-specific nuances in the medal performance of Japanese athletes at Tokyo 2020 versus Rio 2016. The 'per event' medal ratios calculated for the different event categories and for the different sports consider the number of events contested within each event category and within each sport. The sport-specific analysis covers 21 different sports in which Japan won a medal at Rio 2016 and/or at Tokyo 2020.

Results

Japan's overall performance at Tokyo 2020 versus its historical performances

Overall, Japan won a total of 58 medals at Tokyo 2020, which consisted of 27 golds, 14 silvers and 17 bronzes, and which represents the nation's best ever absolute medal performance in the Games to date. As illustrated by the data presented in Table 1, Japan's

previous highest gold medal tally was 16 (achieved at Tokyo 1964 and at Athens 2004) and its previous highest total medal count was 41 (at Rio 2016). Winning an unprecedented number of gold medals and medals of any colour at Tokyo 2020 enabled Japan to finish third in the medal table at its home Games (behind the USA and China), equalling its previous best relative achievement (at Tokyo 1964 and at Mexico City 1968). Table 1 also illustrates that Japan's medals per event ratio at Tokyo 2020 (gold: 0.08; total: 0.17) has only been bettered in its previous home Games in 1964 (gold 0.10; total 0.18).

<TABLE 1 HERE>

Japan's overall performance at Tokyo 2020 versus other host nations

When comparing how Japan performed at Tokyo 2020 relative to its overall performance at Rio 2016, Japan won an additional 15 gold medals (27 v 12), 17 more medals overall (58 v 41), more medals per event (gold: 0.08 v 0.04; total: 0.17 v 0.12) and improved its medal table ranking by three places (3rd v 6th). Table 2 shows the corresponding level of movement demonstrated by other recent summer Olympic hosts between their pre-home and home Games.

<TABLE 2 HERE>

The median improvement in gold medals at home for the previous seven Summer Olympic hosts was seven (0.03 per event) and the corresponding improvement in total medals was 14 (0.05 per event). These host nations also improved their medal table ranking at home by a median of two places. Japan's improvement at its home Games was better than the typical level of improvement demonstrated by other recent hosts across all measures with the exception of total medals per event where Japan matched the median score.

Gender-specific findings

Table 3 shows the medal performance of Japan in three different event categories at Tokyo 2020 and Rio 2016. Japan increased both its gold medal count and its total medal count at

home in men's events, women's events and mixed events. The data presented in Table 3 also confirms that, on a 'per event' basis, Japan performed better in all three event categories at its home Games.

<TABLE 3 HERE>

Nuances by sport

Japan increased the number of sports in which it won medals at Tokyo 2020 compared with Rio 2016. At Rio 2016, Japan's 12 gold medals were won across five different sports and its 41 medals overall were achieved across 10 different sports. At Tokyo 2020, Japan's gold medals and total medals were spread across nine and 19 sports respectively. The Tokyo 2020 programme included five new sports that were not contested at Rio 2016 – baseball/softball, karate, skateboarding, sport climbing and surfing. When considering only those sports that were contested in both editions (i.e. pre-home and home), Japan won 44 medals at home including 21 golds. The nation's remaining 14 medals at home including six golds were won across the portfolio of new sports.

Table 4 shows Japan's medal success at Tokyo 2020 relative to its performance at Rio 2016 on a sport-by-sport basis. Not shown in Table 4 are sports in which Japan did not win a medal of any colour at both Rio 2016 and Tokyo 2020.

<TABLE 4 HERE>

When considering actual medal counts per sport, Japan's performance can be organised into six clusters as described below.

- Cluster 1: Japan increased both its gold medal count and total medal count in six sports at Tokyo 2020. Three of these were new sports (e.g. baseball/softball) – hence the increase in these sports occurred from a zero base.
- Cluster 2: Judo and wrestling were the two sports in which Japan won more gold medals, but the overall number of medals achieved remained the same. In other

words, the quality of medals improved even though the quantity of medals was unchanged.

- Cluster 3: There were seven sports in which Japan increased its total medal count but not its gold medal count. Included in this cluster were two new sports (climbing and surfing) where the improvement was from a zero base.
- Cluster 4: The number of gold and total medals won in athletics and weightlifting remained the same.
- Cluster 5: This cluster consists of three sports in which Japan won fewer medals of any colour, notably aquatics in which Japan lost six medals.
- Cluster 6: The only sport in which Japan's performance deteriorated in terms of both gold and total medals was badminton.

Table 4 also shows the ratios for gold medals per event and total medals per event won by Japan at Rio 2016 and Tokyo 2020. If we disregard the five new sports added to the Tokyo 2020 programme then, in terms of gold medals per event, Japan's performance at home improved in five sports (notably judo), declined in one sport (badminton) and remained the same in the other 10 sports. For total medals per event, Japan's home performance improved in eight sports (notably basketball, golf and archery), declined in five sports and remained unchanged in three sports. Japan's medals per event ratio at home across the portfolio of sports contested at both Rio 2016 and Tokyo 2020 improved for gold medals (from 0.04 to 0.07) and total medals (from 0.13 to 0.14).

Discussion

Our study has confirmed that Japan followed the trend of other recent Summer Olympic hosts in improving its performance at its home Games across multiple measures. We found that the level of improvement demonstrated by Japan at Tokyo 2020 was typically of a higher magnitude compared with what other hosts have achieved in recent editions of the

Summer Olympic Games. Japan's improvement at home was reflected in the performances of its male and female athletes in their respective events as well in mixed events contested by both genders. While Japan still performed better at Tokyo 2020 (home) than it did at Rio 2016 (pre-home) across the portfolio of sports that were common to both editions, the nation's performance when hosting was clearly amplified by the level of success that it achieved in the new sports added to the programme.

According to one study, Japan was forecast to win between 47 and 53 medals at Tokyo 2020 (Scelles et al., 2020). Japan's actual medal count at its home Games of 58 was higher than this predicted range. What makes Japan's success as a host nation stand out even more is that it was achieved amidst COVID-19 restrictions that prohibited crowds from attending Tokyo 2020 venues. The term "twelfth man" (Buraimo et al., 2010) is occasionally used in reference to the home crowd, in recognition of their presumed influence on the behavioural responses of players and referees. Our study can be viewed as a natural experiment that relied on a unique source of exogenous variation in the number of spectators at Tokyo 2020 in order to test whether "social pressure" (Dohmen, 2008; Dawson and Dobson, 2010) exerted via the crowd affects performance outcomes. The findings of our study somewhat challenge conventional wisdom and go against traditional conceptual models of home advantage (Courneya & Carron, 1992; Carron et al., 2005) that cite home crowd support as being a key "game location factor" that affects team performance. Our interpretation chimes with recent research by Ramchandani and Millar (2021), who arrived at a similar conclusion in the context of professional team sports (top division European football leagues): "...on balance there is insufficient evidence from our study to conclude that crowds contribute to the occurrence of [home advantage] in men's football on a consistent basis" (p.12).

Because there is a considerable span of time from the point when host cities are selected by the IOC to the point when the Games are actually held (typically seven years), there is ample opportunity for host nations to invest strategically in elite sport development programmes and to enable their athletes to train at facilities that will be used to stage Olympic events. This factor, coupled with the option for Olympic hosts to propose additional sports at their home Games, is perhaps more important than home crowd support and is likely to have contributed to the observed home advantage identified in the case of Japan as well as other recent Summer Olympic hosts. Consistent with the findings of Scelles et al. (2020), there is also evidence to suggest that Japan benefitted from early preparation for its home Games, which was reflected in the improvement seen in the nation's performance between London 2012 and Rio 2016 across multiple measures – see Table 1.

Countries that are awarded the right to host mega sporting events like the Olympic Games invest substantial sums of money to secure and stage them. The rationale for these investments are the potential benefits that events of this scale can deliver for host countries such as economic, urban regeneration, national pride/feel-good factor, increased participation in physical activity and sport and international prestige and 'soft power' (Grix, Brannagan, Wood, & Wynne, 2017). The findings from our study support previous research that hosting the Olympic Games provides an opportunity for host countries to experience a quantifiable home advantage effect leading to a short-term boost in medal output and an improvement in their medal table ranking (Pettigrew & Reiche 2016; Nevill et al., 2012; Shibli & Bingham, 2008; Shibli et al. 2012). However, there also appears to be some variation in the extent to which different countries that have hosted the Summer Olympic Games benefit from this effect – see Table 2. For example, while Japan won 15 more medals overall at Tokyo 2020 than it did at Rio 2016, for China the improvement between Greece 2004 and Beijing 2008 was worth 37 medals. It is therefore important for countries to be fully cognisant of such

variations in advance of bidding to host the Games, particularly if enhancing performance at home is considered a strategically important outcome to them. Understanding both the scope for enhancing performance through hosting the Games and the performance measures where success might be more evident (e.g. number of gold/total medals, final medal table position, number of sports medalled in) allows potential host countries to manage expectations in terms of the anticipated level of success that is attainable at home.

Because host countries are now permitted by the IOC to propose the inclusion of additional sports at their home Games over and above the mandatory sports that are contested in successive editions, there is some scope for Olympic hosts to put forward sports in which success is more likely to be realised. This point can be appreciated by considering how well Japan performed in the portfolio of new sports at Tokyo 2020, notably in baseball/softball, karate and skateboarding. In 2019, the IOC approved the proposal by the Organising Committee of Paris 2024 to include four additional sports. In addition to skateboarding, sport climbing, and surfing, which featured as discretionary sports at Tokyo 2020, Paris 2024 will see the introduction of breaking. On the basis that future hosts may exploit home advantage in this way and to encourage fairer competition between the host nation and non-host nations, the IOC may need to carefully monitor the criteria used to determine the inclusion of new sports at future editions by evaluating their global appeal alongside their local popularity within the host nation.

In terms of setting a future research agenda, evidence to explain the variations in the magnitude of the home advantage effect observed between different summer Olympic host nations is lacking. In order to improve our understanding of why there are differences in the extent to which Olympic hosts seem to benefit from a home advantage effect, future research should consider a range of potential predictor variables. These predictors could incorporate factors such as population, wealth, geographic location, past performances, the number of

sports/events contested, Games affected by boycotts or held behind closed doors etc.

Undertaking this analysis would shed further light on the home advantage phenomenon in elite sport and the factors that contribute to its occurrence. It would also be a worthwhile exercise for this type of analysis to be replicated for different event categories (men and women) and for different sports/disciplines that have featured regularly in the Olympic Games (e.g. aquatics, athletics, combat sports etc.).

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Table 1: Japan's performance at the Summer Olympic Games

| Year | Host City (Country) | Events | Gold Medals | | Total Medals | | Rank |
|------|----------------------------|--------|-------------|-----------|--------------|-----------|------|
| | | | Number | Per Event | Number | Per Event | |
| 1920 | Antwerp (Belgium) | 156 | 0 | 0.00 | 2 | 0.01 | 17 |
| 1924 | Paris (France) | 126 | 0 | 0.00 | 1 | 0.01 | 23 |
| 1928 | Amsterdam (Netherlands) | 109 | 2 | 0.02 | 5 | 0.05 | 15 |
| 1932 | Los Angeles (USA) | 117 | 7 | 0.06 | 18 | 0.15 | 5 |
| 1936 | Berlin (Germany) | 129 | 6 | 0.05 | 18 | 0.14 | 8 |
| 1952 | Helsinki (Finland) | 149 | 1 | 0.01 | 9 | 0.06 | 17 |
| 1956 | Melbourne (Australia) | 151 | 4 | 0.03 | 19 | 0.13 | 10 |
| 1960 | Rome (Italy) | 150 | 4 | 0.03 | 18 | 0.12 | 8 |
| 1964 | Tokyo (Japan) | 163 | 16 | 0.10 | 29 | 0.18 | 3 |
| 1968 | Mexico City (Mexico) | 172 | 11 | 0.06 | 25 | 0.15 | 3 |
| 1972 | Munich (Germany) | 195 | 13 | 0.07 | 29 | 0.15 | 5 |
| 1976 | Montreal (Canada) | 198 | 9 | 0.05 | 25 | 0.13 | 5 |
| 1984 | Los Angeles (USA) | 221 | 10 | 0.05 | 32 | 0.14 | 7 |
| 1988 | Seoul (South Korea) | 237 | 4 | 0.02 | 14 | 0.06 | 14 |
| 1992 | Barcelona (Spain) | 257 | 3 | 0.01 | 22 | 0.09 | 17 |
| 1996 | Atlanta (USA) | 271 | 3 | 0.01 | 14 | 0.05 | 23 |
| 2000 | Sydney (Australia) | 300 | 5 | 0.02 | 18 | 0.06 | 15 |
| 2004 | Athens (Greece) | 301 | 16 | 0.05 | 37 | 0.12 | 5 |
| 2008 | Beijing (China) | 302 | 9 | 0.03 | 25 | 0.08 | 8 |
| 2012 | London (Great Britain) | 302 | 7 | 0.02 | 38 | 0.13 | 11 |
| 2016 | Rio de Janeiro (Brazil) | 306 | 12 | 0.04 | 41 | 0.13 | 6 |
| 2020 | Tokyo (Japan) | 339 | 27 | 0.08 | 58 | 0.17 | 3 |

Note: Japan did not win any medals at Stockholm 1912 and did not compete at both London 1948 and Moscow 1980 – hence these editions are not shown in the table.

Table 2: Change in gold medals, total medals and medal table ranking (home versus pre-home) by recent hosts of the Summer Olympic Games

| Host Nation | Comparison | Gold Medals | | Total Medals | | Rank |
|---------------|------------|-------------|-----------|--------------|-----------|------|
| | | Number | Per Event | Number | Per Event | |
| Spain | 1988 (a) | 1 | 0.00 | 4 | 0.02 | 25 |
| | 1992 (h) | 13 | 0.05 | 22 | 0.09 | 6 |
| | Change | ↑ 12 | ↑ 0.05 | ↑ 18 | ↑ 0.07 | ↑ 19 |
| USA | 1992 (a) | 37 | 0.14 | 108 | 0.40 | 2 |
| | 1996 (h) | 44 | 0.16 | 101 | 0.37 | 1 |
| | Change | ↑ 7 | ↑ 0.02 | ↓ 7 | ↓ 0.03 | ↑ 1 |
| Australia | 1996 (a) | 9 | 0.03 | 41 | 0.13 | 7 |
| | 2000 (h) | 16 | 0.05 | 58 | 0.19 | 4 |
| | Change | ↑ 7 | ↑ 0.02 | ↑ 17 | ↑ 0.06 | ↑ 3 |
| Greece | 2000 (a) | 4 | 0.01 | 13 | 0.04 | 17 |
| | 2004 (h) | 6 | 0.02 | 16 | 0.05 | 15 |
| | Change | ↑ 2 | ↑ 0.01 | ↑ 3 | ↑ 0.01 | ↑ 2 |
| China | 2004 (a) | 32 | 0.11 | 63 | 0.21 | 2 |
| | 2008 (h) | 48 | 0.16 | 100 | 0.33 | 1 |
| | Change | ↑ 16 | ↑ 0.05 | ↑ 37 | ↑ 0.12 | ↑ 1 |
| Great Britain | 2008 (a) | 19 | 0.06 | 51 | 0.17 | 4 |
| | 2012 (h) | 29 | 0.10 | 65 | 0.22 | 3 |
| | Change | ↑ 10 | ↑ 0.04 | ↑ 14 | ↑ 0.05 | ↑ 1 |
| Brazil | 2012 (a) | 3 | 0.01 | 17 | 0.05 | 22 |
| | 2016 (h) | 7 | 0.02 | 19 | 0.06 | 13 |
| | Change | ↑ 4 | ↑ 0.01 | ↑ 2 | ↑ 0.01 | ↑ 9 |
| Japan | 2016 (a) | 12 | 0.04 | 41 | 0.12 | 6 |
| | 2020 (h) | 27 | 0.08 | 58 | 0.17 | 3 |
| | Change | ↑ 15 | ↑ 0.04 | ↑ 17 | ↑ 0.05 | ↑ 3 |

a: = away Games; h: = home Games

Table 3: Changes in gold and total medals won by Japan between Rio 2016 and Tokyo 2020 by event category

| Category | Comparison | Gold | | Total | |
|----------|----------------|--------|-----------|--------|-----------|
| | | Number | Per Event | Number | Per Event |
| Male | Rio 2016 (a) | 5 | 0.03 | 23 | 0.14 |
| | Tokyo 2020 (h) | 12 | 0.07 | 24 | 0.15 |
| | Change | ↑ 7 | ↑ 0.04 | ↑ 1 | ↑ 0.01 |
| Female | Rio 2016 (a) | 7 | 0.05 | 18 | 0.13 |
| | Tokyo 2020 (h) | 14 | 0.09 | 31 | 0.20 |
| | Change | ↑ 7 | ↑ 0.04 | ↑ 13 | ↑ 0.07 |
| Mixed | Rio 2016 (a) | 0 | 0.00 | 0 | 0.00 |
| | Tokyo 2020 (h) | 1 | 0.05 | 3 | 0.15 |
| | Change | ↑ 1 | ↑ 0.05 | ↑ 3 | ↑ 0.15 |

a: = away Games; h: = home Games

Table 4: Sport-specific changes in medals won by Japan between Rio 2016 and Tokyo 2020

| Sport | Rio 2016 (away) | | | | Tokyo 2020 (home) | | | | Change | | | |
|-------------------|-----------------|-----------|--------|-----------|-------------------|-----------|--------|-----------|--------|-----------|--------|-----------|
| | Gold | | Total | | Gold | | Total | | Gold | | Total | |
| | Number | Per Event | Number | Per Event | Number | Per Event | Number | Per Event | Number | Per Event | Number | Per Event |
| Aquatics | 2 | 0.04 | 9 | 0.20 | 2 | 0.04 | 3 | 0.06 | - | - | ↓ 6 | ↓ 0.14 |
| Archery | - | - | - | - | - | - | 2 | 0.40 | - | - | ↑ 2 | ↑ 0.40 |
| Athletics | - | - | 2 | 0.04 | - | - | 2 | 0.04 | - | - | - | - |
| Badminton | 1 | 0.20 | 2 | 0.40 | - | - | 1 | 0.20 | ↓ 1 | ↓ 0.20 | ↓ 1 | ↓ 0.20 |
| Baseball/softball | * | * | * | * | 2 | 1.00 | 2 | 1.00 | ↑ 2 | ↑ 1.00 | ↑ 2 | ↑ 1.00 |
| Basketball | - | - | - | - | - | - | 1 | 0.50 | - | - | ↑ 1 | ↑ 0.50 |
| Boxing | - | - | - | - | 1 | 0.08 | 3 | 0.23 | ↑ 1 | ↑ 0.08 | ↑ 3 | ↑ 0.23 |
| Canoeing | - | - | 1 | 0.06 | - | - | - | - | - | - | ↓ 1 | ↓ 0.06 |
| Cycling | - | - | - | - | - | - | 1 | 0.05 | - | - | ↑ 1 | ↑ 0.05 |
| Fencing | - | - | - | - | 1 | 0.08 | 1 | 0.08 | ↑ 1 | ↑ 0.08 | ↑ 1 | ↑ 0.08 |
| Golf | - | - | - | - | - | - | 1 | 0.50 | - | - | ↑ 1 | ↑ 0.50 |
| Gymnastics | 2 | 0.11 | 3 | 0.17 | 2 | 0.11 | 5 | 0.28 | - | - | ↑ 2 | ↑ 0.11 |
| Judo | 3 | 0.21 | 12 | 0.86 | 9 | 0.60 | 12 | 0.80 | ↑ 6 | ↑ 0.39 | - | ↓ 0.06 |
| Karate | * | * | * | * | 1 | 0.13 | 3 | 0.38 | ↑ 1 | ↑ 0.13 | ↑ 3 | ↑ 0.38 |
| Skateboarding | * | * | * | * | 3 | 0.75 | 5 | 1.25 | ↑ 3 | ↑ 0.75 | ↑ 5 | ↑ 1.25 |
| Sport climbing | * | * | * | * | - | - | 2 | 1.00 | - | - | ↑ 2 | ↑ 1.00 |
| Surfing | * | * | * | * | - | - | 2 | 1.00 | - | - | ↑ 2 | ↑ 1.00 |
| Table tennis | - | - | 3 | 0.75 | 1 | 0.20 | 4 | 0.80 | ↑ 1 | ↑ 0.20 | ↑ 1 | ↑ 0.05 |
| Tennis | - | - | 1 | 0.20 | - | - | - | - | - | - | ↓ 1 | ↓ 0.20 |
| Weightlifting | - | - | 1 | 0.07 | - | - | 1 | 0.07 | - | - | - | - |
| Wrestling | 4 | 0.22 | 7 | 0.39 | 5 | 0.28 | 7 | 0.39 | ↑ 1 | ↑ 0.06 | - | - |

Notes: The table excludes sports in which Japan did not win a medal at both Rio 2016 and Tokyo 2020. * Sport not held at Rio 2016.