



# An Empirical Study of Sustainable Artistic Gymnastics in the United States

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**Abstract.** By using the methods of Literature Review and expert interviews, this paper makes a systematic study on the long-term prosperity of American artistic gymnastics, with a view to providing reference for the high-quality development of Chinese artistic gymnastics in the new era. Conclusion: The experiences of Sustainable Development of American artistic gymnastics include: To build all-round leading talents, to make full use of external brain to promote the development of national gymnastics, to fully absorb foreign excellent competitive talents, to perfect the motivation mechanism of athletes, to perfect the competition system, to attach great importance to gymnastics teaching in school, etc. These are the experiences of sustainable development of American artistic gymnastics.

**Keywords:** American · Artistic Gymnastics · sustainable development · Experience

## 1 Introduction

The United States, as the world's recognized sports power, has ranked first in the gold medal list 18 times, 7 times second, and 3 times the third in the 28 Summer Olympics it has participated in (1896–2021) [1]. At the same time, the United States, as a gymnastics power in the world, is the only country that has never stopped gold medals in gymnastics competitions in the past five (28th to 32nd) Olympic Games. Especially the US gymnastics women's team, they swept all the team gold medals in the 2011–2016 World Gymnastics Championships (Olympic Games and World Gymnastics Championships), and monopolized nearly 5 (28–32) Olympic Games and nearly 7(43–49) World Championships. Gymnastics women's individual all-around gold medal. As the old saying goes: "The stone of other mountains can be used to attack jade". This study studies the precious experience of the enduring prosperity of American gymnastics, in order to provide inspiration for the better development of Chinese gymnastics in the new era.

## 2 The Experience of Sustainable Development of Athletic Gymnastics in the United States

### 2.1 Focus on Building All-Round Leading Talents

The United States attaches great importance to the cultivation of all-round gymnastics competitive talents. Such as Mary Layton, Shannon Miller, Carly Patterson, Nastia

**Table 1.** The contribution rate of all-rounder leader of American women gymnastics to team strength

Olympic Games	28rd	29rd	30rd	31rd	32rd
Leading figures	Nastia Liukin	Gabriel Douglas	Gabriel Douglas	Simon Byers	Sunisa
Participate in group projects	3 projects	4 projects	4 projects	4 projects	3 projects
Contribution rate of group strength %	25.77%	33.57%	33.48%	33.44%	26.0%

Liukin, Sean Johnson, Gabriel Douglas, Simon Byers, Sunisa, etc. These are the top international women's all-around athletes in various periods, and they have made important contributions to the prosperity of American women's gymnastics (Table 1). Statistics show that the U.S. women's gymnastics team has won a total of 14 all-around gold medals at the World Championships in history and won the women's all-around champion for six consecutive world championships (2013, 2014, 2015, 2017, 2018, 2019). The United States has won the women's all-around gold medal six times (1984, 2004, 2008, 2012, 2016, 2021) in 10 Olympic gymnastics competitions since 1984, silver medal in women's all-around twice (1992, 1996). Excellent all-around results also contributed to the strong development of the strength of the American women's team, the United States has won the women's team gold in three of the 10 Olympic gymnastics competitions since 1984 (1996, 2012, 2016), silver medal four times (2004, 1984, 2008, 2021) and bronze medal twice (1992, 2000), the worst was fourth in 1988. Today, the all-around leader Biles is still in his prime [2]. At the same time, in the new Olympic cycle, the United States has cultivated new women's gymnastics all-around kings, such as Morgan Held and Sunisa. The United States pays attention to building all-around athletic talents in gymnastics, so that female all-around athletes continue to emerge and continue to maintain their advantages in all-around and team events.

## 2.2 Make Full Use of "External Brain" to Help the Development of Domestic Competitive Gymnastics

The three major immigration waves in the history of the United States have brought a rich labor force and a large number of high-tech talents [3], including excellent gymnastics coaches. As early as 1826, Charles Fuhlin and Charles Beck, immigrants from Europe, brought German gymnastics to the United States. In 1861, there were 150 German gymnastics associations in the United States with 10,000 members [4], which laid a solid foundation for the development of the early American competitive gymnastics. Up to now, there are at least 33 outstanding non-American competitive gymnastics coaches in the United States, including former famous Romanian coaches Bela - Karoli and

Martha Karoli, former Excellent French gymnast Randy, the number of Chinese excellent gymnastics coaches developed in the United States is the largest [5], including the very famous Coaches Qiao Liang, Li Yuejiu, Li Xiaoping, Yang Mingming, Lu Li, Liang Haoquan and so on. Qiao Liang, who coached the 2008 and 2012 U.S. women's teams, coached world-renowned U.S. gymnasts such as Shawn Johnson, Gabrielle Douglas and Alexandra Lesman. Liang Haoquan, who coached the 2012 U.S. women's team, nurtured elite athlete Kayla Rose. The United States integrates the experience and methods of training gymnasts from various countries to help the development of competitive gymnastics in its country.

### 2.3 Fully Absorb Outstanding Foreign Competitive Talents

The early implementation of “Fubrand” plan in the United States has effectively promoted the advantage of the United States in the competition for excellent sports talents [6], thus greatly improving their “weak” sports. According to data, there are 613 athletes on the U.S. team for the 2021 Tokyo Olympics, including 12 Chinese athletes; there were 555 athletes on the US Olympic Team in Rio 2016, among which 17 were Chinese [7]; there were at least 32 foreign athletes (including 5 Chinese-American) on the US team at the 2008 Beijing Olympics; 27 foreign athletes on the US team at the 2004 Athens Olympics. In the aspect of competitive gymnastics, according to incomplete statistics, up to now, there are at least 11 excellent competitive gymnasts from other countries who have developed in the United States, such as Russian-American athlete Liukin, In the 2008 Beijing Olympic Games, Liu Jin contributed 1 gold and 2 silvers to the US gymnastics (gold contribution rate 62.5%, medal contribution rate 50%, team contribution rate 25.77%), Chinese-American athlete Tan Kaiwen won one for the US gymnastics men's team precious pommel bronze medal; Chinese-American athlete Morgan Held, in the 47th World Championships, helped the U.S. team win the women's all-around championship, continuing the glory of the U.S. women's team in women's all-around gymnastics; Chinese-American Sunesha won the women's individual all-around gold medal at the 2021 Tokyo Olympics, placing 3rd in uneven bars and 2nd in team, contributing 50% of the gold medals and medals. At the same time, the two leading figures of American women's gymnastics, Biles and Douglas, are also African-Americans, and the other leading figure, Lessman, is Jewish (American nationality).

### 2.4 Perfect Incentive Mechanism for Athletes

In the United States, national team gymnasts, or gymnasts of a slightly lower level than the national team, are given priority in college admissions or free admission, for example, prestigious universities such as Harvard and Yale can provide priority admission opportunities (not free), Other universities provide different tuition-free policies according to the school category [8]. As of 2019, 82 NCAA colleges have their own women's gymnastics teams, and 24 have their own men's teams. Every year, 1000 female and 100 male high-level gymnasts in the United States can get the qualification to go to college for free. The scholarships are about 250,000 dollars each, equivalent to RMB about 1.53 million, which is very tempting to high-level gymnasts. In addition, U.S. student-athletes enjoy benefits that other students don't. For example, some schools give out iPads to

student-athletes to use while watching games, regardless of whether they receive a scholarship or not, and many schools offer priority registration for each student-athlete, as well as giving back to the community through volunteering and national philanthropic partnerships [8].

## 2.5 Perfect Competition System

The gymnastic competition system of the United States generally includes four levels of competition, namely level 1–3, level 4–6, level 7–10, women’s highest level item and men’s future star item. Among them, level 1–3 competitions are more basic than the prescribed movements. The main participants of this level competition are ordinary athletes and beginners, this is the basis for the United States to select excellent athletes from a large number of people [9]. The 4–6 level competition is slightly more difficult than the prescribed movements, which is the only way for high-level gymnasts to grow, the so-called “Youth Olympic Games”. Level 7–10 is a higher level competition, which is an optional action competition, namely “Women’s Highest Level Project” and “Men’s Future Star Project”. These two levels of competition usually require a complete set of action competitions and physical fitness tests. While participating in these two levels of competition, you must participate in the 7th, 8th, 9th, and 10th levels of competition [9]. Athletes who enter the “Women’s Highest Level Project” and “Men’s Future Star Project” will have the opportunity to become the “Youth and Adult Elite” that is the national team, and to represent the United States at the Olympic Games and World Gymnastics Championships. USA Gymnastics holds more than 4,000 competitions every year [9]. Which is why the US national team gymnasts participate 4.5 times more than the Chinese national team athletes every year [10].

## 2.6 Attach Great Importance to School Gymnastics Teaching

The development of school gymnastics education in the United States has a long history of more than 190 years. The rapid popularity of German gymnastics in the United States has attracted great attention from American educators and sportsmen. At the same time, a debate has been sparked in American school physical education, that is, whether school physical education should be based on military training or gymnastics. Finally, students voted to decide by themselves. As a result, students almost unanimously chose gymnastics [11]. So the United States began to set off a boom in gymnastics education. In the 1880s and 1890s, Swedish gymnastics, French gymnastics and the “American” gymnastics created by the Americans themselves entered American school classrooms one after another. The rapid development of gymnastics education in American schools has provided abundant reserve talents for American athletic gymnastics, and promoted the rapid improvement of American athletic gymnastics level. In the 3rd Summer Olympics in 1904, USA Gymnastics won almost all the medals, and this trend continued until the 10th in 1932. In the 1920s, influenced by the idea of progressive education movement, gymnastics in American school sports planning was removed, and American gymnastics education entered a “decline period”. In the 1950s, there were large-scale health problems of young people in the United States, and gymnastics competitive strength also

declined sharply. From the 11th to the 20th Olympic Games, the US gymnastics delegation hardly won a medal. American educators and sportsmen have deeply reflected on this trip, and after found out the reasons for the mistakes, USA Gymnastics has returned to the school's sports planning [12]. After more than ten years, the physical quality and health of American students have indeed improved significantly on a large scale, and the competitive strength of gymnastics begun to warm up and rapidly strengthened.

### 3 Conclusion

The enduring experience of American competitive gymnastics is that focus on building all-round leading talents, fully helps the development of domestic competitive gymnastics with the help of “external brain”, Perfect incentive mechanism for athletes, perfect competition system and attaches great importance to school gymnastics teaching.

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