

# Optimizing Performance in Wushu Sanda: The Combined Influence of Mental Preparation and Physical Training on Competition Success

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**Abstract:** This research aims to analyze the influence of mental preparation and physical training on the competitive performance of Wushu Sanda players. The study will specifically concentrate on essential aspects such as goal setting, visualization, positive self-talk, attentional focus, confidence development, and emotional regulation. The survey also assesses the level of physical training in many areas, such as resistance training, explosive exercises, speed and agility exercises, flexibility training, cardiovascular conditioning, and core strength training. A dataset was obtained from a sample of 250 Wushu Sanda athletes, primarily male (68%) and aged between 18 and 21 (91%), who had been involved in the sport for 4-6 years. The results indicated that athletes place high importance on and successfully use mental preparation techniques, with notable variations seen depending on gender and age. Male and older athletes often assessed their mental preparation more favorably than their peers. The research revealed that athletes participate in high-intensity training in several domains, explicitly focusing on strength training. Sex was a significant factor in training intensity, with males demonstrating a higher engagement in high-intensity strength training. Furthermore, the research indicated favorable associations between mental preparation tactics and the level of physical training intensity. However, it was observed that enhanced cardiovascular fitness somewhat diminished the emphasis on mental preparation. A thorough periodized training program was designed based on these findings to boost Wushu Sanda competitors' psychological and physical readiness, ensuring they are ideally prepared for competition.

**Keywords:** Goal Setting; Visualization; Positive Self-Talk; Attentional Focus; Confidence Development; Emotional Regulation.

## 1. Introduction

Wushu Sanda, a combat sport originating from ancient Chinese martial arts, has achieved considerable recognition in China and worldwide (Chen et al., 2019). Wushu Sanda is a thrilling and dynamic kind of martial arts competition that combines impressive striking techniques, throws, and grappling. The sport has had a significant increase in popularity in recent years, especially in China, where it is highly valued in the country's sports culture (Zhou et al., 2020).

Nevertheless, Wushu Sanda encounters several obstacles that impede the enhancement of athletes' performance and overall triumph in competition, despite its increasing acknowledgement and participation rates (Li & Hong, 2018). This introduction seeks to examine the current state of Wushu Sanda in China, address the problems and difficulties faced by the sport, emphasize the role of mental preparation and physical training in improving athletes' performance, and emphasize the importance of this study in filling crucial research gaps and advancing the comprehension of optimal training strategies for Wushu Sanda athletes in China.

## 2. Statement of the Problem

This study aims to assess the combined influence of mental preparation and physical training on competition success of Wushu Sanda participants. Specifically, this study dealt with the following queries.

(1) What is profile of the respondents in terms of:

1) sex

2) age

3) Years of Experience

(2) What is the assessment of the participants of their mental preparations in Wushu Sanda in terms of:

1) goal setting

2) visualization

3) positive self-talk

4) attentional focus

5) confidence building

6) emotional regulation

(3) Is there a significant difference in the assessment of the participant when they are grouped according to profile?

(4) What is the level of intensity of the participants' physical training in Wushu Sanda in terms of:

1) strength training

2) plyometric exercises

3) speed and agility drills

4) flexibility training

5) cardiovascular conditioning

6) core strength training

(5) Is there a significant difference in the intensity of physical training in Wushu Sanda when they are grouped according to profile?

(6) Is there a significant relationship between mental health preparation and the intensity of physical training among Wushu Sanda participants?

(7) Based on the results of the study, what enhanced periodized training plan can be designed to support wushu sanda athletes in the competition?

### 3. Scope and Limitation

This study aimed to investigate the combined influence of mental readiness and physical conditioning on the performance of Wushu Sanda players in competitive environments, especially within the context of five universities in China. The research focused on assessing athletes' subjective assessments of their cognitive preparation tactics and the intensity of their physical training routines. The study primarily examined the relationship between these traits and their impact on the performance outcomes of participants in Wushu Sanda competitions. The participants were selected via purposive sampling, specifically targeting athletes actively engaged in competitive Wushu Sanda. The study examines the relationship between psychological and physiological factors in training and their influence on competition performance in Wushu Sanda players in a university setting.

Despite the thoroughness of this investigation, certain limitations required acknowledgment. The research findings may need more generalizability to a broader population outside the particular group of athletes selected from five institutions in China, thereby limiting the study's external validity. Furthermore, the study's reliance on self-reported data may have introduced response bias and errors in assessing athletes' mental preparation and physical training intensity. Moreover, the study's cross-sectional methodology limited its ability to establish a causal association between psychological and physical factors and performance in competitive settings. In addition, purposive sampling may have introduced selection bias, leading to the omission of athletes with unique characteristics or experiences from the study sample.

Nevertheless, it is worth mentioning that the study's focus on university-level athletes may not fully include the experiences of top or professional Wushu Sanda competitors. Consequently, the generalizability of the findings to more advanced competitive scenarios may have needed to be improved. It was crucial to consider these limitations while examining the study's results and implications.

## 4. Methodology

### 4.1. Research Design

The research design of this study employed a descriptive comparative correlational approach, integrating aspects of descriptive, comparative, and correlational research methodologies to comprehensively examine the collective influence of mental preparation and physical training on the success of Wushu Sanda athletes in competition. The research aimed to provide a comprehensive overview of the demographic characteristics of Wushu Sanda athletes, including age, gender, and years of experience. The inclusion of this descriptive component enabled researchers to provide a comprehensive overview of the study population, establishing a solid foundation for future investigations. The comparative aspect of the research design allowed comparisons across different groups of athletes according to demographic characteristics, offering in-depth insights into potential variations in perceptions and experiences across demographic categories. The researchers thoroughly categorized people based on relevant parameters to identify trends and differences in athletes' mental preparation techniques and physical training intensity. In addition, the

study design included a correlational component that examined the relationships between essential aspects such as methods of mental preparation, intensity of physical training, and performance in competition. By conducting correlation studies, researchers were able to ascertain the extent and nature of the links between these components, providing a valuable understanding of the complex interplay that impacted athletes' performance outcomes. In summary, the descriptive comparative correlational technique offered a robust framework for studying the intricate dynamics that contribute to the performance of Wushu Sanda players. This method facilitated a comprehensive comprehension of the factors that impact competitive success in this athletic domain.

### 4.2. Sampling Method

The study's participants were selected using purposive sampling, a non-probability approach that entailed intentionally picking people based on specific criteria related to the research objectives. The initiative strongly emphasized the recruitment of Wushu Sanda athletes from five colleges in China. Purposive sampling facilitated the intentional selection of persons with the requisite characteristics and experiences to provide significant insights into the study matter. The choice of colleges was based on specific criteria, including competitive Wushu Sanda programs, convenient accessibility for athletes, and various geographic regions to ensure comprehensive representation. Once the institutions were identified, potential participants were approached by establishing collaboration with the university sports departments or Wushu Sanda coaches. The study invited Wushu Sanda athletes who met the qualifying criteria to participate.

The qualifying criteria included factors such as active enrollment as a university student, participation in Wushu Sanda competitions during the specified period, and willingness to provide informed permission for participation in the research project. The researchers endeavored to recruit a diverse sample of athletes, including various demographic features, experience levels, and competitive successes, to include a broad spectrum of perspectives. The study used purposive sampling to choose individuals with the requisite knowledge and experiences relevant to the research objectives. This strategy enhanced the accuracy and comprehensiveness of the acquired data. The researchers intentionally selected participants from institutions with established Wushu Sanda programs to guarantee that they had athletes with the necessary abilities and knowledge to address the study's problems effectively.

### 4.3. Instrumentation

The research used a well-crafted, self-developed questionnaire to assess crucial aspects of mental preparedness, physical fitness, and performance in competition among Wushu Sanda athletes. The questionnaire was meticulously crafted in an iterative process, incorporating up-to-date research, theoretical frameworks, and expert guidance. This ensured that information was both relevant and congruent with the research objectives. The questionnaire was structured into many sections, beginning with gathering demographic information, including age, gender, years of experience in Wushu Sanda, and university affiliation. This information was used to provide the foundation for further investigation. The subsequent sections examined the assessment of athletes' cognitive readiness techniques, including elements such as

goal setting, mental imagery, positive self-talk, focus, building self-assurance, and emotional regulation. Furthermore, the questionnaire examined the extent and regularity of players' physical training regimens in several facets of Wushu Sanda training, including strength, plyometrics, agility, flexibility, cardiovascular fitness, and core strength. An exclusive segment evaluated the degree of triumph in Wushu Sanda competitions, including athletes' involvement history, performance achievements, and subjective evaluations of their triumphs.

Before being implemented, the questionnaire underwent rigorous validation methods to ensure its reliability and validity. The content validity was established by an expert examination conducted by Wushu Sanda coaches, sports psychologists, and researchers. Subsequently, a pilot testing phase was performed with a restricted group of athletes to improve the system's clarity, comprehensibility, and practicality. These meticulous methods in instrumentation aimed to create a robust and effective tool for gathering extensive data on the many factors that impact the performance outcomes of Wushu Sanda players. This would

provide a deeper understanding of the dynamics of the sport.

#### Reliability Test Results

The parametric test's compatibility with the research objectives was assessed using the Shapiro-Wilk test, a statistical test for normality. Parametric testing is implemented when the p-value exceeds 0.05. It is uncertain whether the data adhere to a uniform distribution when the p-values are less than 0.05. As a result, non-parametric testing was implemented.

The research inquiries outlined in this article were revisited. Consequently, the results are displayed together with their explanations and examination.

## 5. Results and Discussion

The data is presented in a tabular format in this chapter, and a comprehensive description and analysis of the data are provided. The conclusions presented in this section are the result of a statistical analysis that was conducted using jamovi 2.3.19.

**Table 1.** Assessment of Mental Preparations in Wushu Sanda in terms of Goal Setting

Indicators	Mean	SD	V.I	Rank
1. I consistently establish precise and quantifiable objectives for my success in Wushu Sanda.	3.73	0.57	Very True of Me	1
2. I decompose my enduring objectives into more manageable and attainable benchmarks for my Wushu Sanda training sessions.	3.70	0.58	Very True of Me	5.5
3. Establishing objectives helps in maintaining concentration and drive throughout Wushu Sanda training sessions.	3.72	0.53	Very True of Me	3
4. I routinely evaluate my objectives to monitor my progress and adapt my tactics appropriately.	3.70	0.56	Very True of Me	5.5
5. Clarity of objectives significantly amplifies my feeling of purpose and dedication to Wushu Sanda training.	3.69	0.57	Very True of Me	7.5
6. I rank my objectives according to their significance and pertinence to my total proficiency in Wushu Sanda.	3.72	0.53	Very True of Me	3
7. Establishing attainable objectives enables me to effectively regulate my anticipations and circumvent superfluous stress during Wushu Sanda tournaments.	3.68	0.58	Very True of Me	9
8. I commemorate my accomplishments upon attaining my objectives in Wushu Sanda, regardless of their perceived insignificance.	3.66	0.64	Very True of Me	10
9. In order to get support and ensure responsibility in my path of practicing Wushu Sanda, I communicate my objectives to my coach or teammates.	3.69	0.57	Very True of Me	7.5
10. Engaging in introspection on previous achievements and shortcomings enables me to enhance and fine-tune my future objectives in the discipline of Wushu Sanda.	3.72	0.55	Very True of Me	3
COMPOSITE MEAN	3.70	0.50	Very True of Me	

Legend: 1.00-1.50: Strongly Disagree (Not Very True of Me); 1.51-2.50: Disagree (Not True of Me); 2.51-3.50; Agree (True of Me); 3.51-4.00: Strongly Agree (Very True of Me)

Table 1 shows the participants' assessment of their mental preparations for Wushu Sanda in terms of goal setting. The calculated statistics show that the overall mean score is 3.70 with a standard deviation of 0.50, indicating a high ranking. This means that they strongly agree that they always set clear and measurable goals for their success in Wushu Sanda (M =

3.73), that setting goals helps them stay focused and motivated during Wushu Sanda training sessions (M = 3.72), and that they rank their goals by how important they are to their overall Wushu Sanda proficiency (M = 3.72). Item number 1 had the highest mean score, while item number 8 (I commemorate my accomplishments upon attaining my

objectives in Wushu Sanda, regardless of their perceived insignificance) had the lowest mean score of 3.66, according

to the analysis of the responses.

**Table 2.** Assessment of the Level of Intensity of Physical Training in Wushu Sanda in terms of Strength Training

Indicators	Mean	SD	V.I	Rank
1. During my strength training sessions in Wushu Sanda, I engage in activities like as lifting relatively low weights or executing exercises that rely on my body weight.	2.99	0.53	High Intensity	10
2. I participate in strength training activities employing a modest amount of resistance or weight, emphasizing the completion of numerous sets and repetitions.	3.69	0.58	Very High Intensity	3
3. In my Wushu Sanda strength training sessions, I focus on using high resistance or heavy weights to specifically target certain muscle areas with maximum effort.	3.63	0.61	Very High Intensity	6
4. In my Wushu Sanda training, I use advanced strength training methods, like as supersets and drop sets, to optimize muscle exhaustion and promote muscular development.	3.72	0.55	Very High Intensity	1
5. In my strength training routine, I use a diverse range of exercises that specifically target various muscle groups, with a focus on developing both strength and endurance in Wushu Sanda.	3.23	0.68	High Intensity	8.5
6. I exert maximum effort during strength training sessions, subjecting my muscles to increasingly greater weights or resistance in Wushu Sanda.	3.23	0.65	High Intensity	8.5
7. In my Wushu Sanda strength training regimen, I prioritize functional motions and compound exercises to enhance overall agility and performance.	3.66	0.59	Very High Intensity	5
8. I adhere to a systematic regimen for enhancing physical strength, whereby I alternate between various degrees of intensity and workout variants. This approach serves to avoid stagnation and facilitate ongoing progress in Wushu Sanda.	3.68	0.58	Very High Intensity	4
9. Strength training is a crucial component of my Wushu Sanda training routine, and I allocate much time and effort to enhance my physical strength and power.	3.54	0.66	Very High Intensity	7
10. In Wushu Sanda, I place a high importance on allowing sufficient time for muscle repair and adaptation by prioritizing recovery and rest periods between strength training sessions.	3.70	0.59	Very High Intensity	2
<b>COMPOSITE MEAN</b>	3.51	0.25	Very High Intensity	

Legend: 1.00-1.50: Strongly Disagree (Very Low Intensity); 1.51-2.50: Disagree (Low Intensity); 2.51-3.50; Agree (High Intensity); 3.51-4.00: Strongly Agree (Very High Intensity)

Table 2 illustrates the intensity of the participants' physical training in Wushu Sanda in terms of strength training. The tabulated statistics indicate a high classification with an overall mean score of 3.51 and a standard deviation of 0.25. This means that they strongly agree that they use advanced strength training techniques like supersets and drop sets in their Wushu Sanda training to make muscles more tired and help them grow (M = 3.72). They also agree that they make sure there are enough recovery and rest periods between strength training sessions so that muscles can repair and adapt (M = 3.70), and they do strength training activities with a moderate amount of resistance or weight, focusing on doing many sets and repetitions (M = 3.69). Item number 4 elicited the highest mean score from the respondents, while item number 1 (during my strength training sessions in Wushu Sanda, I perform exercises that rely on my body weight or lift relatively low weights) generated the lowest mean score of M = 2.99.

Examining the intensity of physical training in Wushu Sanda, especially regarding strength training, uncovers a notable degree of dedication among participants. The athletes'

average score indicates a significant endorsement of advanced strength training methods, such as supersets and drop sets, specifically intended to enhance muscle exhaustion and stimulate development. This is consistent with the current trends in athletic training, where these strategies are acknowledged for their efficacy in optimizing muscular growth and endurance (Kraemer et al., 2019).

## 6. Conclusion

1) The regular utilization of mental preparation strategies indicates that these athletes understand the crucial importance of psychological readiness in attaining competitive success. Further emphasis on mental training could amplify their performance and resilience in competitions.

2) The notable disparities in mental preparation, influenced by gender and age, suggest the need for customized mental training programs to cater to the distinct requirements of various demographic groups. This is important to ensure that younger and female athletes possess equally effective cognitive strategies.

3) The players' unwavering dedication to rigorous physical

conditioning, especially in strength training, is evident in the intense nature of their physical training across all areas. This commitment plays a vital role in enhancing their entire performance. Therefore, it is essential for training regimens to keep this level of intensity to guarantee that players consistently develop and retain the physical qualities required for success in Wushu Sanda.

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