

Unveiling the Mental Toughness and Performance Resilience of Table Tennis Athletes

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Abstract: This study examined the psychological resilience and mental fortitude of Chinese table tennis athletes, specifically analyzing their demographic characteristics. The sample comprised predominantly of athletes aged 18 to 24, with a majority of female participants and a notable proportion having less than one year of expertise in the sport. Athletes assessed their mental toughness dimensions, such as commitment, control, confidence, and challenge, as being of average level. Noticeable disparities in mental resilience evaluations were noted among various age cohorts, genders, and levels of professional expertise. In terms of age, athletes between the ages of 18 and 24 demonstrated greater dedication and self-regulation, whereas female athletes had higher levels of confidence and dedication. The performance resilience tests indicated that the scores were moderate to slightly above average in many categories, indicating a well-balanced impression of their skills to withstand challenges. Significantly, the components of performance resilience, including awareness, physiology, emotions, and mastery, exhibited notable variations depending on age, gender, and years of experience. Moreover, a significant correlation was discovered between the characteristics of mental toughness and the ability to bounce back from setbacks, underscoring the significance of mental conditioning in improving athletes' capacity to surmount challenges and attain peak performance. These findings highlight the necessity of customized mental training programs to improve psychological resilience and performance among Chinese table tennis athletes. When developing interventions, coaches and sports psychologists should take into account the age, gender, and level of experience of players.

Keywords: Mental Toughness; Commitment; Control; Confidence; Challenge; Performance; Resilience.

1. Introduction

Chinese table tennis holds significant relevance on both a national and global scale. China has continually exhibited exceptional performance in international events, consistently achieving remarkable success in earning several Olympic, World Championship, and World Cup titles. This consistent dominance has firmly established China as the leading force in the realm of table tennis (Olympics.com, 2020). The achievement of this success is supported by comprehensive talent development initiatives, substantial governmental backing, and a deeply entrenched cultural importance. Chinese table tennis players serve as exemplary figures, serving as sources of inspiration not just for their own nation but also for aspiring athletes everywhere. The sport assumes a significant diplomatic function, as exemplified by the notable historical event known as "ping pong diplomacy," and remains an instrument for the exercise of soft power and facilitation of cultural interchange. Moreover, China's remarkable achievements in the realm of table tennis have significantly enhanced the sport's international recognition, resulting in increased economic prospects and sponsorship opportunities. Additionally, these accomplishments have facilitated the establishment of international connections and cooperation through the organization of exhibitions and exchanges. Chinese table tennis is more than just a sport; it serves as a representation of national pride, solidarity, and global dominance in the realm of sports (EmRatThich, 2023).

Thus, Chinese table tennis athletes receive rigorous attention and are highly esteemed inside their country. The Chinese government offers significant financial and logistical

assistance, encompassing provisions for training facilities, equipment, travel fees, and specialist coaching programs. This support allows athletes to dedicate themselves entirely to their training and performance, alleviating any financial burdens they may have. These athletes derive advantages from their access to highly skilled coaches and cutting-edge training facilities, which contribute to their outstanding level of preparedness for international events. China's comprehensive talent identification and development initiatives effectively cultivate young players with potential from an early stage, resulting in a consistent stream of skilled table tennis athletes. (Munno, 2023). Numerous players opt to enroll in specialized sports schools and academies that are specifically tailored to meet their athletic aspirations, providing an environment that fosters the simultaneous growth of their athletic and academic pursuits. Financial incentives and recognition are bestowed to individuals who achieve success, while concurrently assuming the position of role models, so instilling inspiration within subsequent generations to strive for excellence in the respective athletic discipline. There is a plethora of commercial prospects that are readily available, supported by their notable achievements. Additionally, the practice of table tennis diplomacy serves to enhance international relations and foster cultural exchange endeavors. Chinese table tennis competitors are highly esteemed not alone due to their athletic accomplishments, but also for the ideals and identity they symbolize on an international scale (Vallery, 2022).

However, Chinese table tennis athletes, in spite of their exceptional achievements, encounter a variety of tough obstacles during their professional journeys. The struggle for

highly sought-after positions on the national team in China is characterized by a persistent and intense rivalry, as a multitude of exceptionally skilled players strive for acknowledgment and selection. The aforementioned intense rivalry has the potential to lead to several years of highly competitive engagements, during which athletes strive to secure a position on the national stage. The burden of national expectations and the historical prominence of Chinese domination in the field can exert a profound influence, resulting in considerable pressure and apprehension around the prospect of not meeting these high standards. Furthermore, the intensive training regimens and challenging competition schedules expose players to a heightened susceptibility to injuries, hence requiring meticulous supervision and recuperation. The act of departing from one's place of residence to enroll in specialized sports schools or academies at a tender age can have a profound impact on one's emotional well-being, leading to feelings of isolation. Additionally, the mental strain induced by high-stakes competitions and the necessity to maintain a harmonious equilibrium between academic pursuits and athletic endeavors pose persistent obstacles. Furthermore, as athletes progress in age, the task of sustaining optimal performance becomes progressively challenging. Chinese table tennis competitors have a multitude of problems that are exacerbated by the need to meet business responsibilities, navigate the ever-changing landscape of global competition, and manage public criticism. However, these individuals receive significant assistance and access to many tools that are specifically designed to aid them in overcoming these challenges and maintaining their exceptional performance on a global scale (Davie, 2019).

shaping the efficacy of decision-making on the table. Chinese table tennis athletes who possess such mental fortitude demonstrate the ability to make prudent decisions even in moments of great importance, ranging from the selection of the most appropriate shot to the adept adaptation to their opponent's plans, all while efficiently managing their emotions. In addition to its impact on emotional well-being, performance resilience also include physical resilience, which enhances the ability to prevent injuries and recover from them.

In team competitions such as the World Team Table Tennis Championships, Olympic Team Table Tennis, and Continental Championships, the exhibition of mental fortitude and the ability to bounce back from setbacks are crucial factors that allow athletes to excel under the weight of national and team expectations. These qualities enhance their overall impact and contributions to their respective teams. These traits additionally function as sources of inspiration for future generations of Chinese table tennis players, developing a dynamic culture inside the nation (Cowden, 2017).

Chinese table tennis competitors who embody exceptional mental fortitude and perseverance in their performance have garnered international acclaim, so enhancing the prominence of this sport on a global scale and reinforcing the nation's standing in the realm of sports. At an individual level, these attributes not only cultivate physical excellence but also facilitate personal development, imbuing individuals with the ability to persevere in the face of challenges and building a strong work ethic that extends beyond the boundaries of the table tennis arena.

It is for this reason that this study has been conceptualized, mental fortitude and performance resilience play a pivotal role in the trajectory of Chinese table tennis athletes. Not only do they establish the parameters of success inside the realm of this sport, but they also possess the capacity to influence the lives of athletes beyond their involvement in the sport, as well as make substantial contributions to the advancement and progress of table tennis in China.

The cultivation of mental toughness among Chinese table tennis players bears great importance for their performance and general welfare. The presence of mental toughness is known to have a positive impact on performance, as it facilitates improvements in decision-making abilities, concentration levels, and resilience in the face of intense pressure experienced during high-stakes competitions. Furthermore, it promotes coherence, enabling athletes to recover from obstacles and sustain optimal performance over prolonged durations. In the context of a sport such as table tennis, which necessitates rapid adjustments to diverse playing styles, the significance of mental fortitude cannot be overstated in facilitating flexibility. Additionally, it facilitates the management of stress and the recovery from injuries, so ultimately prolonging the athletic career of an individual. Moreover, within the context of team events, individuals who possess strong mental fortitude play a significant role in shaping team dynamics through their exemplary behavior and indispensable support. Nonetheless, a significant gap in study persists, namely with the comprehension of culture-specific elements that impact the mental toughness of Chinese table tennis players. Additionally, there is a need to create customized evaluation instruments and determine the most efficacious intervention approaches. The inclusion of longitudinal studies, research on youth development, and comparison analyses with athletes from other nations might significantly enhance our comprehension of this pivotal facet

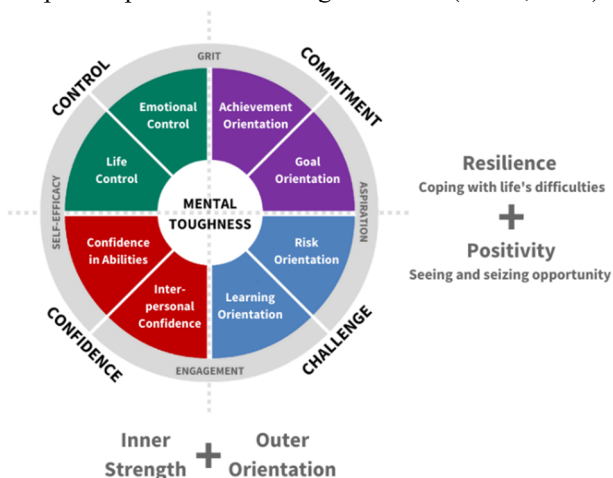


Figure 1. The "4 Cs" Paradigm

It is for this reason that the cultivation of mental fortitude and performance resilience of Chinese table tennis athletes is highly indispensable. It plays a crucial role in enabling Chinese table tennis athletes to effectively bounce back from setbacks, challenges, and defeats, thereby converting moments of disappointment into important chances for growth and learning. In this sport, which is known for its high physical and emotional demands, possessing these traits is crucial for competitors to maintain their longevity and durability. These factors enhance the athletes' capacity to endure the physically demanding aspects of the activity, hence potentially prolonging their professional careers and sustaining their level of competition in the long run (Fit4 Tennis, 2023).

Further, mental toughness plays a significant role in

of sports psychology within the realm of Chinese table tennis. Addressing these areas of research deficiency has the potential to enhance the efficacy of training methodologies and foster a more profound comprehension of the significance of mental fortitude within this particular athletic discipline.

2. Methodology

2.1. Research Design

The chosen research design for this study is a descriptive-comparative correlational technique. The selection of this design was based on its appropriateness for investigating the relationship between mental toughness and performance resilience in table tennis athletes. By incorporating a descriptive component into the design, it becomes possible to get extensive insights on the ideas of mental toughness and performance resilience. This entails collecting data on the fundamental elements of mental fortitude, which encompass dedication, self-regulation, self-assurance, and facing difficulties, as well as the diverse components of performance resilience, such as consciousness, physiological responses, significance, emotions, and expertise. This extensive data collection offers a complete view of how these psychological concepts are expressed in the experiences and behaviors of Chinese table tennis athletes.

The comparative dimension of the design is of special significance in this study, as it entails classifying athletes according to demographic attributes such as age, gender, and years of experience. Through the process of comparing these groups, researchers are able to discern potential differences or patterns related to these demographic factors in relation to mental toughness and performance resilience. This comparative study deepens our comprehension of the potential variations in these attributes among diverse groups of athletes.

The study's correlational part aims to assess the relationship between mental toughness and performance resilience. By employing quantitative analysis, researchers can ascertain the extent and orientation of this correlation, elucidating the manner in which these two pivotal variables interplay inside table tennis participants. This comprehension has pragmatic ramifications for coaches, sports psychologists, and administrators who seek to create tailored training programs and support services to efficiently amplify athletes' cognitive fortitude and adaptability, particularly inside the realm of table tennis.

The descriptive-comparative correlational research approach is well-suited for this study because it enables a comprehensive examination of mental toughness and performance resilience. This approach also allows for the analysis of potential demographic factors that influence these categories and investigates the nature of their relationship among table tennis athletes. qualities in college students.

2.2. Sampling Technique

The study utilized a purposive sampling strategy to specifically pick table tennis athletes from particular institutions in China as participants. The selection of purposive sampling was made in order to guarantee that participants fulfilled particular criteria that were closely pertinent to the research aims. The predetermined selection criteria encompassed university affiliation, active engagement in competitive table tennis, age range limitation (e.g., 18-30 years), representation of diverse genders, and

inclusion of different skill levels in table tennis (e.g., novice, intermediate, advanced). The criteria were meticulously chosen to guarantee that the sample included of table tennis athletes who possessed current and pertinent experiences pertaining to mental fortitude and performance resilience within the unique context of the sport.

Individuals who fulfilled these precise criteria were contacted and extended an invitation to partake in the study. Participants were provided with comprehensive study material and had to give informed permission prior to their involvement. The data gathering process utilized tailored evaluations and surveys specifically geared to explore the notions of mental toughness and performance resilience. The subsequent data analysis aimed to investigate possible variances, correlations, and linkages within the deliberately chosen sample. This methodology was well-suited for the investigation as it allowed for a concentrated and accurate assessment of the research objectives among a specific group of table tennis athletes who satisfied the required requirements. The study guaranteed that it obtained pertinent ideas from participants who had current experiences in the sport.

2.3. Instrumentation

A comprehensive survey instrument was created to evaluate the mental strength and ability to bounce back from setbacks in table tennis athletes. This instrument was developed using reliable sources, namely AQR International for mental toughness and Resilience Berkshire - Academic Programs and Instruction for Enhancing Performance Resilience. This assessment tool was specifically created to assess core components of mental toughness, such as Commitment, Control, Confidence, and Challenge. It also measures factors related to performance resilience, including Awareness, Physiology, Meaning, Emotion, and Mastery.

The examination of mental toughness involved participants providing ratings on their level of commitment to table tennis, their capacity to manage their emotions, their confidence in their table tennis abilities, and their readiness to embrace difficulties. The survey included Likert-scale questions to achieve this objective, while also incorporating inquiries to gather demographic information.

Conversely, survey questions pertaining to performance resilience were formulated to evaluate athletes' situational awareness, physical preparedness, sense of purpose, emotional control, and dedication to improving their skills. The poll included a mix of Likert-scale questions and open-ended questions to obtain a thorough knowledge of these concepts.

Prior to conducting the survey, a thorough validation process was carried out, which involved assessing the content validity and conducting pilot testing. This was done to guarantee that the instrument is reliable and effective in precisely measuring the desired components. After being successfully validated, the survey was given to a specified set of table tennis athletes that represent particular colleges in China. The objective of this endeavor was to obtain valuable insights into the mental strength and capacity of athletes to overcome problems in the field of table tennis performance.

A normality test, specifically the Shapiro-Wilk test, was performed to determine whether the parametric test would be used to address the research objectives. When p-values exceed 0.05, parametric testing is used. Nonparametric tests

will be used when the p-values are less than .05 and the data is not normally distributed.

The investigation's research questions have been reevaluated. As a result, the findings, along with their analysis and interpretation, are presented.

2.4. Preliminary Analysis

2.4.1. Reliability

Table 1. Reliability Measurement – Mental Toughness (Cronbach's Alpha)

Construct	Cronbach's Alpha	No. of Item/s Deleted	No. of Items
Commitment	0.95	0	10
Control	0.95	0	10
Confidence	0.95	0	10

Reliability Measurement – Performance Resilience (Cronbach's Alpha)

Construct	Cronbach's Alpha	No. of Item/s Deleted	No. of Items
Awareness	0.95	0	10
Physiology	0.96	0	10
Meaning	0.95	0	10
Emotion	0.96	0	10
Mastery	0.95	0	10

The reliability assessment, particularly the Cronbach's alpha for the mental toughness scales comprising commitment, control, and confidence, and the evaluation of performance resilience based on awareness, physiology, meaning, emotion, and mastery, are outlined in Table 1. When evaluating the internal consistency or dependability of constructs, Cronbach's alpha (CA) is one of the statistics utilized (Roldan & Sanchez-Franco, 2012; Kock, 2015). To determine the reliability of a measurement using Cronbach's alpha, the analyzed measurement must possess a value equal to or greater than 0.70. (Fornell & Larcker, 1981; Nunnally, 1978). After the data analysis was concluded, it was ascertained that the domains of both scales met the reliability criterion, as indicated by the CA values ranging from 0.95 to 0.96.

The Shapiro-Wilk test yielded results with all p-values less than 0.05. Furthermore, the corresponding histogram indicates that the scores are skewed. This suggests that the scores deviated from the assumption of a normal distribution. To address the research questions, non-parametric tests such as the Mann-Whitney U test, Kruskal-Wallis test, and Spearman's rho correlation are used.

Table 2. Normality Test

	N	Shapiro-Wilk	
		W	p
Commitment	199	0.84	< .001
Control	199	0.83	< .001
Confidence	199	0.83	< .001
Awareness	199	0.80	< .001
Physiology	199	0.81	< .001
Meaning	199	0.81	< .001
Emotions	199	0.79	< .001
Mastery	199	0.79	< .001

2.5. Data Gathering Procedures

The data collection methods utilized in this study were methodically implemented to guarantee the acquisition of high-quality and relevant data from the participating table tennis athletes. The first stage entailed the meticulous recruitment of volunteers from specified institutions in China who satisfied precise requirements. The requirements encompassed academic connection, active participation in competitive table tennis, particular age groups, gender diversity, and diverse degrees of experience in the sport. Athletes who met these specific requirements were extended an invitation to partake in the study and were obligated to give informed consent, guaranteeing their voluntary involvement in the research.

The main approach for collecting data entailed using specialized survey tools that were specifically intended to evaluate mental toughness and performance resilience. The surveys, obtained from reliable sources, included of Likert-scale questions designed to assess individuals' perceptions and experiences regarding mental toughness and performance resilience. In addition, open-ended questions were incorporated to allow participants to offer qualitative perspectives. Before the official survey was completed, a preliminary testing phase was carried out to improve the survey instruments based on input from participants.

During the data gathering procedure, strict processes were followed to maintain accurate and consistent record-keeping and quality control. Data validation techniques were utilized to bolster the reliability of the gathered data. In addition, statistical studies were performed to investigate relationships and inconsistencies between variables. The study's findings were carefully recorded and examined in relation to the research objectives. The findings provided useful insights into the psychological resilience and flexibility of table tennis players, revealing the demographic factors that could potentially impact these characteristics.

2.6. Ethical Considerations

The research's conduct adhered to key ethical norms of integrity and professionalism. Researchers collected and assessed data in a methodical manner, guaranteeing objectivity and the absence of bias or manipulation. All possible conflicts of interest were transparently revealed. The study underwent ethical scrutiny and received permission from the relevant institutional review board or ethics committee, ensuring strict compliance with ethical principles and standards defined by their institution and regulatory organizations. The selection of participants was focused on ensuring inclusivity and diversity in order to appropriately

represent a broad range of table tennis athletes in the study's results. Every volunteer was treated with equal and just treatment throughout the trial. The reporting process was conducted with transparency, as researchers freely disclosed their methodology, data gathering methodologies, and any limitations in their papers or reports.

Ultimately, the researcher was dedicated to assessing the long-lasting impacts of the study on the overall welfare of table tennis athletes. The findings would be conscientiously and morally employed to improve athletes' mental strength and ability to recover, while ensuring their rights and dignity were protected throughout the period of the study.

3. Results and Discussion

A tabular representation of the data that was collected, as well as its analysis and interpretation, can be found in this chapter. The results of a statistical analysis carried out using jamovi 2.3.19 form the basis for the conclusions presented in this section.

3.1. Preliminary Analysis

The results shows descriptive data on the frequencies and percentages of a sample of table tennis athletes' demographics. According to descriptive statistics, only 55% were between the ages of 18 and 24, 3% were between the ages of 25 and 34, 2% were between the ages of 35 and 44, 4% were 45 years old or older, and 36% were under the age of 18. This means that the majority of respondents are aged between 18 and 24 years old.

In terms of their gender, the data that was tabulated showed that female respondents made up 58% of the total sample size, while male respondents made up 42%. This indicates that the vast majority of the respondents are female table tennis athletes.

Finally, in terms of years of experience, 13% were in sports for 1-3 years, 15% for 4-6 years, 19% for 7-10 years, 49% for less than a year, and only 5% for more than ten years. This may imply that the vast majority of table tennis athletes have less than a year of experience.

The data indicates that the table tennis athletes who were surveyed exhibit a wide range of characteristics in terms of age, gender, and years of experience. A considerable proportion of the sample comprises of youthful athletes, with a noteworthy representation of female participation. Furthermore, the data reveals that there are different levels of experience in the sport, with a significant number of respondents having a relatively short period of involvement in table tennis. The study's examination of mental toughness and performance resilience in table tennis athletes may be affected by these demographic differences, underscoring the importance of conducting a thorough analysis of these variables.

3.2. Assessment of the Chinese Table Tennis Athletes of their Mental Toughness Commitment

The results show the assessment of mental toughness in terms of commitment among selected table tennis athletes, with a mean score of 3.41 and a standard deviation of 0.51. This implies that respondents agree that they consistently exert their utmost effort during both table tennis practice sessions and competitive matches ($M = 3.51$), that despite encountering various obstacles, they have a steadfast

commitment to improving their proficiency in the sport of table tennis ($M = 3.49$), and that they are completely dedicated to the training and advancement of their table tennis skills ($M = 3.48$). Furthermore, they agree that the individual's dedication to table tennis serves as a means of maintaining concentration on their overarching goals ($M = 3.46$) and that they have a strong resolve to overcome setbacks and challenges encountered during their pursuit of excellence in table tennis ($M = 3.46$).

The indicator with the highest average score in the assessment of mental toughness in relation to Commitment is Indicator 3: "I consistently exert my utmost effort during both table tennis practice sessions and competitive matches," with a mean score of 3.51. Consequently, the findings of the study indicate that a significant proportion of table tennis athletes exhibit a commendable degree of dedication by regularly exerting their utmost endeavor in both practice sessions and competitive events.

Conversely, the indicator with the lowest average score is Indicator 6: "I have a strong desire to succeed in table tennis, regardless of any obstacles that may come up," with an average score of 3.27. This implies that although overall dedication is high, certain athletes may exhibit significantly diminished levels of ambition to attain success in table tennis, especially when confronted with difficulties.

The findings suggest that table tennis competitors demonstrate a high level of commitment to their sport, as evidenced by their unwavering effort during both practice and competition. Nevertheless, there can be discrepancies in their levels of ambition, since certain athletes may require supplementary assistance or encouragement to uphold their dedication, particularly when confronted with obstacles. Coaches and sports psychologists should prioritize the development of athletes' ambition and tenacity to improve their psychological fortitude in the pursuit of success in table tennis.

Marchese et al. (2022) conducted a study examining the personality traits and motives of table tennis players. The study revealed that conscientiousness emerged as the most prominent trait among table tennis players. This discovery is consistent with the current evaluation of mental resilience in relation to Commitment. Table tennis competitors exhibited a notable degree of dedication and unwavering exertion during both practice sessions and competitive events. Table tennis players were mostly driven by elements included under the intrinsic aspect of the self-determination motivational continuum. Table tennis athletes' motivation appears to be mostly influenced by internal variables and personal drive, aligning with the concept of commitment and determination commonly associated with mental toughness.

The results affirm the existing evaluation of mental resilience in table tennis players, emphasizing their resolute dedication and intrinsic drive to achieve excellence in the sport. The research offers further elucidation on the personality traits and motivations of table tennis players, underscoring the significance of dedication and inherent drive in their athletic endeavors.

3.2.1. Control

The result depicts the respondents' assessment of mental toughness in terms of control. Based on tabulated data, it obtained a composite mean score of 3.39 and a standardized deviation of 0.53. This indicates that participants agree that they have the ability to regulate their responses to both triumph and defeat in the sport of table tennis ($M = 3.43$), that

they can remain collected and focused even in high-pressure situations in table tennis ($M = 3.41$), and that they can maintain their emotional stability and control regardless of the numerical outcome or prevailing circumstances within a table tennis match ($M = 3.41$). Similarly, they agree that when they enter the table tennis, they have a high level of mastery over their cognitive state ($M = 3.40$) and that their ability to exert cognitive control over their mental processes improves their performance in table tennis. ($M = 3.40$).

The highest average score in the evaluation of mental resilience in relation to Control was achieved for Indicator 3, which said, "I have the ability to manage my reactions to both success and failure in the sport of table tennis," with an average score of 3.43. Conversely, the indicator with the lowest average score was Indicator 5, which measured the belief in one's ability to influence their performance in table tennis. This indicator had a mean score of 3.31.

The results of the study indicate that table tennis athletes had a high level of proficiency in managing their emotional reactions to both success and failure in the sport. This suggests that individuals have emotional regulation and fortitude, which can be beneficial in maintaining cool during intense periods in table tennis matches.

Nevertheless, the lower average score for Indicator 5, pertaining to athletes' conviction in their ability to impact their performance, implies that certain athletes could enhance their self-confidence and self-efficacy. One potential area of concentration for mental toughness training and psychological support is to bolster athletes' confidence in their capacity to positively influence their performance. Table tennis athletes show proficient emotional management and calm. However, there is potential to enhance their self-confidence and perception of control in order to positively impact their performance in the sport. These findings highlight the need of incorporating strategies to enhance emotional regulation and self-assurance in mental resilience training programs for table tennis athletes.

To affirm the results, Peng and Kim's (2023) study centers on improving the psychological training of table tennis players through the utilization of deep learning-based face recognition and heart rate measuring techniques. This research presents a new method of monitoring psychological changes in athletes by using face recognition technology to measure their heart rates. Unlike the previous findings, which focused on assessing mental toughness in table tennis players based on control, this approach offers a fresh perspective. The consequences of this study are consistent with your present findings on mental resilience. Through the application of deep learning algorithms for heart rate monitoring, coaches and sports psychologists can obtain immediate and accurate information about athletes' psychological conditions, specifically regarding their ability to manage emotions and maintain composure in intense table tennis matches.

The utilization of deep learning techniques offers a more precise and effective method for evaluating psychological changes, enabling prompt interventions and customized psychological training regimens to improve athletes' mental resilience. The incorporation of technology in sports psychology is in line with the developing approaches to enhance players' performance and well-being. The research conducted presents a significant technological breakthrough that can enhance existing discoveries on the mental resilience of table tennis players. This emphasizes the need of utilizing technology to assist players in enhancing their psychological

abilities and resilience in the field of sports.

3.2.2. Confidence

depicts an assessment of athletes' mental toughness in terms of confidence, with a composite mean score of 3.37 and a standard deviation of 0.55. According to the findings, the respondents' assessments were considered average. This means that they agree that confidence is the fundamental foundation for bolstering their mental fortitude in the sport of table tennis (3.45), that an individual's self-assurance is critical to their achievements in the sport of table tennis ($M = 3.44$), and that despite facing difficult opponents, they consistently maintain a strong belief in their ability to execute well ($M = 3.41$). Similarly, they agree that they have a high level of self-confidence in their ability to make critical decisions in table tennis matches ($M = 3.41$), and that even when they lose or fail, their confidence remains unshaken.

The evaluation of mental resilience in relation to Confidence among table tennis players yielded significant observations on their psychological preparedness and self-confidence in the sport. The indicator with the highest average score was Indicator 10, which highlights the crucial importance of confidence as a key aspect of mental strength in table tennis, with an average score of 3.45. This discovery highlights the importance of athletes' steadfast confidence in their skills as a primary factor in their mental toughness during difficult situations in table tennis. Conversely, Indicator 4 had the lowest average score, with people perceiving themselves as very skilled table tennis players, scoring an average of 3.17. This element emphasizes the possible impact of self-perception on overall levels of confidence, as players who may not fully acknowledge their abilities may undergo a decline in confidence. In order to improve mental resilience, it is crucial to acknowledge the complex nature of confidence and apply specific interventions that focus on enhancing both skill acquisition and self-confidence. Coaches and sports psychologists can exploit the correlation between confidence and mental resilience by highlighting the importance of customized confidence-building techniques that cater to individual requirements. These findings provide useful insights into the complexities of confidence in relation to mental toughness, which can help guide the creation of successful psychological preparation programs for table tennis competitors.

According to Sporting Bounce (2023), the requirements specified in the sports psychology description for table tennis closely correspond to the discoveries concerning the mental resilience of table tennis athletes in relation to their confidence. Similar to how confidence was recognized as a crucial element of mental toughness, this examination emphasizes the essential function that self-belief plays in the performance of a table tennis player. The article highlights the importance of self-confidence in taking risks, attempting difficult shots, and performing well under pressure. This aligns with the idea that confidence is crucial for strengthening mental resilience in the sport of table tennis (Indicator 10, with an average score of 3.45). Both authors emphasize the importance of self-confidence as a crucial psychological trait for table tennis athletes.

Moreover, the paper underscores the significance of emotional regulation in table tennis, as it enables players to maintain concentration and avoid impulsive behaviors that could result in mistakes. This corresponds to the results pertaining to Control (Indicator 1, with an average score of 3.41), in which participants expressed their competence in

regulating emotions during table tennis matches. Mastering emotional regulation is essential not just for keeping composure but also for avoiding lapses in concentration under high-pressure situations.

In a nutshell, the article on sports psychology for table tennis offers significant insights that corroborate the existing research on the mental resilience of table tennis athletes, particularly in relation to their confidence and emotional regulation. Both publications emphasize the importance of psychological characteristics in improving performance and provide suggestions for creating successful mental training programs to strengthen athletes' mental resilience in this challenging sport.

3.3. Differences in the Assessment of the Chinese Table Tennis Athletes of their Mental Toughness When Grouped according to Profile

3.3.1. Age

The result presents how the assessment of the mental toughness differs when the respondents are grouped based on their age. Since both the generated p-values for commitment ($H = 11.33$ $df = 4$; $p = 0.023$) and control ($H = 18.78$ $df = 4$; $p = <.001$) are lower than the alpha level of 0.05, the researcher will reject the null hypothesis. As a result, when table tennis athletes are grouped by their age, the assessment of the mental toughness differs significantly, for a medium effect size. On the other hand, no significant difference found in confidence ($H = 8.58$ $df = 4$; $p = 0.03$)

The investigation unveiled substantial disparities in the evaluation of dedication and regulation, but no distinctions were found in terms of assurance. These disparities suggest that athletes of different age groups have different perceptions and manifestations of mental resilience in the context of table tennis. The findings indicated that athletes of different age groups may demonstrate different degrees of devotion to their sport when considering their level of commitment. Younger athletes may benefit from customized ways to bolster their dedication, whilst senior athletes may have distinct requirements or methods to sustain their commitment levels. When creating mental toughness development programs, coaches and sports psychologists should take into account these age-related disparities to guarantee its efficacy and suitability for the distinct needs of each age cohort.

The investigation revealed that athletes of varying age groups have distinct capacities in regulating their emotions and reactions during table tennis bouts. This underscores the significance of implementing interventions that are suitable for a person's age in order to improve their emotional regulation. Younger athletes could potentially gain advantages from receiving specialized assistance in this domain, whilst older athletes might already possess more developed tactics. Comprehending these disparities connected to age can assist coaches and sports psychologists in delivering customized training to enhance athletes' psychological fortitude.

Surprisingly, the evaluation did not discover any notable variations in confidence levels among the athletes based on age. This implies that the level of confidence is likely to be rather stable across different age groups in the sample. Although this discovery suggests that confidence-building interventions can be successful in many age groups, additional research may be required to investigate the specific elements that influence confidence in table tennis athletes.

Ultimately, these findings emphasize the importance of taking into account age-related differences in the various aspects of mental resilience when designing training programs for table tennis competitors. Optimizing athletes' mental resilience in the challenging sport of table tennis can be achieved by tailoring interventions to meet the individual demands of different age groups, resulting in improved overall performance.

3.3.2. Sex

A study was conducted using the Mann-Whitney U test to ascertain whether grouping athletes according to their gender results in a statistically significant difference in the evaluation of mental toughness. Since all the generated p-values for commitment ($U = 3718.50$; $p = 0.005$), control ($U = 3742.50$; $p = 0.005$), and confidence ($U = 3428.50$; $p = <0.001$) are lower than the 0.05 level of significance, the researcher will reject the null hypothesis. Therefore, it can be concluded that there is a significant difference among the variables. Specifically, female athletes ($Md = 3.80$; $MD = 3.70$; $Md = 3.80$) scored higher in commitment, control, and confidence than male athletes ($Md = 3.00$) for 22 to 29%, based on the effect size.

The results of the Mann-Whitney U test analysis have significant implications for the impact of gender on the assessment of mental resilience in table tennis athletes. This investigation elucidates substantial disparities in the levels of dedication, regulation, and self-assurance across female and male players, providing essential discernment for coaches, sports psychologists, and sports organizations.

The observed disparity in commitment suggests that female players exhibit a greater level of devotion and unwavering engagement to their table tennis pursuits in comparison to male athletes. These results indicate that female athletes may exhibit a more intense enthusiasm for the sport and a higher level of commitment to their training and competition preparation. Coaches and sports psychologists should acknowledge the gender-specific differences in dedication and adapt their programs for improving mental resilience to cater to the distinct requirements of female and male players. Offering focused assistance to cultivate dedication among male athletes may prove especially advantageous.

Furthermore, the notable disparity in control levels suggests that female players demonstrate superior emotional regulation abilities and composure in table tennis matches compared to their male counterparts. Consequently, female athletes may possess an enhanced capacity to regulate their emotions and adeptly handle demanding circumstances. It is imperative for sports professionals to recognize these distinctions and offer training and interventions that specifically target the improvement of emotional regulation and resilience in male athletes. Integrating tactics to instruct emotional control techniques can help reduce the disparity between genders in this domain of psychological resilience.

Furthermore, the significant disparity in confidence levels between female and male players highlights the crucial role of self-assurance in sports performance. Female athletes exhibit greater degrees of self-assurance in their table tennis skills in comparison to men athletes. This discovery implies that the development and upkeep of self-assurance could be a crucial element in the achievement of female athletes. To enhance the performance of male athletes, coaches and sports psychologists should prioritize the implementation of strategies and interventions that focus on building confidence. This will help these athletes cultivate a robust belief in their

abilities, leading to improved performance on the field.

This investigation highlights the considerable influence of gender on the assessment of mental resilience in table tennis players. Recognizing and dealing with these gender-based disparities in dedication, authority, and self-assurance can result in more efficient programs for cultivating mental resilience, thereby improving the overall performance of athletes, regardless of their gender, in the sport.

3.3.3. Years of Experience

The variations in the evaluation of mental toughness among respondents when categorized according to their years of experience are illustrated in Table 7. Since all the generated *p*-values for commitment ($H = 34.59$; $df = 4$; $p < .001$), control ($H = 47.20$; $df = 4$; $p < .001$), and confidence ($H = 45.68$; $df = 4$; $p < .001$) are lower than the alpha level of 0.05, the researcher will reject the null hypothesis. Consequently, there is a substantial difference in the evaluation of mental toughness among table tennis athletes when categorized by their years of experience, as the eta-squared value indicates a significant effect size.

The analytical findings, which classified table tennis competitors according to their years of experience, provide vital insights into the importance of experience in assessing mental resilience. These implications are especially beneficial for coaches, sports psychologists, and sports organizations aiming to improve athletes' psychological resilience in the sport of table tennis.

The observed disparities in commitment, control, and confidence across athletes with different levels of experience underscore the progressive development of mental resilience as players accumulate more exposure to the activity. A positive correlation exists between an athlete's degree of commitment and their years of experience in table tennis, suggesting that dedication to the sport intensifies with time. This discovery implies that athletes who participate in the activity for an extended period of time are more likely to have a heightened level of dedication. Coaches and sports psychologists can take advantage of this by acknowledging the significance of fostering dedication in inexperienced athletes and maintaining it as athletes advance in their careers.

Furthermore, the significant disparities in control and confidence levels, which are contingent upon the number of years of expertise, underscore the gradual enhancement of emotional regulation and self-assurance as athletes amass additional years in the sport. Athletes that possess more extensive experience have enhanced emotional regulation, signifying their capacity to effectively handle their reactions and maintain composure in difficult circumstances. Moreover, these athletes demonstrate elevated levels of trust in their table tennis skills, which indicates their enhanced self-assurance. Identifying these patterns can assist coaches and sports psychologists in customizing mental resilience training programs to cater to the distinct requirements of athletes at varying levels of expertise. Targeted therapies aimed at enhancing emotional control and building confidence can be advantageous for novice athletes, since they can expedite the development of their mental toughness.

In the final analysis, the findings highlight the ever-changing nature of mental toughness and its correlation with the number of years athletes have spent playing table tennis. Coaches and sports psychologists should examine these variables and create personalized programs to increase mental toughness, taking into account athletes' degrees of experience. Sports experts can boost the overall performance of table

tennis competitors by offering customized assistance, training, and interventions to optimize the development of mental toughness.

3.3.4. Pairwise Comparisons

The researcher employed pairwise comparison to ascertain the locations of variation in commitment, control, and confidence. Analysis of the data revealed that in commitment, the differences were found between 1-3 years and 7–10 years ($W = 5.84$; $p < .001$), as well as between 7–10 and less than 1 year ($W = -7.68$; $p < .001$). Specifically, those athletes who have 7–10 years of experience ($Md = 4.00$) were more committed than those who have 1-3 years ($Md = 3.10$) and less than a year of experience ($Md = 3.00$).

In terms of control, the differences were found between those athletes who have 1-3 and 7-10 years of experience ($W = 7.52$; $p < .001$), between 4-6 and less than a year ($W = -4.15$; $p = 0.027$), between 7-10 and less than a year ($W = -8.61$; $p < .001$), and between 7-10 and more than 10 years of experience ($W = -4.93$; $p = 0.004$). Comparing the groups, those who have experience of 7–10 years ($Md = 4.00$) and 4-6 years of experience ($Md = 4.00$) were more controlled than those who have experience of 1-3 years ($Md = 3.00$) and less than a year (3.00).

Lastly, when it comes to confidence, significant differences were found between 1-3 and 4-6 years ($W = 3.92$; $p = 0.044$), 1-3 and 7–10 years ($W = 7.13$; $p < .001$), 4-6 and less than a year ($W = -4.53$; $p = 0.012$), and 7–10 and less than a year ($W = -8.72$; $p < .001$). In particular, those who have 4-6 years ($Md = 4.00$) and 7-10 years ($Md = 4.00$) were more confident than those who have 1-3 years ($Md = 3.00$) and less than a year ($Md = 3.00$) of experience.

The outcomes of the pairwise comparison, which is founded on the athletes' years of experience, provide vital insights into the intricacies of mental fortitude development within the realm of table tennis. These findings have important ramifications for coaches, sports psychologists, and sports organizations seeking to cultivate mental resilience in players with different levels of expertise in the sport.

Firstly, the disparities in commitment levels suggest that athletes who have been involved in their sport for 7-10 years demonstrate a greater degree of dedication in comparison to those with 1-3 years and less than a year of experience. This implies that as table tennis players gain more experience, their level of devotion and allegiance to the sport tends to grow. Coaches and sports psychologists can utilize this understanding by customizing their approach to align with the changing requirements of athletes. Inexperienced athletes may necessitate targeted tactics and assistance to augment their dedication levels and guarantee their continued involvement in the sport in the long run.

Furthermore, it is worth noting the discrepancies in control proficiency across athletes with different levels of expertise. Athletes who have accumulated 7–10 years of experience, as well as those with 4-6 years of experience, exhibit superior levels of control in comparison to individuals with 1-3 years and less than a year of experience. This implies that as players get more familiar with the sport, they enhance their ability to manage their emotions and maintain composure in high-stress circumstances. In order to exploit this discovery, coaches and sports psychologists might concentrate on improving emotional control and self-regulation abilities in inexperienced athletes, thereby enabling them to achieve more consistent performance in difficult circumstances.

Furthermore, the variations in confidence levels across

athletes of varying experience levels suggest that individuals with 4-6 years and 7-10 years of experience exhibit greater confidence in comparison to those with 1-3 years and less than a year of experience. Confidence is an essential element of mental resilience, and our discoveries emphasize the beneficial influence of continuous involvement in table tennis on athletes' self-assurance. Coaches and sports psychologists can utilize this understanding to create interventions and training programs that enhance the confidence of inexperienced players, enabling them to approach their bouts with increased self-assurance.

Ultimately, the conclusions derived from the pairwise comparison analysis highlight the ever-changing nature of mental toughness growth in table tennis athletes, as influenced by their years of experience. Sports professionals can boost athletes' mental toughness and help to their overall success and resilience in the sport by identifying and addressing their individual needs based on their experience levels.

3.4. Differences in the Assessment of the Chinese Table Tennis Athletes of their Mental Toughness When Grouped according to Profile

3.4.1. Awareness

The results show how respondents rated their performance and resilience based on awareness. According to the descriptive statistics, the composite mean score was 3.43, with a standard deviation of 0.50. This indicates that respondents agree that the enhancement of their table tennis performance is substantially influenced by their physical fitness and conditioning ($M = 3.46$), that they prioritize the acquisition of adequate rest and sleep as a means of facilitating the recuperation process in relation to their table tennis performance ($M = 3.45$), and that their physical resilience plays a pivotal role in determining their overall competitiveness in the sport.

The indicator with the highest average score in the assessment of performance resilience in terms of awareness is indicator 1. This indicator implies that the improvement of my table tennis play is greatly affected by my physical health and conditioning, and it has an average score of 3.46. This suggests that table tennis athletes attach great importance to the impact of physical fitness and conditioning on their performance. This finding suggests that athletes understand the significance of maintaining peak physical fitness and conditioning as a vital component of their overall performance resilience. Coaches and sports professionals can utilize this understanding to create training programs that focus physical readiness and conditioning in order to improve athletes' performance resilience.

Conversely, the indicator with the lowest average score in this evaluation is indicator 10, which expresses the belief in one's physical ability to properly handle the physical demands of table tennis. The mean score for this indicator is 3.41. Although the mean is still rather high, it indicates that athletes may possess slightly lower confidence in their physical abilities to handle the specialized demands of table tennis in comparison to other aspects of physical fitness. There is a suggestion that sports psychologists and coaches could potentially enhance athletes' self-confidence in their ability to meet the physical requirements of the sport. Enhancing this facet of consciousness can enhance performance resilience by establishing a heightened sense of trust in athletes' physical

ability.

The highest average in performance resilience awareness emphasizes the significance that athletes attribute to physical fitness and conditioning in relation to their performance. Conversely, the lowest average underscores the potential for enhancing athletes' confidence in their capacity to handle the physical demands of the sport. Identifying and dealing with these subtle differences in consciousness can assist in the creation of all-encompassing methods to enhance the ability to bounce back from challenges for table tennis athletes.

Wang (2021) examined the relationship between pre-competition anxiety (PCA), self-reflection, and resilience in adolescent table tennis players. The study provides valuable insights that contribute to the existing knowledge on assessing the performance resilience of table tennis players, specifically in terms of their awareness. Lin Wang's research investigates the influence of self-reflection and resilience on PCA, providing insights into the psychological dimensions of competitive sports, such as table tennis. The work acknowledges the significance of introspection and adaptability in the field of sports psychology, with the goal of comprehending their functions in managing pre-competition anxiousness. Although the current findings mainly concentrate on evaluating awareness as a part of performance resilience, Wang's research expands into the wider domain of psychological preparation and coping strategies. Both studies highlight the importance of psychological characteristics in improving athletes' performance. Wang's study focuses on the relationship between self-reflection, resilience, and the ability to manage pre-competition anxiety. In contrast, the assessment of performance resilience in awareness explicitly looks at how athletes perceive their physical health and conditioning. The underlying theme is the acknowledgment of the complex interaction between psychological elements and athletic achievement.

The interconnection of psychological qualities can be used to infer implications from Wang's findings for the existing measurement of performance resilience in awareness. The study conducted by Wang highlights the strong correlation between principal component analysis (PCA), self-reflection, and resilience. This emphasizes the necessity of adopting a comprehensive psychological training method for table tennis players. Athletes' capability to successfully manage anxiety and perform well can be positively influenced by the ability to improve self-awareness and cultivate resilience. Furthermore, the finding that interpersonal support and emotional regulation can forecast PCA offers a fresh viewpoint. It implies that interventions targeting the enhancement of these factors may have a positive effect on decreasing pre-competition anxiety. This is consistent with the overarching notion of performance resilience, in which the capacity of athletes to adjust and handle diverse stressors is of paramount importance. The study reinforces the importance of psychological qualities in sports performance and provides insights into the connections between self-reflection, resilience, and PCA, thereby complementing the existing findings. The consequences involve the possibility of implementing comprehensive psychological training programs that cover not just physical awareness but also self-reflection and resilience-building tactics to improve the overall performance resilience of table tennis players.

3.4.2. Physiology

The results show how respondents evaluated their performance and resilience in terms of physiology. The

descriptive statistics revealed that the composite mean score was 3.38, with a standard deviation of 0.54. This means that the participants concur that they have an elevated degree of self-awareness concerning their physical condition during table tennis matches ($M = 3.44$). Additionally, they have a heightened sensitivity to the subtleties that are inherent in the table tennis court environment, including illumination and surface characteristics ($M = 3.39$). Lastly, they assert that their cognitive perception of their surroundings empowers them to anticipate the strategic moves of their opponent in advance ($M = 3.39$).

Evaluating the physiological performance resilience of table tennis players provides important insights regarding their psychological characteristics. The highest average, recorded in Indicator 1, underscores the players' exceptional self-awareness regarding their physical condition throughout matches. Enhanced self-awareness can greatly benefit table tennis players by allowing them to make prompt modifications according to their physical state. Individuals that possess a heightened awareness of their own physicality have the ability to quickly adjust their methods and tactics, which may result in enhanced performance and a decreased likelihood of sustaining injuries.

Conversely, the lowest average, observed in Indicator 7, suggests that certain players may not prioritize the analysis of match data, such as scores and length, during their bouts. Although the mean remains very high, this discovery implies that there is potential for enhancement regarding players' understanding of these vital match-related particulars. Having a strong understanding of match statistics can provide players with a strategic edge, enabling them to make well-informed judgments and adapt their game plans based on the changing circumstances of the match.

These findings emphasize the significance of self-awareness in the physical condition of a table tennis player. This suggests that athletes typically thrive in this area, which might have a good effect on their capacity to adapt and perform at their best during contests. Nevertheless, it underscores the need of players maintaining a high level of awareness about match data, since this knowledge can be crucial in formulating strategic choices on the table tennis court. Both coaches and players may benefit from focusing on improving both areas in order to strengthen performance resilience in the field of physiology.

The analysis of the physiological requirements of table tennis provides insight into the specific physical qualities needed to flourish in this activity. This information might be beneficial in evaluating the performance resilience of table tennis players in terms of their physiology (Kondric, Zagatto, & Sekulic, 2013). The review indicates that table tennis predominantly relies on the anaerobic alactic system during severe practice and competition. This highlights the significance of explosive power and rapid bursts of energy. This finding corresponds with the indicators evaluated in the present study, specifically the enhanced perception of timing and rhythm in performing table tennis strokes (Indicator 6). Table tennis players require the physical ability to perform quick and accurate movements, which can be ascribed to the anaerobic alactic system. Hence, players who demonstrate exceptional proficiency in this area are more likely to display enhanced performance resilience when completing accurate and precisely timed strokes.

Furthermore, the review highlights the significance of the endurance system in facilitating recovery following rigorous

training and competition. It emphasizes the importance of players possessing a robust endurance to swiftly recuperate for next matches and competition days. This observation aligns with the overarching concept of performance resilience, as athletes with superior stamina are more prone to recover and exhibit consistent performance across competitions.

In a nutshell, the examination of table tennis's physiological requirements underscores the significance of physical characteristics such as rapid force generation, brief surges of energy, and stamina in the sport. These traits have a direct correlation with physiological performance resilience, hence providing additional support for the current findings. Coaches and athletes can utilize this information to customize training programs in order to optimize these particular physiological factors, thereby enhancing performance in table tennis.

3.4.3. Meaning

The meaning-based ratings of respondents regarding their performance resilience are presented in Table 11. The descriptive statistics indicated that the mean composite score was 3.39, accompanied by a 0.52 standard deviation. This suggests that the athletes hold the belief that their physical fitness and conditioning have a significant impact on improving their table tennis performance ($M = 3.43$). Furthermore, they demonstrate a commitment to prevent and rehabilitate injuries as proactive measures to maintain optimal physical fitness ($M = 3.43$), and they place sufficient importance on obtaining sufficient rest and sleep to aid in the recovery process with regard to their table tennis performance ($M = 3.40$).

Indicator 1 obtained the highest mean score of 3.43 in the evaluation of performance resilience among table tennis athletes. This indicator highlights the significant impact of an athlete's physical fitness and conditioning on their success in table tennis. The elevated average indicates that table tennis players possess a keen understanding of the crucial significance that physical fitness holds in their competitive pursuits. This suggests that athletes are inclined to give higher importance to their physical training and conditioning routines, focusing on elements such as stamina and power, which are crucial for achieving success in table tennis.

In contrast, Indicator 8 achieved the lowest average score of 3.34 in the examination. This indicator focuses on athletes following a carefully designed pre-match routine to prepare their body for peak performance. The lower mean for this metric suggests that there is potential for enhancing the consistency with which athletes adhere to prescribed pre-match preparations. It indicates a domain in which athletes could gain advantages from more stringent and all-encompassing pre-match preparations to guarantee that they are physically and mentally prepared to excel during competitive contests.

These findings highlight the significance of physical fitness and conditioning for maintaining resilience in table tennis play. Although athletes seem to recognize the importance of these aspects, there is room for improving their pre-match preparations. Coaches and athletes can utilize this knowledge to enhance their training tactics and pre-match routines, ultimately leading to increased competitiveness in the sport of table tennis.

Wang's (2023) work in the field of table tennis offers significant insights that bolster the existing research on the sport's performance resilience, particularly in relation to its significance. The research aims to comprehend the impact of

self-reflection and resilience on pre-competition anxiety (PCA) in adolescent table tennis players. This study is consistent with the larger framework of performance resilience, as it investigates psychological elements that can affect the mental state of athletes before the competition. It revealed a robust correlation between PCA, introspection, and resilience. This finding is noteworthy as it emphasizes the significance of mental and emotional elements in an athlete's performance, which supplements the evaluation of performance resilience in terms of significance. Within the realm of table tennis, where concentration, focus, and mental fortitude are crucial, this study emphasizes the significance of self-reflection and resilience as potential factors that can aid an athlete in effectively handling anxiety prior to a match.

In addition, Wang's research demonstrated that self-awareness is a significant predictor of cognitive anxiety, somatic anxiety, and self-confidence. Moreover, interpersonal support and emotional regulation were found to predict self-confidence. This implies that an athlete's aptitude for introspection and emotional self-regulation, as well as their ability to navigate social interactions and emotions, can influence their levels of anxiety before a competition. The findings highlight the complex nature of performance resilience and its correlation with an athlete's psychological readiness.

Given these findings, it is crucial for table tennis athletes and coaches to acknowledge the importance of fostering self-reflection and resilience as integral components of their training and mental preparation tactics. To improve their performance on the table tennis court, athletes can boost their capacity to control anxiety by focusing on these characteristics.

3.4.4. Emotion

The results show how respondents rated their performance resilience in terms of emotion. The descriptive statistics showed that the composite mean score was 3.40, with a standard deviation of 0.51. This suggests that the participants are in agreement that engaging in table tennis offers them a deep sense of self-identity and a sense of belongingness within a community ($M = 3.42$). Furthermore, the participants believe that table tennis positively influences their overall life satisfaction and happiness ($M = 3.42$), and that it provides an avenue for personal growth and the exploration of one's own identity ($M = 3.41$).

The indicator with the highest average score in terms of emotional performance resilience is Indicator 2: "The sport of table tennis provides me with a deep sense of personal identity and a feeling of belonging to a community," with an average score of 3.42. Conversely, Indicator 10, which states "The inherent importance of table tennis motivates me to consistently strive for exceptional performance," has the lowest average score of 3.38.

These findings have significant ramifications for comprehending the emotional component of performance resilience among table tennis competitors. Indicator 2 emphasizes the significance of a robust sense of individual identity and communal belonging in the realm of sports. Athletes that experience a deep affinity towards the sport and its community may exhibit greater emotional resilience, as they derive support, inspiration, and a feeling of belonging from their engagement in table tennis.

However, Indicator 10 indicates that although the inherent importance of table tennis is still rather high, it is slightly lower in contrast. This suggests that although athletes

consider table tennis to be personally meaningful, it may not be the main motivating factor behind their quest of extraordinary performance. Additional causes and motivations, including both internal and external influences, are likely to contribute to their commitment to the sport.

The emotional component of performance resilience in table tennis is intricately linked to an athlete's perception of self, affiliation, and the importance they assign to the sport. In order to bolster emotional resilience among table tennis players, it is imperative for coaches and organizations to cultivate a welcoming and inclusive environment, while simultaneously acknowledging and supporting each athlete's individual attachment to the sport. Gaining insight into these emotional dynamics helps enhance the overall psychological and emotional welfare of table tennis athletes.

Fritsch et al (2021) provides insight into the behavioral aspect of emotions and its influence on athletes' performance and psychological well-being. This research offers useful information that can support and enhance the existing findings about the resilience of table tennis performance in relation to emotions. Their study examines the factors that come before and after outward emotional reactions, emphasizing the complex relationship between emotions and performance. It is essential to comprehend the reasons behind athletes' external emotional expressions and the impact of these expressions on both the athlete's mental well-being and their opponent's psychological state. This is consistent with the notion of performance resilience, which entails the capacity to efficiently handle and react to emotional encounters in competitive settings.

When comparing the outcomes of this study with the evaluation of performance resilience in relation to emotion, it becomes clear that outward emotional reactions can be both adaptable and less adaptable, driven by many factors. These characteristics may encompass psychological states that resemble a state of mind (which may be easily altered) and factors that are inherent to the athlete's personality and more resistant to change. The consequences on the ability of table tennis players to maintain high performance levels despite challenges are substantial. Enhancing the understanding of the factors that trigger visible emotional responses can be advantageous for coaches and athletes. This knowledge enables them to devise effective techniques for managing and restraining their emotions. By incorporating this consciousness into psychological skills training, athletes can enhance their ability to regulate their emotional reactions and sustain their attention and concentration during competitions.

Moreover, the study highlights the need of taking into account the behavioral aspect of emotions in the relationship between emotions and performance. This highlights that emotions are not only internal experiences but also have external effects on relationships between people. These repercussions have the potential to impact an adversary's self-assurance and, consequently, the whole dynamics of the game. Thus, table tennis athletes can improve their ability to withstand and recover from challenges by comprehending and utilizing the behavioral dimensions of their emotions, ultimately leading to their competitive triumph.

Overall, the research on outward emotional responses in table tennis offers useful insights into the behavioral aspect of emotions and its influence on athletic performance. By incorporating the data from the study on Table Tennis Performance Resilience in relation to Emotion, a comprehensive viewpoint is provided on how athletes can

improve their emotional resilience and, as a result, their overall performance. These findings can be utilized by coaches, athletes, and sports psychologists to create specific therapies that enhance emotional regulation and overall well-being in the very competitive sport of table tennis.

3.4.5. Mastery

The assessment of the respondents' performance resilience with regards to mastery is presented in Table 13. According to the descriptive statistics, the composite mean score is 3.40, with a standard deviation of 0.51, suggesting that the athletes have an average rating on this particular domain. Furthermore, this indicates that they concur that an individual's emotional resilience plays a crucial role in their capacity to promptly rebound from challenges ($M = 3.44$), that developing emotional resilience is a fundamental cornerstone of my psychological fortitude in the context of table tennis ($M = 3.44$), and that they possess the ability to effectively manage and harness their emotions to enhance their performance in table tennis ($M = 3.41$).

The evaluation of Performance Resilience, specifically in terms of Mastery, provides significant insights into the psychological readiness and emotional regulation abilities of table tennis players. The athletes' remarkable capacity to quickly overcome challenges faced during competitive matches is exemplified by the highest average score of 3.44. This indicates that these players demonstrate exceptional emotional fortitude, enabling them to recover quickly from adversities or obstacles encountered during table tennis matches. Conversely, the lowest average score of 3.40 indicates that although players are skilled at recovering emotionally, there is potential for enhancing their ability to channel their emotions in a way that generates productive energy during gameplay. However, the average composite mean of 3.41 highlights the essential importance of emotional control in the mental resilience of these athletes. Their proficiency in effectively managing and exploiting emotions, remaining composed in high-pressure situations, and employing emotional intelligence greatly enhances their resilience and, eventually, their success on the table. These findings highlight the significance of emotional regulation and resilience training in improving the psychological preparedness of table tennis players.

In a study by Bastug (2021), an examination of attention, focus, and mental resilience characteristics in several racquet sports, such as table tennis, table tennis, and badminton, illuminates the unique psychological qualities exhibited by athletes in these fields. A total of 61 athletes participating in these sports were evaluated for their attention, focus, and mental resilience attributes in this study. The findings indicated that there were notable variations in concentration performance among the groups, with table tennis athletes displaying superior levels of concentration in comparison to their table tennis and badminton counterparts.

This discovery contributes a vital aspect to the existing comprehension of table tennis players' ability to perform consistently well in terms of expertise. The previous assessment mostly emphasized emotional components and emotional management, but the study on racket sports, including table tennis, explores the domain of attention and concentration. It emphasizes the significance of concentration as a pivotal element in the psychological composition of athletes, especially in sports that require quick decision-making and precision.

This study emphasizes the need of improving and refining

focus abilities for table tennis players who want to boost their performance resilience. The exceptional focus exhibited by table tennis competitors implies that focused training in this domain could be advantageous for table tennis players as well. Implementing tactics designed to enhance concentration, minimize interruptions, and augment cognitive acuity can assist table tennis competitors in preserving their composure and making excellent judgments under high-stress circumstances.

Ultimately, the examination of focus, concentration, and psychological resilience in racket sports offers significant perspectives that enhance our understanding of the performance endurance of table tennis players. This statement highlights the importance of focus as a crucial aspect of mental preparedness and proposes potential areas for additional investigation and training to improve the mental resilience of table tennis competitors.

3.5. Difference in the Assessment of the Chinese Table Tennis Athletes of their Performance Resilience When Grouped According to Profile

3.5.1. Age

The variations in the evaluation of performance resilience among respondents when categorized by age are illustrated in Table 14. Analysis of the Kruskal-Wallis test revealed p-values lower than the 0.05 level of significance for awareness ($H = 12.48$; $df = 4$; $p = 0.014$), physiology ($H = 13.10$; $df = 4$; $p = 0.011$), emotions ($H = 13.75$; $df = 4$; $p = 0.008$), and mastery ($H = 12.29$; $df = 4$; $p = 0.015$), the researcher will reject the null hypothesis. The evaluation of performance resilience varies considerably, with a moderate effect size, when table tennis athletes are categorized according to their age. On the other hand, regardless of their age, their level of meaning ($H = 8.84$; $df = 4$; $p = 0.065$) is the same.

The analysis of performance resilience among table tennis athletes, grouped by age, yields significant implications for coaches, athletes, and sports psychologists. Age has a notable impact on how athletes perceive and handle psychological components of their performance, such as awareness, physiology, emotions, and mastery. There are considerable differences in performance resilience among different age groups. When creating training and mental conditioning programs, coaches and sports psychologists should consider these variations that occur with age.

Younger athletes, especially those under the age of 18, may require specific interventions to improve their awareness, physiological control, emotional regulation, and mastery of table tennis skills. Possible interventions may encompass mindfulness training, emotional intelligence enhancement, and customized mental skills training designed to address the unique requirements and obstacles encountered by younger athletes.

On the other hand, older athletes, specifically those aged 18-24 or 25-30, can derive advantages from advanced mental toughness training programs that specifically target the preservation and enhancement of their resilience in several aspects such as awareness, physiology, emotions, and mastery. These athletes have probably acquired important expertise over the years and could benefit from employing more sophisticated psychological tactics to enhance their performance.

Furthermore, the uniformity of the value attributed to table tennis among individuals of different age groups indicates

that the sense of purpose and importance associated with the sport remains stable, irrespective of age. This discovery emphasizes the inherent drive and enthusiasm that table tennis athletes possess for the sport, which is a favorable factor for long-term commitment and devotion. The variations in performance resilience observed among table tennis athletes of different ages emphasize the significance of customizing mental training regimens to cater to the distinct requirements and stages of development of athletes at various phases of their careers. This study offers significant insights for coaches and sports psychologists aiming to enhance the psychological components of performance for table tennis participants across different age cohorts.

The pairwise comparison revealed significant differences in awareness, physiology, emotions, and mastery between 18–24-year-olds and under-18-year-olds. In particular, those table tennis athletes who are between 18 and 24 years old scored higher on those domains than those who are under 18 years old.

The notable disparities in performance resilience categories between table tennis athletes aged 18-24 and those under 18 have several complex ramifications that offer valuable insights for coaches, athletes, and sports psychologists. First and foremost, our findings emphasize the importance of customizing training regimens to match the developmental requirements of each specific age group. Athletes in the age range of 18 to 24 demonstrate elevated levels of consciousness, enhanced physiological management, superior emotional regulation, and increased proficiency in their abilities. Hence, coaching tactics must recognize these discrepancies, wherein younger athletes necessitate organized training to close the disparity. Moreover, comprehending the developing paths of performance resilience can assist coaches in setting practical anticipations for athletes at various points in their professional journeys.

Furthermore, the findings underscore the significance of adopting a table tennis approach that focuses on the long-term development of athletes. As athletes grow older and gain more experience, they naturally improve their ability to withstand and recover from challenges and setbacks in their performance. This information can provide coaches with valuable guidance in properly managing and fostering talent over the course of several years. Furthermore, it emphasizes the necessity of a consistent and comprehensive system of assistance and direction throughout an athlete's progression, spanning from their initial stages to their highest levels of achievement.

Moreover, these discoveries possess pragmatic implications within the domain of mental training treatments. Coaches and sports psychologists can utilize this knowledge to develop specialized programs that address the specific requirements of various age demographics. Interventions targeting the development of fundamental abilities in areas such as awareness, physiology, emotions, and mastery may be advantageous for younger athletes. Conversely, older athletes, who already possess abilities in these domains, might employ more sophisticated tactics to augment their resilience and mental toughness.

Furthermore, the outcomes could provide valuable insights for developing and maintaining effective methods for identifying and retaining talented individuals in the sport of table tennis. Coaches should specifically focus on under-18 athletes who have high levels of performance resilience. These individuals have the potential to become prominent

figures in the sport and should be encouraged and supported in a way that promotes their advancement and progress as top-tier table tennis players.

Finally, the idea of mentorship and peer support arises as a helpful method for developing performance resilience. Elderly athletes who exhibit exceptional perseverance might act as mentors and exemplars for their younger colleagues. The presence of peer support and mentorship in the training environment can exert a beneficial impact on the younger athletes, fostering their holistic growth and fostering a culture characterized by resilience and excellence.

Ultimately, it is essential to acknowledge and tackle the variations in performance resilience that arise due to age among table tennis athletes in order to maximize athlete growth and achieve optimal performance results. Customizing training programs, embracing a future-oriented approach, creating impactful psychological training interventions, recognizing and cultivating talent, and promoting mentorship and peer support are all essential techniques that can enhance the achievement and development of players in the sport.

3.5.2. Sex

The Mann-Whitney U test was used to see if putting athletes into groups based on their gender makes a statistically significant difference in how resilient they are to performance. Since all the generated p-values for awareness ($U = 3558.00$; $p = < .001$), physiology ($U = 3344.00$; $p = < .001$), meaning ($U = 3184.00$; $p = < 0.001$), emotions ($U = 3266.00$; $p = < 0.001$), and mastery ($U = 3573.50$; $p = 0.001$) are lower than the 0.05 level of significance, the researcher will reject the null hypothesis. Therefore, it can be concluded that there is a significant difference in the performance resilience based on the respondents' gender. Specifically, female athletes scored higher in all of the domains than male athletes for 26 to 34%, based on the effect size.

The gender-based disparities in performance resilience among table tennis athletes have significant ramifications and offer valuable insights for the field of sports psychology and coaching. The findings emphasize the significance of acknowledging and tackling gender-specific requirements in mental training and the cultivation of resilience. Female athletes, as evidenced by the findings, demonstrate elevated levels of consciousness, enhanced physiological regulation, increased significance, improved emotional management, and superior expertise in their respective sport in comparison to male athletes. Hence, it is imperative to develop customized mental training regimens that specifically address these unique requirements and leverage the exceptional abilities demonstrated by female athletes.

Furthermore, the notable disparities in performance resilience between women emphasize the necessity of gender-sensitive coaching and mentorship. Coaches and sports psychologists dealing with female table tennis participants should possess knowledge of the distinct obstacles and advantages that are linked to their gender. Coaches can utilize this insight to offer specific assistance, comments, and tactics that are in line with the distinct psychological characteristics of female athletes. Additionally, it may foster the cultivation of female exemplars and mentors within the athletic domain, thereby enhancing the empowerment of female athletes.

Furthermore, the findings have significant ramifications for the identification and recruiting of talented individuals in the sport of table tennis. Given the fact that female athletes demonstrate greater degrees of performance resilience, talent

scouts and coaches should consider allocating more resources towards the identification and development of female talent. This can enhance the expansion and competitiveness of women's table tennis at both the domestic and global levels.

Furthermore, the results question conventional gender norms in athletics and highlight that women athletes possess equal or even greater levels of performance resilience compared to men, particularly in specific areas. This acknowledgment has the potential to promote a more comprehensive and fair method in athletics, as competitors are assessed according to their personal ability rather than preconceived gender norms.

Furthermore, the disparities in performance resilience depending on gender can serve as a catalyst for cooperative investigation and exchange of information within the realm of sports psychology. Researchers can investigate the fundamental reasons that contribute to these disparities and create specific therapies to further improve the ability to recover from setbacks in male and female athletes.

Ultimately, recognizing and utilizing the gender-related differences in performance resilience is crucial for maximizing athlete growth and achievement in table tennis. Customized cognitive conditioning, coaching that takes into account gender-specific needs, identification of exceptional abilities, questioning and overcoming preconceived notions, and joint research endeavors can all together promote a stronger and more equitable sports atmosphere for athletes of all genders.

3.5.3. Years of Experience

When respondents were put into groups based on how many years of experience they had, Table 16 shows how their ratings of performance resilience changed. Since all the generated p-values for awareness ($H = 52.39$; $df = 4$; $p < .001$), physiology ($H = 50.54$; $df = 4$; $p < .001$), meaning ($H = 47.83$; $df = 4$; $p < .001$), emotions ($H = 47.00$; $df = 4$; $p < .001$), mastery ($H = 45.20$; $df = 4$; $p < .001$) are lower than the alpha level of 0.05, the researcher will reject the null hypothesis. So, there is a big difference in how table tennis players' performance is judged based on how many years of experience they have, as shown by the eta-square. The discovered disparities in performance resilience among table tennis athletes, dependent on their years of experience, have major implications for athlete development, coaching, and sports psychology. These findings offer useful insights into the gradual development of performance resilience and illuminate the transformation of athletes' mental qualities as they accumulate experience in the activity.

The variations in performance resilience based on experience levels emphasize the need for customized training and mental conditioning regimens. It is important for coaches and sports psychologists to acknowledge that players at different points in their careers have unique mental characteristics. Athletes who have accumulated more experience, as seen by their results, generally demonstrate elevated levels of awareness, enhanced physiological control, deeper sense of purpose, increased emotional management, and superior mastery. Recognizing these disparities can guide the creation of focused programs to tackle certain requirements and enhance cognitive qualities at every phase of an athlete's growth.

Furthermore, the results highlight the significance of accumulated experience in improving the ability to recover from setbacks and maintain success. Table tennis athletes with more extensive experience tend to have higher levels of

mental resilience. This highlights the importance of continuous involvement and competitive experience in the sport. It suggests that athletes and coaches should encourage ongoing engagement and competition to promote the growth of mental fortitude and resilience. The implications encompass talent discovery and the establishment of long-term athlete development routes. Given that performance resilience enhances with experience, talent scouts and coaching programs can prioritize the long-term development of athletes rather than anticipating instant outcomes. Recognizing and providing assistance to athletes who possess the capacity for enduring growth in resilience can be a strategic method for developing a robust talent pool in the sport of table tennis.

The results contradict the belief that mental characteristics are immutable and unalterable. The variations in performance resilience observed among different experience levels suggest that cognitive abilities are adaptable and can be enhanced through time. This implies that athletes, irrespective of their basic mental characteristics, possess the capacity to enhance their performance resilience through focused training and assistance. The substantial impact size identified in the disparities among experience levels highlights the practical importance of these findings. Confidence can be placed by coaches and sports psychologists in the significant effectiveness of customized therapies designed to improve performance resilience in athletes of different skill levels.

In a nutshell, comprehending the progression of performance resilience in table tennis with experience offers a strategic plan for enhancing athlete growth and psychological preparation. The findings highlight the importance of customized programs, continuous involvement, tactics for identifying talented individuals, a mindset focused on progress, and acknowledging the practical importance of these factors. In conclusion, these consequences contribute to the comprehensive growth of table tennis athletes and the fostering of cognitive qualities that can result in achievement in the sports value, which is a significant medium effect size.

The researcher employed pairwise comparison to ascertain the locations of variation in performance resilience. Analysis of the data revealed that significant differences found between 1-3 years and 4-6 years, 1-3 years and 7-10 years, 4-6 years and less than 1 year, 7-10 years and less than 1 year, and between 7-10 years and more than 10 years of experience. Comparing the groups, those table tennis athletes who have 4-6 years ($Md = 4.00$) and 7-10 ($Md = 4.00$) years of experience have higher scores in performance resilience together its domains than those who have 1-3, less than 1 year, and more than 10 years of experience playing table tennis.

The examination of comparing performance resilience in table tennis among different experience levels has significant implications for athlete development and coaching tactics. The observed variations in performance resilience across athletes with different levels of experience highlight the possibility of gradual improvement in mental qualities over time. Athletes who have committed 4-6 years and 7-10 years to table tennis demonstrate significantly greater levels of performance resilience, suggesting that these qualities can be improved through ongoing mental training and experience. This discovery provides significant advice for coaches and athletes, highlighting the importance of persistence and ongoing mental training throughout an athlete's career.

Additionally, the findings indicate that there is an ideal level of experience that promotes the development of

performance resilience. Athletes who have been involved in their sport for 4-6 and 7-10 years demonstrate exceptional mental qualities. Consequently, it suggests that focused mental training programs and treatments might yield the greatest results throughout these critical stages of an athlete's growth. Coaches can utilize this knowledge to strategically design and customize training programs for athletes in this spectrum of experience, thereby optimizing their capacity for mental resilience.

In contrast, the findings indicate that there may be limits to the ability to maintain high performance levels beyond 10 years of experience, as well as during the early phases of 1-3 years. Athletes that have less than 1 year of experience exhibited lower scores in performance resilience, indicating a period of learning and improvement during their initial engagement in table tennis. In addition, individuals with over a decade of experience did not demonstrate notable enhancements in performance resilience as compared to those with 4-6 and 7-10 years of experience. Coaches must stay alert to these possible plateaus, enabling them to make necessary modifications in training tactics to effectively tackle specific stages of development.

These findings highlight the significance of customized mental training regimens that are designed according to an athlete's years of experience. Athletes who are in the initial phase (1-3 years) of their training may find it advantageous to engage in fundamental mental resilience training. On the other hand, those with 4-6 and 7-10 years of expertise can explore more sophisticated strategies to augment their performance resilience. Consistent observation and adjustment of mental training techniques are essential elements in the growth of athletes, guaranteeing that mental qualities stay a top concern throughout an athlete's professional journey. To summarize, the findings of this investigation offer significant knowledge for improving the psychological resilience of table tennis competitors and strengthening their competitive advantage in the sport.

3.6. Relationship between the Chinese Table Tennis Athletes' Mental Toughness and Performance Resilience

The correlation matrix summarizes the relationship between athletes' mental toughness and performance resilience. The Spearman's rho correlation analysis revealed p-values of less than $<.001$, which is less than the 0.05 level of significance across all domains. This means that the null hypothesis will be rejected, indicating a significant relationship between the variables. Specifically, the assessment of mental toughness, which includes commitment, control, and confidence, is correlated with the assessment of performance resilience based on awareness, physiology, meaning, emotions, and mastery. The correlation coefficients varied between 0.75 to 0.90, indicating a relationship ranging from strong to extremely strong. The coefficients are positive, indicating that as the level of mental toughness increases, the assessment of performance resilience will also increase, and vice versa.

The correlation analysis between athletes' mental toughness and performance resilience yields useful insights into the interdependence of two crucial psychological traits within the realm of table tennis. The significant positive connections revealed in all areas of mental toughness and performance resilience highlight the essential role that mental qualities play in an athlete's overall performance.

The interconnections between commitment, control, and confidence in mental toughness and performance resilience emphasize the comprehensive aspect of athlete development. Athletes that have elevated degrees of dedication, self-regulation, and self-assurance are also more inclined to possess enhanced consciousness, physiological flexibility, a sense of purpose, emotional fortitude, and expertise in their performance. This interaction highlights the importance of implementing comprehensive mental training regimens that encompass all aspects of mental resilience in order to cultivate a versatile and resilient athlete.

Moreover, the presence of positive associations suggests that as athletes improve their mental toughness, they simultaneously bolster their performance resilience. The discovery has significant ramifications for athlete development, indicating that focused mental resilience training can serve as a successful approach to enhance an athlete's capacity to adjust to diverse obstacles and stressors in the sport of table tennis. Coaches and athletes can utilize this understanding to create customized mental training programs that prioritize improving dedication, self-regulation, and self-assurance, ultimately strengthening performance endurance.

The results highlight the mutually beneficial connection between mental characteristics and performance results in table tennis. Athletes who prioritize the development of their mental toughness are likely to witness a beneficial chain reaction, resulting in enhanced performance resilience in various areas. This highlights the significance of incorporating mental training as an essential element of an athlete's holistic growth, allowing them to excel in the highly competitive realm of table tennis. To summarize, the correlation study reveals the interdependent relationship between mental toughness and performance resilience, providing significant recommendations for players and coaches aiming for excellence in the sport.

4. Conclusion

1. The existence of a substantial proportion of youthful athletes (aged 18-24) indicates a potential talent reservoir that necessitates focused cultivation and assistance.
2. The average assessments of athletes in areas of mental toughness indicate the necessity for targeted mental training programs to enhance their psychological resilience and performance.
3. The significance of customized mental training programs for athletes in various categories is underscored by the differences in mental toughness observed across age, gender, and experience.
4. The overall equitable sense of performance resilience among Chinese table tennis athletes suggests a strong basis in managing psychological aspects of performance, which can be enhanced by ongoing support.
5. Tailored cognitive training interventions are necessary to enhance athletes' consciousness, physiological responses, emotional states, and expertise, taking into account variations in age, gender, and level of experience.
6. The significant positive link between mental toughness and performance resilience highlights the essential importance of mental training in improving athletes' capacity to overcome obstacles and achieve optimal performance.

5. Recommendations

1. Implement specialized talent development initiatives to cultivate young athletes (between the ages of 18 and 24) and promote their progression into accomplished table tennis players at the highest level.

2. Develop customized mental training programs to optimize athletes' psychological fortitude and overall proficiency, targeting specific facets of mental resilience (dedication, self-regulation, self-assurance, and embracing adversity) that require enhancement.

3. Identify the varying mental resilience requirements of athletes, taking into account factors such as age, gender, and experience. Create tailored mental training programs to enhance their mental readiness.

4. Offer continuous psychological assistance and guidance to enhance athletes' ability to cope with and overcome challenges, capitalizing on their already solid groundwork in managing psychological aspects of performance.

5. Create cognitive training interventions aimed at improving athletes' awareness, physiological responses, emotional management, and mastery. Customize these interventions to suit differences in age, gender, and experience levels.

6. Incorporate mental resilience training as a fundamental element of athletes' comprehensive training program, highlighting its significance in augmenting their capacity to surmount obstacles and achieve exceptional performance.

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