

Investigation and Analysis of Disabled People's Participation in Table Tennis in Panjin City

Cheng Feng, Chao Liu*

College of Physical Education, Yangzhou University, Yangzhou 225127, Jiangsu, China

**Author to whom correspondence should be addressed.*

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Using methods such as literature review, questionnaires, mathematical statistics, and logical analysis, this study examines the current state of disabled individuals participating in table tennis at the Auxing, Kirin Table Tennis Club, and Xingfu Table Tennis Community in Panjin City. The findings indicate an imbalance in the gender distribution of participants, with the majority of disabled individuals being young. Additionally, the duration and frequency of participation are relatively low. These individuals primarily receive training through specialized group table tennis clubs and the activity centers of the Disabled Federation, often guided by full-time coaches. However, the participation rate and competitive level remain low, with average results in terms of awards. Key factors influencing the involvement of disabled people in table tennis in Panjin City include venue facilities, organizational management, economic burdens, and a shortage of qualified instructors. Consequently, this research proposes several recommendations to enhance venue facilities, reinforce organizational support, and optimize the allocation of instructors to promote the development of table tennis for the disabled population.

Keywords: Panjin City; Disabled people; Table tennis

Online publication: June 3, 2025

1. Introduction

The population of individuals with disabilities in China is over 100 million, and their integration into society plays a crucial role in fostering a harmonious community. Encouraging participation in table tennis among people with disabilities can enhance their physical and mental health, while supporting their smoother adaptation into societal roles ^[1]. Nevertheless, research focusing on sports for disabled individuals remains relatively insufficient. This research thoroughly examines the current state of disabled table tennis in Panjin City, covering aspects such as training programs, coaching staff, and available facilities. It identifies existing challenges and proposes specific recommendations for improvement. The goal is to stimulate the robust growth of disabled table tennis in Panjin City, offer theoretical guidance for the overall advancement of sports for

people with disabilities, and expand the body of knowledge in this area ^[2].

In our nation, table tennis, often referred to as the “national ball,” holds a significant place as a popular sport. Both individuals without disabilities and those with disabilities can actively engage in this sport. For people with disabilities, playing table tennis not only enhances their physical fitness but also improves their psychological well-being, promotes mental health, and widens opportunities for future development. Meanwhile, several researchers have explored the progress of table tennis among disabled athletes in China. For instance, Wang (2021) suggested that a dedicated training facility should be established for disabled table tennis players, alongside forming a national team similar to that of non-disabled athletes. Furthermore, the concept of “breakthrough” should be emphasized during the training process ^[3]. In his study, Zhang (2018) highlighted the importance of establishing regular training programs, identifying potential talents, and offering fee exemptions to disabled athletes to encourage greater participation in table tennis ^[4]. Additionally, it is crucial to focus on the rehabilitation and reintegration of athletes who previously participated in table tennis but became disabled due to injuries, thereby strengthening the development of China’s disabled table tennis teams ^[5–7].

In conclusion, as a human development initiative, disabled sports encounters numerous challenges during its practical progression. By examining the current state of disabled sports in China, it is evident that China is increasingly valuing this domain, with the research depth also advancing. Thus, leveraging this research opportunity, a study is conducted on the participation of disabled individuals in table tennis in Panjin City, aiming to further expand the research outcomes in this area.

2. Research object and method

2.1. Research object

The research object of this paper is the current situation of disabled people participating in table tennis in Panjin City.

2.2. Main research methods

2.2.1. Questionnaire survey method

Based on the research objectives and content, a specialized survey questionnaire titled “Investigation and Analysis of the Current Situation of Disabled Individuals Participating in Table Tennis in Panjin City” was developed and distributed to disabled individuals involved in table tennis through the Panjin Federation for the Disabled. Given that people with disabilities represent a unique demographic, during the administration of the questionnaire, participants with physical or visual impairments completed the survey via an interview-style question-and-answer format, while those with hearing impairments received paper-based questionnaires. The distribution and collection of the questionnaires are summarized in **Table 1**.

Table 1. Distribution and recovery of questionnaires

Questionnaire for persons with disabilities	
Quantity issued (copies)	50
Quantity to be returned (part)	50
Quantity available (parts)	50
Recovery rate (%)	100.00
Effective rate (%)	100.00

To ensure the reliability and validity of the questionnaire, both the expert review method and the retest method were employed. The expert panel, consisting of five associate professors or higher in physical education from Anshan Normal University, confirmed that the questionnaire demonstrated strong content and structural validity. Using the retest approach, the Cronbach's alpha coefficient for the disabled questionnaire was calculated at 0.816 when compared to the survey results obtained 20 days later. This outcome highlights the high reliability of the questionnaire and the dependability of the collected data.

3. Results and analysis

3.1. Analysis of the current situation of disabled people participating in table tennis in Panjin City

3.1.1. Current situation of male-to-female ratio

Table 2. Male and female proportion of disabled people participating in table tennis in Panjin City (n = 50)

Gender	Number of people	Percentage (%)
Male	39	78.00
Female	11	22.00

An analysis of the participation rates of men and women with disabilities in table tennis in Panjin City reveals that more than 78% of male participants are engaged in the sport, whereas female participation is significantly lower at only 22%. Table tennis is a sport that is suitable for both genders. Nevertheless, for individuals with disabilities, this differs from the able-bodied population as they often experience a sense of inferiority related to their physical conditions^[8]. Female participants with disabilities, in particular, tend to be more self-conscious about their impairments, leading to a lower likelihood of engaging in table tennis activities (Table 2).

3.1.2. Current status of disability categories

Table 3. Questionnaire of disabled people participating in table tennis in Panjin City (n = 50)

Type of disability	Number of people	Percentage (%)
Physical disability	37	74.00
Hearing disability	10	20.00
Visual disability	3	6.00

The data in **Table 3** indicates that among disabled individuals participating in table tennis, 74% have physical disabilities, 20% have hearing impairments, and merely 6% have visual disabilities. Playing table tennis demands physical coordination, sharp vision, and agile thinking^[9]. While those with physical or hearing disabilities can engage in the sport, using one-handed techniques or auditory aids to receive serves, the low participation rate of visually impaired individuals stems from their inability to see the ball.

3.1.3. Status of training years

Table 4. Table tennis training years of disabled people in Panjin City (n = 50)

Table tennis training years	Number of people	Percentage (%)
1–5 years	19	38.00
6–10 years	17	34.00
11–15 years	12	24.00
15–20 years	2	4.00
20+ years	0	0.00

The survey indicates that the distribution of training years among disabled individuals participating in table tennis in Panjin City is uneven (**Table 4**). A majority have been training for between 1 and 10 years, while a small number have continued training for over 15 years. Because of their physical limitations, these individuals often require extended periods of training to achieve limb coordination and proficiency in skills and tactics, resulting in generally longer training durations.

3.1.4. The frequency of disabled persons participating in table tennis training in Panjin City

Table 5. Table tennis participation frequency of disabled people in Panjin (n = 50)

Table tennis participation frequency	Number of people	Percentage (%)
0–2 times/week	21	42.00
3–4 times/week	16	32.00
5–6 times/week	11	22.00
7–8 times/week	2	4.00
More than 8 times/week	0	0.00

The results of the survey indicate that individuals with disabilities in Panjin City who engage in table tennis typically do so over a relatively short period (**Table 5**). Specifically, the majority (42%) play fewer than twice a week, while only a small proportion participate more than five times weekly (26%). This lower level of participation could potentially be attributed to the physical constraints experienced by people with disabilities.

3.1.5. The present situation of table tennis training for disabled people in Panjin City

Table 6. Table tennis participation channels of disabled people in Panjin City (n = 50)

Table tennis participation channels	Number of people	Percentage (%)
Table tennis clubs for special groups	23	46.00
DPF Activity Center	21	42.00
Community service center	6	12.00
Home training	0	0.00

In Panjin, individuals with disabilities primarily engage in table tennis via the Special Group Table Tennis Club (46%) and the DPF Activity Center (42%) (**Table 6**). These organizations offer specialized support and services tailored for the disabled community. Conversely, community service centers and home-based practice are less favored due to their perceived deficiencies in professionalism and safety.

3.1.6. The status quo of competition categories

Table 7. Questionnaire on the proportion of disabled people participating in table tennis in Panjin (n = 50)

Experience of participant	Number of people	Percentage (%)
Never played in a major tournament	31	62.00
Municipal level	16	32.00
Provincial	2	4.00
National level	1	2.00
International	0	0.00

In Panjin City, the participation rate in disabled table tennis competitions is relatively low, with only 38% of the disabled population taking part. Based on **Table 7**, the majority of this participation is focused on municipal-level events, while involvement in provincial and national competitions remains significantly limited. This situation indicates that there is room for enhancing the skills of disabled table tennis players, as the overall competitive standard is currently not very high.

3.1.7. Current situation of table tennis facilities for disabled people in Panjin City

Sports facilities serve as the essential material foundation and crucial external conditions for individuals with disabilities to engage in table tennis ^[10]. Following the release of the National Fitness Program Outline, both China and local governments at various levels have intensified their financial commitment to sports initiatives. This has led to a rise in public sports venues and equipment. However, these developments have not significantly improved the situation for people with disabilities in this area ^[11].

Table 8. Table tennis venue condition survey of disabled people in Panjin City

	Number of venues	Field material
Table tennis club for special groups	4 pieces	Plastic
DPF Activity Center	3 pieces	Plastic
Community service center	1 tablet	Cement

During the research, it was discovered that specialized table tennis facilities for disabled individuals have been set up within group-specific table tennis clubs and disability activity centers (**Table 8**). These venues feature non-slip flooring designed for disabled participants and additional handrails installed to safeguard the personal security of disabled people.

3.2. Factors affecting disabled people's participation in table tennis in Panjin City

3.2.1. Lack of relevant management organization

In Panjin City, competitive sports for individuals with disabilities encounter several challenges, including a lack of scientific training methods, inadequate logistics management, insufficient social recognition, and low organizational efficiency ^[12]. The dispersed resources of the Disabled Persons' Federation (DPF), along with weak individual associations and community organizations, result in loose and non-specialized management practices. To address these issues, Panjin City must prioritize enhancing the organization and management of disabled competitive sports, aiming to elevate professional standards and operational effectiveness.

3.2.2. The number of high-level competitions is few

In competitive sports, integrating training with competition closely can enhance performance and refine training methods through feedback obtained from competitions ^[13]. Teaching competitions not only strengthen the psychological resilience of disabled athletes but also motivate their daily training routines ^[14]. Engaging with opponents at various levels and achieving favorable outcomes in competitions is a key objective of sports training. Nevertheless, disabled table tennis players in Panjin City have limited participation in competitions, particularly at the provincial level, due to restricted opportunities. The insufficient number of disabled table tennis competitions within the province hinders both performance enhancement and the advancement of competition organization and management.

3.2.3. The economic factors of the disabled and the single source of funds for the management organization

Individuals with disabilities encounter challenges in employment owing to physical limitations and economic instability, which restricts their capacity for sports consumption. Additionally, their limited economic resources impact their inclination to engage in table tennis activities. Even with the supportive policies for sports facilities, when fundamental living needs are unmet, participation becomes secondary. Although Panjin City has increased its investment in competitive sports for people with disabilities, the financial foundation remains constrained, and the increment is inadequate. As a result, the table tennis training program faces a funding deficit, making it challenging to fulfill developmental requirements.

4. Conclusions and suggestions

In the city of Panjin, the groups involved in disabled table tennis exhibit a gender imbalance, primarily consisting of young and middle-aged individuals with physical disabilities. The primary avenues for participation are through special group table tennis clubs and the activity centers of the Disabled Persons' Federation. The rate of competition involvement is relatively low, with skill levels predominantly falling within TT8–TT10 categories, and competitive outcomes have been less than ideal. Despite having professional venue facilities, there remains a lack of adequate infrastructure, which impacts participant satisfaction.

To foster the development of disabled table tennis in Panjin City, the following approaches are recommended: enhance the promotion of sports activities to increase awareness and engagement among disabled communities; tailor training programs based on the physical capabilities and unique requirements of individuals with disabilities, thereby elevating their technical proficiency. At the governmental level, it is crucial to refine relevant laws and regulations, bolster policy and financial support, and optimize the functions of table

tennis clubs as well as activity centers within disabled persons' federations. Improve venue infrastructure to create a secure and specialized sports environment while ensuring adequate provision of necessary sporting equipment. Additionally, amplify the promotion of table tennis to motivate disabled individuals to actively join competitions, emphasizing scientific and systematic training methods to enhance competitive outcomes. Furthermore, focus should be placed on identifying and nurturing table tennis coaches and instructors for the disabled, enhancing their professional expertise through available resources, and establishing a platform that integrates training with learning opportunities to facilitate holistic growth for disabled athletes.

Funding

Youth Research Project of Humanities and Social Sciences, Ministry of Education (Project No.: 22YJC890013); Youth Project of Social Science Foundation of Jiangsu Province (Project No.: 22TYC003); General Project of Philosophy and Social Science Research in Universities of Jiangsu Province (Project No.: 2022SJYB2110)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Deng F, 2019, Current Situation and Countermeasure Analysis of the Development of Disabled People's Sports in China. *Sports and Sports Supplies and Technology*, 2019(5): 39–40.
- [2] Cheng Z, Zhou J, Fu C, et al., 2024, An Empirical Study on the Influencing Factors of Disabled People's Participation in Sports. *Journal of Leshan Normal University*, 39(4): 79–85.
- [3] Wang Y, 2021, Research on Table Tennis Training Theory for Disabled Chinese. *Contemporary Sports Science and Technology*, 11(25): 44–46.
- [4] Zhang S, 2018, Research on Reserve Strength Training of Outstanding Disabled Table Tennis Players in Our Country, thesis, Shandong Normal University.
- [5] Zhang L, 2021, Research on the Promotion Value and Path of Blind Table Tennis Competition in China, thesis, Harbin Institute of Physical Education.
- [6] Shi H, 2021, Research on the Development Predicament and Countermeasures of Blind Table Tennis in Hebei Province, thesis, Harbin Institute of Physical Education.
- [7] Wang J, 2019, A Case Study of Paralympic Table Tennis Champion Li Qian's Pre-competition Preparation, thesis, Northwest Normal University.
- [8] Yuan L, Zhang Y, 202, Investigation and Rehabilitation Mechanics Analysis of Disabled Table Tennis Players in China. *Abstract Compilation of the 21st National Conference on Sports Biomechanics, Sports Biomechanics Branch of Chinese Society of Sports Science: Chinese Society of Sports Science*, 2.
- [9] Mei S, 2018, Investigation on the Status Quo of Table Tennis for Disabled People in Heilongjiang Province, thesis, Harbin Institute of Sport.
- [10] Yan X, 2017, A Study on the Correlation Between Achievement Motivation and Self-efficacy of Disabled Table Tennis Players, thesis, Shandong Normal University.
- [11] Yuan F, Liu F, 2017, Construction of Sports Intelligent Structure Model for Elite Female Disabled Table Tennis

- Players. *Journal of Shandong University of Physical Education*, 33(6): 69–74.
- [12] Wang Y, Huang Y, Chang X, Wang Y, Chen L, 2017, Functional Characteristics and Classification Results of Disabled Table Tennis Players with Spinal Cord Injury (SCI). *China Sports Science and Technology*, 53(5): 84–86.
- [13] Li G, 2017, Technical Analysis and Coping Strategies of the Main Competitors of Chinese Women's Table Tennis Team in Rio Paralympics, thesis, Shandong Normal University.
- [14] Li K, 2017, The Relationship Between Mental State and Competition Process of Top Disabled Table Tennis Players, thesis, Shandong Normal University.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.