

# Coaching Techniques and Team Cohesion in Chinese University Handball

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**Abstract:** This study looked into how well teaching methods and training techniques worked and how they affected the teamwork and cohesiveness of Chinese university handball teams. Respondents were 428 players and 15 teachers from five Chinese universities. They were chosen through a "stratified sampling" process to ensure that all groups were represented. The study examined six critical areas of coaching: fundamentals, tactical strategies, physical fitness, psychological training, scouting, and personal growth plans. It also looked at six aspects of cohesion: ties between people, team identity, resolving conflicts, commitment, building teams, and support systems. Data showed that coaching methods and team cohesion were ranked low in every area. However, association analysis showed that better teaching techniques were significantly linked to higher team cohesion. Interviews with coaches revealed that putting new strategies into action is hard because people don't like change, there aren't enough resources, teachers don't get enough professional growth, time is limited, and there are cultural barriers.

**Keywords:** Fundamentals; Tactical Strategies; Physical Fitness; Psychological Training; Scouting Team Identity; Resolving Conflicts; Commitment; Building Teams Support Systems.

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## 1. Introduction

Handball is a fast-paced and physically challenging sport requiring exceptional coordination, strategic thinking, and teamwork. Handball teams in Chinese colleges serve a dual purpose: fostering athletic potential, collaboration, and sportsmanship among students. Efficient coaching approaches and training methods are crucial in this situation since they considerably impact the players' technical abilities, tactical comprehension, physical fitness, and psychological strength. Nevertheless, despite the significance of these components, several obstacles exist in implementing efficient coaching methods and promoting team unity in Chinese university handball teams.

Coaching methods in handball need to include a broad spectrum of abilities, ranging from basic exercises to intricate strategic preparation. A significant obstacle is to guarantee that training programs are thorough and customized to meet the specific requirements of players, which may be challenging due to the wide range of ability levels among university teams. The study conducted by Cushion, Armour, and Jones (2018) emphasizes the intricacy of creating personalized training programs that accommodate the needs of both beginners and experienced athletes, typically due to restricted availability of resources and time constraints. In addition, coaches must effectively manage the technical components of training while prioritizing the athletes' psychological and emotional readiness. This is essential for effectively coping with competition demands and sustaining optimal performance (Horn, 2018).

Team cohesiveness is a crucial element that directly influences the performance and success of handball teams. It encompasses the caliber of social connections, a collective feeling of team cohesion, efficient conflict resolution methods, dedication, and robust support networks. Establishing and sustaining strong team unity may be especially difficult in the university environment, where athletes must balance their academic obligations with their sports duties. Research has shown that team cohesiveness improves performance by

promoting more effective communication, trust, and collaboration among team members (Smith, Arthur, Hardy, Callow, & Williams, 2013; Carron, Eys, & Burke, 2018). Furthermore, a study conducted by Benson, Bruner, and Eys (2016) suggests that team-building activities and support systems play a crucial role in fostering team cohesiveness, particularly in demanding settings such as university athletics. The current body of literature offers significant knowledge on the many aspects of coaching methods and team unity. Developing a solid understanding of the fundamentals and honing one's skills are crucial for establishing a robust groundwork in handball. These activities include repeated practice and exercises designed to improve fundamental abilities such as passing, shooting, dribbling, and defending. The research conducted by Renshaw, Davids, and Savelsbergh (2019) highlights the significance of using adaptive training techniques that specifically address the changing requirements of athletes.

Tactical and Strategic Training is an essential component that aims to enhance players' comprehension of game tactics and strategies. This encompasses acquiring knowledge of both offensive and defensive strategies, understanding proper placement, and making astute decisions to outwit adversaries. As stated by Jones, Armour, and Potrac (2018), tactical training enables players to cultivate crucial cognitive abilities such as critical thinking and problem-solving, which are vital for achieving success in competitive sports.

Physical Conditioning encompasses a range of workouts and routines specifically tailored to enhance the physical fitness of athletes. These activities focus on improving strength, endurance, agility, and flexibility. Physical fitness is essential for sustaining optimal performance and minimizing the likelihood of accidents. Research conducted by Reilly, Morris, and Whyte (2018) emphasizes the significance of customized conditioning regimens in improving athletic performance and general well-being.

Psychological and Mental Training aims to enhance athletes' mental fortitude and psychological welfare. Visualization, goal planning, stress management, and

concentration exercises improve mental resilience and concentration. A study by Weinberg and Gould (2018) highlights the significance of psychological skills training in equipping athletes to meet the cognitive requirements of competitive sports.

Individualized Development Plans are customized training regimens designed to meet each athlete's unique requirements and objectives. These programs specifically target each player's individual strengths and weaknesses, offering tailored workouts and feedback to maximize their growth and progress. As stated by Martindale, Collins, and Daubney (2018), individualized training is essential for optimizing athletic potential and promoting sustained growth.

Scouting and Recruitment include locating and enticing skilled players to join a team. Efficient scouting and recruiting tactics guarantee the team's competitiveness by consistently incorporating new and talented individuals. According to a study conducted by Johnson, Castagna, and Gibson (2018), it is crucial to have comprehensive scouting procedures in place to sustain strong and effective team chemistry.

The significance and urgency of this research are emphasized by the increasing acknowledgment of the need for evidence-based coaching methods that improve both individual and team performance in sports. This study addresses a notable research void by investigating the correlation between coaching methodologies, training approaches, and team unity within the Chinese university handball setting. This study aims to provide significant insights for coaches, athletic departments, and sports policymakers by identifying successful coaching tactics and comprehending their influence on team dynamics. Moreover, the discoveries enhance the broader understanding of sports coaching and team unity, providing practical suggestions for enhancing coaching methods in different sports environments.

Ultimately, this research aims to thoroughly comprehend how coaching styles and training methods affect team cohesiveness in Chinese university handball. The objective is to optimize coaching methods, increase team relationships, and eventually foster the success and growth of university handball teams in China.

### 1.1. Statement of the Problem

This study aims to assess the coaching methods and training techniques in Chinese university handball. Specifically, this study will seek answers to the following queries.

1. What is the assessment of the respondents of the coaching methods and training techniques in Chinese university handball in terms of:

- 1.1 Fundamentals and Skill Development
- 1.2 Tactical and Strategic Training
- 1.3 Physical Conditioning
- 1.4 Psychological and Mental Training
- 1.5 Individualized Development Plans
- 1.6 Scouting and Recruitment

2. What is the assessment of the respondents of their individual and team cohesion in terms of:

- 2.1 Interpersonal Relationships
- 2.2 Team Identity
- 2.2 Conflict Resolution
- 2.3 Commitment
- 2.4 Team Building Activities
- 2.5 Support Systems

3. Is there a significant relationship between the coaching methods and training techniques and individual and team cohesion?

4. What are the challenges faced by university handball coaches in China when implementing innovative coaching strategies and training techniques?

5. Based on the results of the study, what coaching development program can be designed to improve athletes' performance in handball.

### Hypothesis

1. There is no significant relationship between the coaching methods and training techniques and individual and team cohesion

### 1.2. Theoretical Framework

Social Identity Theory (SIT), developed by Henri Tajfel and John Turner in the late 1970s, asserts that people get a substantial portion of their identity from the social organizations they are affiliated with. The feeling of belonging may significantly impact their actions, attitudes, and self-worth. Social Identity Theory (SIT) proposes that individuals classify themselves and others into different social groups, such as in-groups and out-groups. These group affiliations shape one's sense of self (Tajfel & Turner, 1979). Social identity theory (SIT) may be very beneficial in strengthening team unity, especially in sports teams like Chinese university handball teams. Team members with a strong sense of identification with their team are more inclined to display cooperative behaviors, support one another, and actively strive towards shared objectives. This may ultimately result in enhanced team performance. Coaches may cultivate a robust team identity by using many techniques, such as setting common goals, developing and upholding team traditions, employing team symbols and emblems, and promoting inclusive behaviors that build a feeling of worth among all team members. By cultivating a robust team identity, coaches may significantly augment team cohesiveness, resulting in improved communication, elevated morale, and a unified endeavor to accomplish team goals. Enhanced cohesiveness is crucial for the overall success and harmony of the team (Haslam, Reicher, & Platow, 2020; Hornsey, 2008).

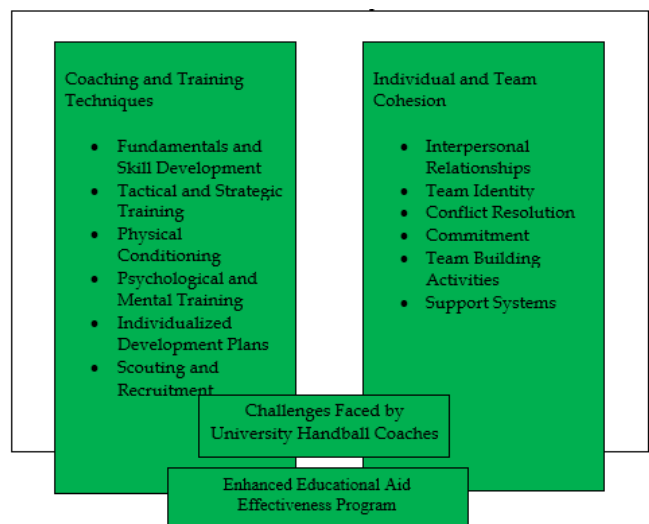


Fig 1. Research Paradigm

This study examined the correlation among coaching approaches, training tactics, and team cohesion in Chinese

university handball. The independent variables encompassed several elements, including fundamental skills and enhancement, tactical and strategic education, physical fitness training, psychological and cognitive conditioning, individualized growth plans, and scouting and recruitment. The dependent variables included individual and team cohesion components, such as interpersonal relationships, team identity, conflict resolution, commitment, team-building activities, and support systems.

The relationship among these parameters was crucial. Pragmatic coaching methodologies and efficient training protocols fostered a sense of common purpose and collective identity, essential for team cohesion. Implementing tactical and strategic training enhanced team cohesion by aligning all members with a familiar game strategy and objectives. Each player rendered significant contributions through participation in physical fitness and talent enhancement, fostering mutual respect and trust. Psychological and mental training targeted individual and collective stress, enhancing interpersonal relationships and conflict-resolution abilities. Scouting and recruitment drew players closely aligned with the team's culture and values, boosting cohesion.

Surveys and questionnaires were distributed to players and coaches of Chinese university handball teams to assess their views on coaching methodology, training strategies, and team cohesion. Quantitative methods, including correlation and regression analysis, evaluated the extent and nature of the relationships among the variables. Qualitative approaches, including thematic analysis, examined the challenges faced by coaches in implementing these strategies and processes.

This research sought to identify the principal coaching methodologies and training techniques that markedly enhanced team cohesion. The statistics were used to establish a comprehensive teaching program to improve players' handball performance. This research offered valuable insights into enhancing the performance and cohesion of Chinese university handball teams by understanding and leveraging the interplay between coaching techniques, training methodologies, and team unity.

### **1.3. Significance of the Study**

The findings from this study have the potential to benefit a wide range of stakeholders within the realm of sports education and handball coaching.

#### **Coaches and Trainers**

Coaches and trainers can directly benefit from the study's insights into effective coaching methods and training techniques, allowing them to improve their training regimens and strategies to foster better team cohesion. The study can contribute to the professional development of coaches by providing evidence-based practices that enhance team performance and player satisfaction.

#### **Athletes and Players**

Players will benefit from more effective training programs that enhance their skills, physical conditioning, and psychological well-being, leading to improved individual and team performance. Enhanced team cohesion can lead to a more supportive and harmonious team environment, increasing players' enjoyment and commitment to the sport.

#### **Sports Organizations and University Athletic Departments**

University athletic departments can use the findings to develop or refine their handball programs, ensuring they are aligned with best practices for coaching and team cohesion.

Sports organizations can make more informed decisions about resource allocation, focusing on areas that significantly impact team cohesion and performance.

#### **Future Researchers**

This study will provide a solid foundation for future research in sports psychology, coaching, and team dynamics. Researchers can build on these findings to explore other variables or different sports contexts. Future researchers can benefit from the methodologies employed in this study, such as the combination of quantitative and qualitative approaches, which can be adapted and applied to similar research projects.

#### **Policy Makers and Educational Administrators**

**Informed Policy Making:** Educational administrators and policy makers can use the insights from this study to formulate policies and guidelines that support effective coaching practices and enhance team cohesion in university sports programs. The study provides evidence-based recommendations that can inform decisions related to coach training, athlete support services, and the development of sports facilities.

#### **Handball Federations and Associations**

National and regional handball federations can use the findings to enhance their strategic planning and development programs, aiming to raise the overall standard of the sport. The study's insights can contribute to the design and improvement of coach certification programs, ensuring that coaches are well-equipped with the latest techniques and strategies to foster team cohesion.

#### **Sports Psychologists**

Sports psychologists can apply the theoretical insights gained from the study, such as the application of Social Identity Theory, to their work with teams, helping to develop interventions that enhance team cohesion and performance.

#### **Students and Academics**

Students and academics in sports science, physical education, and sports management programs can benefit from the study as a valuable educational resource, providing contemporary insights into effective coaching and team dynamics. The study's findings can inform curriculum development in academic programs, ensuring that students are exposed to the latest research and best practices in sports coaching and team cohesion.

### **1.4. Scope and Delimitations**

This study examined the relationship between coaching approaches, training tactics, and team cohesion in Chinese university handball teams. The study investigated the impact of different coaching techniques on unity and collaboration among handball players at designated institutions. The research employed a correlational approach to examine the extent and attributes of the relationships between the independent variables (coaching methods and training techniques) and the dependent variables (individual and team cohesion).

The research was conducted across five Chinese universities: Shenyang Sport University (96 participants), Liaoning Technical University (184 participants), Shandong Sport University (52 participants), Anhui Normal University (58 participants), and Harbin Normal University (38 participants). This selection ensured a diverse sample from institutions with established handball programs, enabling a comprehensive analysis of the state of coaching and teamwork in handball at the university level in these regions.

Nonetheless, this study was limited to five institutions in

China, suggesting that the findings may not be generalizable to all regions or countries. Although statistically significant, the sample size of 428 people was just a fraction of the entire university handball population. Moreover, the selection of colleges with robust handball programs may not have adequately reflected the experiences of teams at institutions with less developed or emerging programs.

The study focused only on coaching techniques and training approaches as independent variables, while individual and team cohesion were dependent variables. Unexamined factors that may have influenced outcomes encompassed the distinctive characteristics of personal individuals, external support networks, and overarching institutional policies. This research was correlational, indicating it sought to identify relationships between variables without determining causation. Consequently, although the study aimed to find significant associations, it could not determine if modification in coaching methods or training strategies led to improved team cohesion.

The study employed a cross-sectional methodology, gathering data at a particular time. This method limited the ability to observe longitudinal variations in team cohesion or the lasting impacts of different coaching techniques and training methodologies. The data-gathering procedure relied on surveys and questionnaires to get participants' viewpoints. This strategy may have introduced biases owing to dependence on self-reporting and subjective interpretation.

Furthermore, the study focused exclusively on handball. Despite many findings pertinent to other team sports, the study did not explicitly investigate coaching strategies and team cohesion across other athletic contexts. The research examined the correlation among coaching methodologies, training strategies, and team cohesiveness within Chinese university handball teams. It sought to deliver a precise and concentrated analysis by establishing particular scope and delimitation parameters while also recognizing the constraints of the study design and setting.

## 1.5. Definition of Terms

**Coaching Methods** refer to the strategies and methodologies coaches use to effectively guide and enhance the performance and growth of their athletes. These approaches include a range of ways designed to improve the skills and capacities of individuals and teams in a sports environment.

**Training Techniques** refer to the specific exercises and procedures used during training sessions to enhance athletes' physical, technical, tactical, and mental abilities. These strategies are specifically formulated to improve performance and prepare players for competitive play.

**Fundamentals and Skill Development** is the process of instructing and improving fundamental skills crucial to handball, including passing, shooting, dribbling, and defending. This entails iterative practice and exercises designed to establish a solid foundation in the sport.

**Tactical and strategic training** enhances players' comprehension of game tactics and strategies. This includes acquiring knowledge of both offensive and defensive strategy, understanding proper placement, and making effective decisions to outsmart opponents throughout a match.

**Physical conditioning** refers to a set of exercises and routines specifically intended to enhance the physical fitness of athletes. These exercises focus on improving strength, endurance, agility, and flexibility. Physical conditioning

aims to optimize sports performance and minimize the likelihood of injury.

**Psychological and mental training** refers to using methods aimed at enhancing athletes' mental fortitude and psychological welfare. These strategies include visualization, goal planning, stress management, and concentration exercises, all aiming to improve mental resilience and concentration.

**Individualized Development Plans** are customized training plans designed to meet each athlete's unique demands and objectives. These programs specifically target each player's individual strengths and weaknesses, offering tailored workouts and feedback to maximize their growth and improvement.

**Scouting and recruitment** refer to the systematic procedure of recognizing and enticing skilled individuals to become team members. Scouting includes assessing the abilities and potential of possible recruits, whereas recruiting involves convincing them to join the team.

**Team cohesion** refers to the extent to which team members remain together and collaborate efficiently as a cohesive unit. High cohesiveness is defined by robust interpersonal connections, shared objectives, and a unified dedication to the team's triumph.

**Interpersonal Relationships** refer to the level of excellence in the interactions and connections between team members. Positive interpersonal connections are characterized by mutual trust, respect, and support, which contribute to establishing a harmonious team environment.

**Team Identity** refers to the feeling of being part of a group and the ability to identify as a team member. A robust team identity is shown by the players' sense of pride in their team, a collective understanding of their objectives, and cohesion in striving towards shared goals.

**Conflict resolution** refers to the techniques and procedures used to effectively handle and resolve differences and conflicts that arise within a team. Efficient conflict resolution guarantees that disagreements are handled constructively, preserving team harmony and unity.

**Commitment** refers to the degree of devotion and allegiance of team members to the team and its goals. Dedication reflects players' high commitment to exerting effort, sacrificing personal interests, and persisting through adversities for the team's sake.

**Team-building** activities refer to exercises and activities specifically created to enhance team members' connections and collaborative skills. These activities foster cooperation, communication, and trust among team members.

**Support systems** refer to the many structures and resources to aid team players in their individual and athletic growth. Support systems include a range of personnel, including coaches, medical experts, mental health specialists, and facilities, who assist athletes extensively.

## 2. METHODOLOGY

This section establishes the systematic and meticulous technique researchers use to plan, implement, and assess a study. It includes several components, such as the research design, which specifies the overall structure and framework of the study. The data collection strategies clarify how information is obtained from participants or relevant sources. Data analysis techniques include systematically modifying, interpreting, and combining collected data to

derive meaningful and valuable insights.

## 2.1. Research Design

This research employed a descriptive correlational methodology to examine the relationship between coaching techniques, training tactics, and team cohesion in Chinese university handball teams. Descriptive correlational research seeks to delineate the aspects of interest and their relationships without manipulating variables. The study employed a non-experimental design (Creswell & Creswell, 2017).

A descriptive correlational design employed statistical analysis to evaluate the strength and direction of relationships between variables objectively. The procedure involved collecting data on variables in their natural condition and identifying patterns and correlations (Cohen, Manion, & Morrison, 2018). This approach was particularly beneficial for studies where experimental manipulation of variables was neither feasible nor permissible, intending to understand correlations rather than causal relationships.

The descriptive correlational methodology was crucial for this research as it facilitated examining the intrinsic relationships among coaching methods, training approaches, and team cohesion without altering existing coaching practices. This strategy provided substantial insights into the relationship between diverse coaching strategies, training methodologies, team dynamics, and cohesion. It supplied evidence that might inform coaching methodologies and team administration (Polit & Beck, 2020).

The research sought to assess the perspectives of handball players and coaches at designated Chinese universities. The most appropriate study approach for this purpose was a descriptive correlational design. The methodology enabled data collection from a substantial sample of 428 participants across five universities, utilizing surveys and questionnaires. This data revealed significant correlations between coaching methodologies, training strategies, and several aspects of team cohesion, encompassing interpersonal relationships, team identity, conflict resolution, commitment, team-building initiatives, and support mechanisms.

The main benefit of the descriptive correlational approach was its ability to handle large datasets and offer a comprehensive representation of existing relationships between variables. By analyzing these relationships, the research may provide tangible recommendations for enhancing coaching approaches and promoting greater team cohesion. This strategy allowed for the simultaneous analysis of several variables, revealing complex relationships that may not have been apparent through alternative research methods (Gray, Grove, & Sutherland, 2017).

The descriptive correlational research technique was suitable for this study as it facilitated examining the intrinsic relationships between coaching methods, training approaches, and team cohesion among Chinese university handball teams. This technique provided significant insights that informed evidence-based improvements in coaching and team management practices.

### 2.1.1. Sampling Technique

This study employed a stratified sample method to ensure the collection of representative and comprehensive data from diverse handball teams in Chinese universities. Stratified sampling involves dividing a population into discrete subgroups or strata and selecting random samples from each stratum. This strategy enhanced the sample's

representativeness by guaranteeing enough representation of each subset (Etikan & Bala, 2017). The strata in this study were established based on the universities attended by the participants. The universities included are Shenyang Sport University, Liaoning Technical University, Shandong Sport University, Anhui Normal University, and Harbin Normal University. Each institution represented a distinct layer in the stratified sampling methodology.

The total number of participants for each university was 96 for Shenyang Sport University, 184 for Liaoning Technical University, 52 for Shandong Sport University, 58 for Anhui Normal University, and 38 for Harbin Normal University. Participants were randomly selected from each stratum to guarantee that the sample correctly reflected the whole population of handball players and coaches at the institution. Random selection was achieved by number generation or lottery processes.

This research employed stratified sampling to ensure a proportional representation of handball teams from each institution, enhancing the findings' validity and reliability. This strategy facilitated more accurate comparisons and evaluations of coaching techniques, training plans, and team cohesion among other institutions. Stratified sampling enhanced accuracy by reducing sampling bias and improving the sample's representativeness, therefore augmenting the generalizability of the findings to the broader population of Chinese university handball teams. Moreover, it enabled a comprehensive analysis within each category, providing critical insights into unique characteristics and trends that may vary among universities.

Moreover, a casual interviews were also done with 15 coaches to find out the challenges they face as they deal with athletes and other concerns of this sport.

### 2.1.2. Instrumentation

A comprehensive questionnaire examined the relationship between coaching methods, training approaches, and team cohesion in Chinese university handball teams. This questionnaire had tailored queries aimed explicitly at the research variables. The questions were subjected to expert validation and pilot testing to ascertain their reliability and validity. The instrument evaluated participants' degree of agreement with several statements about coaching methodology, training strategies, and team cohesion, employing a Likert scale ranging from 1 (denoting severe disagreement) to 5 (denoting strong agreement).

The questionnaire addressed several essential domains. The coaching methods and training techniques included the effectiveness of skill development drills, the integration of tactical and strategic training, the importance of physical conditioning for improving endurance and strength, the application of mental training techniques to enhance focus and resilience, the provision of individualized training plans, and the efficacy of scouting and recruitment systems. The questionnaire assessed multiple dimensions of team cohesion, including the quality of interpersonal relationships, the team's sense of identity, the efficacy of conflict resolution strategies, the degree of commitment to team objectives, the frequency and impact of team-building activities, and the accessibility of support systems for team members.

This comprehensive methodology guaranteed that the research included various factors influencing coaching and team dynamics. The questionnaire was validated by a panel of experts in sports psychology, coaching, and research methodologies who evaluated its content. Subsequently, the

instrument was subjected to a pilot test that included a select group of participants from the target population to improve its precision and efficacy based on their feedback. The research gathered accurate and substantial data about the perspectives of coaching methodologies, training strategies, and team cohesiveness within Chinese university handball teams. The utilization of a validated and pilot-tested questionnaire accomplished this. The primary objective was to deliver significant insights to refine coaching methodologies and elevate team performance.

The Shapiro-Wilk test, a statistical test specifically designed to assess normality, was used to determine if the

parametric test is appropriate for the research objectives. Parametric testing is used when the p-value is greater than 0.05. When the p-values are less than 0.05, it casts doubt on the conformity of the data to a uniform distribution. Hence, non-parametric testing was utilized.

The research inquiries addressed in this paper are revisited. Consequently, the results are presented together with their justifications and evaluations.

### *Preliminary Analysis Reliability*

**Table A.** Reliability Measurement – Assessment of Coaching Methods and Training Techniques (Cronbach’s Alpha)

Construct	Cronbach’s Alpha	No. of Item/s Deleted	No. of Item/s Retained
Fundamentals and Skill Development	0.86	0	10
Tactical and Strategic Training			
Physical Conditioning	0.92	0	10
Psychological and Mental Training	0.91	0	10
Individualized Development Plans	0.92	0	10
Scouting and Recruitment			
	0.95	0	10
	0.92	0	10

Assessment of Individual and Team Cohesion (Cronbach’s Alpha)			
Construct	Cronbach’s Alpha	No. of Item/s Deleted	No. of Item/s Retained
Interpersonal Relationships	0.94	0	10
Team Identity	0.93	0	10
Conflict Resolution	0.95	0	10
Commitment	0.92	0	10
Team Building Activities	0.93	0	10
Support Systems	0.94	0	10

Table A delineates the assessment of scale reliability, evaluation of coaching methodologies and training techniques encompassing fundamentals and skill enhancement, tactical and strategic training, physical conditioning, psychological and mental training, personalized development plans, and scouting and recruitment, alongside the appraisal of individual and team cohesion regarding interpersonal relationships, team identity, conflict resolution, commitment, team-building activities, and support systems.

Cronbach's alpha (CA) will be employed to assess internal consistency metrics. Nunnally (1978) and Fornell and Larcker (1981) assert that a coefficient alpha (CA) value of 0.70 or greater indicates high-quality items and internal consistency. The estimated coefficient alpha (CA) values span from 0.86 to 0.95, signifying that all items demonstrate good quality and display substantial internal consistency.

**Table B.** Normality

		Shapiro-Wilk	
	N	W	p
coaching methods and training techniques	428	0.85	< .001
individual and team cohesion	428	0.88	< .001

Both p-values obtained from the Shapiro-Wilk test are below 0.05, indicating that the scores are not normally distributed. The histogram analysis indicates a positive skew in the data. Therefore, to ascertain the existence of a significant relationship between coaching methods, training approaches, and individual and team cohesion, a non-parametric test, specifically the Spearman's rho correlation, was conducted.

### **2.1.3. Data Gathering Procedures**

The data collection methods for this research involved several systematic procedures to ensure the capture of reliable

and precise data from participants at the selected Chinese universities. The study first obtained ethical approval from the relevant institutional review boards of the participating universities to ensure adherence to moral standards. Collaborating with the athletic departments and handball coaches at Shenyang Sport University, Liaoning Technical University, Shandong Sport University, Anhui Normal University, and Harbin Normal University was imperative. This phase involved clarifying the study objectives and methodologies to get the participants' consent and support and engage their participation. Participants were provided with detailed information on the study, and their consent to

participate was requested.

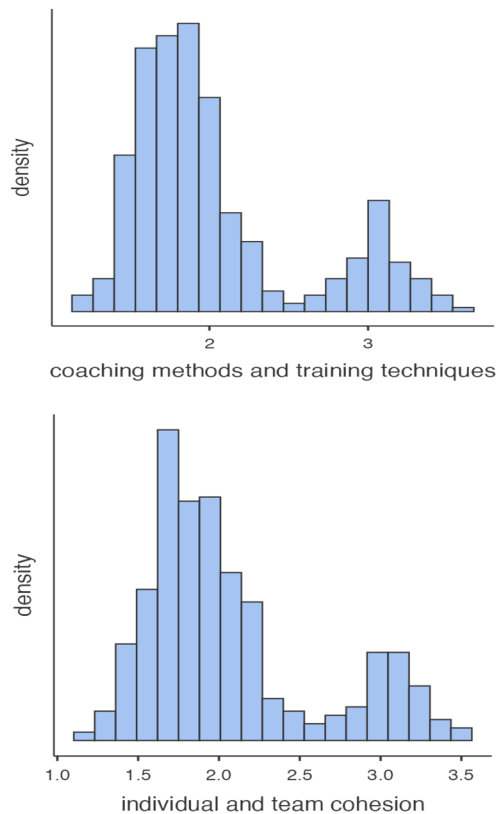


Fig 2. The histogram

Subsequently, a meticulously structured questionnaire was developed to assess coaching methodologies, training strategies, and team cohesion. The questionnaire included a Likert scale from 1 (representing severe disagreement) to 5 (representing strong agreement). A panel of experts in sports psychology, coaching, and research methodologies assessed the questionnaire to ensure the validity of its content. After receiving input, critical adjustments were made, and a pilot test was executed with a select group of participants from the target demographic to identify any possible issues with clarity, relevance, and dependability. The feedback acquired from this pilot test was utilized to refine and finalize the questionnaire.

Upon completion of the questionnaire, it was sent to participants either in person at team meetings or training sessions or electronically through email or an online survey platform. Thorough instructions were provided for completing the questionnaire, ensuring that participants understood the study purpose and the application of their responses. Support and clarification were offered when necessary. The surveys were collected within a specific timeframe. The distribution occurred immediately after completion. Conversely, a submission deadline was set for digital distribution, and participants were issued reminders to ensure a substantial response rate.

Upon collection, the responses were entered into a secure database. This procedure ensured accuracy and maintained the confidentiality and anonymity of the participants by allocating unique codes to each respondent. A quality evaluation was conducted to identify and correct any anomalies or errors in the data entry process. Subsequently, statistical instruments were employed to analyze the quantitative data. Descriptive statistics succinctly presented the data, whereas correlation analysis examined the relationships among coaching methodologies, training tactics,

and team cohesion. The results were reviewed per the study's objectives and theoretical framework, emphasizing critical linkages and assessing their implications for coaching methodologies and team cohesion in Chinese university handball teams.

Through these data collection methodologies, the study sought solid and trustworthy data. The data provide significant insights into the influence of coaching methodologies and training strategies on team cohesiveness in Chinese university handball. This research ultimately enhanced coaching methodologies and team efficacy.

#### 2.1.4. Statistical Treatment

The statistical treatment for this study involved several steps to analyze the collected data and determine the relationships between coaching methods, training techniques, and team cohesion in Chinese university handball teams. The following statistical methods were employed:

**Mean and Standard Deviation:** The mean and standard deviation were calculated for each item in the questionnaire to summarize the central tendency and variability of responses. This provided an overview of the general perceptions of coaching methods, training techniques, and team cohesion.

**Frequency and Percentage Distribution:** The frequency and percentage distribution of responses were determined for each Likert scale item to identify patterns and trends in the data. This helped in understanding the proportion of participants who agreed or disagreed with various statements.

#### 2.1.5. Reliability Analysis

**Cronbach's Alpha:** Reliability analysis was conducted using Cronbach's alpha to assess the internal consistency of the questionnaire. A Cronbach's alpha value of 0.70 or higher was considered acceptable, indicating that the items within each section of the questionnaire reliably measured the same underlying construct.

**Pearson Correlation Coefficient:** The Pearson correlation coefficient was used to examine the strength and direction of the relationships between the independent variables (coaching methods and training techniques) and the dependent variables (aspects of team cohesion). The Pearson correlation coefficient ranged from -1 to +1, where values close to +1 indicated a strong positive relationship, values close to -1 indicated a strong negative relationship, and values around 0 indicated no relationship.

## 2.2. Ethical Considerations

### Conflict of Interest

The study adopted confidentiality measures for the survey subjects and their affiliated universities, ensuring no negative impact on the reputation of the institutions or the privacy of the student-athletes. Data collection was conducted outside of class hours to avoid any interference with academic activities or training schedules.

### Privacy and Confidentiality

Participant confidentiality was strictly maintained. All personally identifying information was separated from the study data, and all acquired data was anonymized. Access to the data was restricted to approved researchers, and the identities of participants were safeguarded throughout the study.

### Informed Consent Process

All participants, including student-athletes and coaches, received comprehensive information about the study's goals, methods, potential risks, benefits, and their rights as

participants before their involvement. Informed consent was obtained to ensure participants fully understood the study's purpose and made informed decisions about their participation.

#### Vulnerability and Possible Risk

Given the potential power dynamics and pressures faced by student-athletes, additional measures were taken to protect vulnerable participants. When minors were involved, parental consent was required. Student-athletes with specific needs or vulnerabilities received additional support and guidance.

#### Recruitment

The study was conducted with the voluntary consent of university administrators, physical education instructors, coaches, and student-athletes. Participants were able to withdraw at any time if they experienced discomfort during the study.

#### Assent

The study did not target minors or other vulnerable populations, focusing solely on adult student-athletes and coaches.

#### Benefits

The primary goal of the study was to enhance the performance and cohesion of handball teams by analyzing the impact of coaching methods and training strategies. The findings were shared with stakeholders to promote improved

coaching practices and better team dynamics in Chinese university handball teams.

#### Compensations, Incentives, or Reimbursements

Participation in the study was voluntary, with no rewards or compensation offered to respondents. However, if any physical discomfort occurred during the research process, necessary medical assistance was provided by the researchers.

#### Community Considerations

The significance of the study lay in offering evidence-based coaching recommendations for universities, boosting the reputation of these institutions, and helping student-athletes achieve a balanced approach to both training and academics, ultimately improving their well-being and satisfaction.

### 3. Results, Analysis, and Interpretation

This chapter presents the data in an organized tabular format and provides a comprehensive explanation and analysis of the data. The conclusions in this section derive from a statistical study conducted with jamovi 2.3.28.

#### Assessment of the Respondents of the Coaching Methods and Training Techniques in Chinese University Handball

**Table 1.** Assessment of Coaching Methods and Training Techniques in Chinese University Handball in terms of Fundamentals and Skill Development

Indicators	Mean	SD	Verbal Interpretation	Rank
1. The training sessions significantly improve my fundamental handball abilities.	1.99	0.90	Low	9
2. I often get comments on my progress in improving my skills.	2.03	0.91	Low	6
3. The coaching team prioritizes my precision in passing.	2.04	0.89	Low	4.5
4. Dribbling exercises are an essential component of our training regimen.	2.01	0.87	Low	7
5. I believe that my shooting precision has improved due to our practice sessions.	1.99	0.89	Low	9
6. We consistently engage in training sessions to practice defensive skills.	2.10	0.95	Low	1
7. I am given precise exercises to enhance my agility and coordination.	1.99	0.90	Low	9
8. The coaching approaches facilitate the improvement of my handball foundations.	2.04	0.88	Low	4.5
9. We provide enough time for fundamental skill exercises throughout our practice sessions.	2.06	0.89	Low	3
10. I am highly confident in my fundamental handball abilities because of the instruction I have received.	2.07	0.95	Low	2
<b>COMPOSITE MEAN</b>	<b>2.03</b>	<b>0.74</b>	<b>Low</b>	

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

Table 1 presents an evaluation of coaching methodologies and training tactics in Chinese university handball in relation to foundational skills and development. The combined figures reveal an average score of 2.03 with a standard deviation of 0.74, indicating a poor assessment. This means their dissent regarding the assertion that the training sessions substantially enhance their fundamental handball skills ( $M = 1.99$ ), that they receive specific exercises to improve their agility and coordination ( $M = 1.99$ ), and that they perceive an improvement in their shooting accuracy as a result of their

practice sessions ( $M = 1.99$ ). Responses indicated that items 1, 5, and 7 had the lowest average score of 1.99, whilst item 6 (We routinely engage in training sessions to practice defensive skills) achieved the highest average score of 2.10.

The findings indicate that players consider the training inadequate for cultivating essential aspects of handball performance. The stagnation in foundational skills may indicate deficiencies in training design, including inadequate drill repetitions, insufficient intensity, or a failure to graduate from fundamental to advanced approaches. Wang et al. (2023)



assert that well-organized fundamental skills training is essential for comprehensive player development since it establishes the technical framework required for higher abilities. Consequently, the poor ratings in this domain signify a substantial necessity for enhancement.

The deficient scores in agility and coordination training underscore a possible deficiency in the athletic conditioning afforded to athletes. Agility and coordination are essential in the fast-paced sport of handball, where rapid reflexes and body control can influence match results. The results indicate that certain activities aimed at these skills—such as ladder drills, cone agility training, and reaction-time exercises—may be inadequately included in existing training programs. Li et al. (2021) assert that focused agility training can improve player response, posture, and decision-making in high-pressure situations. The deficiency of agility training may also impact injury prevention since enhanced coordination diminishes the likelihood of on-court injuries. Consequently, coaches must incorporate more dynamic and diverse agility training to target this essential aspect and guarantee players' preparedness for competitive matches.

The low average score for shooting accuracy enhancement suggests a possible deficiency in offensive training. Proficient shooting is crucial for scoring efficacy, confidence enhancement, and overall team performance. The insufficient focus on shooting drills, including repetitive shooting under defensive pressure or from diverse angles, may contribute to this outcome. Zhang et al. (2022) contend that regular, game-simulated shooting practice is crucial for enhancing offensive abilities and increasing scoring efficiency. Insufficient emphasis on shooting drills may hinder players' confidence and accuracy in competitive scenarios, impacting team performance. Consequently, coaches must dedicate more time to focused shooting drills that replicate various match settings.

Conversely, the highest mean score of 2.10 for defensive skills training indicates that this domain is receiving more focus and organization. Defensive drills encompassing posture, marking, tackling, and communication appear well-included in training sessions. This study corroborates Chen & Liu (2022), who underscore the significance of robust defensive techniques in fostering team cohesiveness, necessitating continuous communication, mutual trust, and tactical discipline among players. The elevated score suggests that defensive training may be emphasized owing to its perceived significance in avoiding scoring and preserving team structure. While prioritizing defense is advantageous, coaches must adopt a balanced training regimen that equally highlights offensive talents since both are essential for comprehensive team success.

The implications of these findings are substantial for coaching methodologies in Chinese university handball. The inadequate scores in basic skills, agility, and shooting underscore an urgent need for a more balanced and complete training regimen targeting these essential domains. Coaches should adopt organized training modules emphasizing skill progression, repetition, and game-like settings to improve player development across all ability levels. This methodology is endorsed by Zhang et al. (2022), who champion varied training techniques to foster comprehensive player development. Moreover, tailored feedback and customized training regimens may effectively meet players' distinct requirements, as Li et al. (2021) indicated. The study emphasizes the necessity for specialized interventions in training design to guarantee comprehensive skill development for players, resulting in improved performance, enhanced team cohesiveness, and increased competition success.

**Table 2.** Assessment of Coaching Methods and Training Techniques in Chinese University Handball in terms of Tactical and Strategic Training

Indicators	Mean	SD	Verbal Interpretation	Rank
1. During training, we often engage in exercises that focus on offensive and defensive methods.	2.10	0.96	Low	7.5
2. The coaching staff effectively elucidates the strategic elements of the game.	2.13	0.96	Low	4.5
3. I comprehend the game strategy and techniques of our squad.	2.18	1.02	Low	2
4. Tactical training has significantly enhanced our team's performance during matches.	2.10	0.94	Low	7.5
5. As part of our training, we often examine and evaluate the strategies used by our adversaries.	2.11	0.94	Low	6
6. The coaching approaches increase my comprehension of my function within team plans.	2.06	0.92	Low	10
7. We regularly engage in the systematic rehearsal of established plays and methods.	2.24	1.00	Low	1
8. Tactical exercises are a crucial component of our training sessions.	2.13	0.93	Low	4.5
9. I possess a strong sense of assurance in effectively implementing our team's tactics throughout games.	2.14	0.97	Low	3
10. The strategic instruction offered enables us to adjust to various game scenarios.	2.09	0.92	Low	9
<b>COMPOSITE MEAN</b>	<b>2.13</b>	<b>0.80</b>	<b>Low</b>	

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

Table 2 summarizes the assessment of coaching methodologies and training strategies in Chinese university

handball in relation to tactical and strategic training. The composite mean score is 2.13, signifying a low evaluation, corroborated by a standard deviation of 0.80. The results show that respondents don't agree that the coaching methods help them understand their roles in team strategies (M = 2.06), that the strategic instruction makes it easier to adapt to different game situations (M = 2.09), or that they often do drills during training that focus on offensive and defensive techniques (M = 2.10). According to their responses, item number 6 received the lowest average score of 2.06, whilst item number 7 (We routinely engage in the systematic rehearsal of known plays and procedures) achieved the greatest average score of 2.24.

This outcome indicates that players might not entirely grasp their roles during matches, which could result in confusion and diminished team cohesion. Yang and Sun (2023) assert that explicit job delineation is essential in team sports to guarantee that each player's behaviors enhance a unified strategic endeavor. The low score indicates a need for enhancement in the communication of roles and strategic directives, with a greater focus on tactical clarity throughout training sessions.

Likewise, aspects about adaptation to various game scenarios (M = 2.09) and exercises emphasizing offensive and defensive strategies (M = 2.10) received poor scores, underscoring the insufficiency of training in promoting adaptability and tactical flexibility. Liu et al. (2022) determined that tactical training in team sports must incorporate situational drills that replicate actual game situations, as this facilitates the development of essential decision-making abilities and tactical awareness in players, enabling them to respond adeptly to dynamic scenarios. The subpar ratings in these domains indicate that the training may be excessively inflexible and devoid of game-like simulations that may equip participants for varied tactical difficulties. Coaches are urged to include diverse and adaptable workouts

that reflect real match scenarios to improve players' strategic answers during games.

Conversely, the highest mean score was seen for item 7 (M = 2.24), on the systematic repetition of familiar acts and processes. This indicates that players recognize a degree of consistency in executing known moves, demonstrating a more systematic approach to strategic components. Zhao et al. (2021) assert that frequently rehearsing familiar moves is crucial for enhancing team coordination and tactical discipline, as it allows players to internalize actions and responses. The comparatively elevated score signifies proficiency in executing predetermined plays, although it also implies a possible dependence on established patterns. Wu and Jiang (2022) caution that overemphasizing practiced moves may constrain originality and adaptability, which are essential for addressing unanticipated game scenarios. Consequently, coaches must achieve equilibrium by preserving organized practice sessions while including impromptu decision-making exercises to enhance tactical adaptability.

The findings suggest that existing coaching methodologies require a more holistic approach to tactical instruction. The inadequate scores in comprehending responsibilities, adjusting to game scenarios, and executing tactical exercises underscore the necessity for enhanced communication and more flexible training approaches. Yang and Sun (2023) assert that successful tactical training must integrate explicit role delineations with situational exercises to improve players' strategic understanding and performance. Coaches ought to provide a training environment that harmonizes scheduled practices with innovative, game-simulating activities, as proposed by Liu et al. (2022). This method enhances players' tactical awareness and equips them for unforeseen situations during matches, resulting in improved team performance and togetherness.

**Table 3.** Assessment of Coaching Methods and Training Techniques in Chinese University Handball in terms of Physical Conditioning

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Physical conditioning workouts are an essential component of our training regimen.	1.99	0.88	Low	4
2. The training sessions enhance my overall physical fitness.	1.93	0.90	Low	10
3. I have seen a notable improvement in my physical power due to our rigorous training regimen.	1.94	0.86	Low	8
4. We consistently include endurance training in our practice sessions.	2.01	0.93	Low	2
5. The physical conditioning program mitigates the likelihood of sustaining injuries.	1.94	0.89	Low	8
6. Our training regimen includes activities designed to enhance my agility and quickness.	1.97	0.89	Low	5
7. I see a noticeable increase in my endurance due to our rigorous training exercises.	2.02	0.96	Low	1
8. The coaching team places great emphasis on the need for physical fitness.	1.94	0.88	Low	8
9. We provide customized training regimens designed specifically for each individual's role within the team.	1.96	0.88	Low	6
10. The conditioning regimen effectively equips me to meet the physical requirements of matches.	2.00	0.89	Low	3
<b>COMPOSITE MEAN</b>	<b>1.97</b>	<b>0.73</b>	<b>Low</b>	

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

Table 3 shows the evaluation of coaching methodologies and training strategies in Chinese university handball

regarding physical conditioning, resulting in a composite mean score of 1.97 and a standard deviation of 0.73. The data revealed a low assessment for this dimension, with participants dissenting that the training sessions improve their overall physical fitness ( $M = 1.93$ ), that they have observed a significant enhancement in their physical power as a result of their intensive training regimen ( $M = 1.94$ ), and that the coaching staff prioritizes the importance of physical fitness ( $M = 1.94$ ). The analysis of the replies indicated that item number 2 received the lowest average score of 1.93, whilst item number 7 (I observe a significant enhancement in my endurance due to our hard training activities) attained the highest average score of 2.02.

This indicates that athletes perceive the existing training as insufficient for cultivating vital physical traits such as strength, speed, and flexibility. Sun et al. (2023) assert that an effectively structured physical conditioning program must cater to the multifaceted physical requirements of handball, prioritizing strength, agility, and aerobic capacity. The low score in this domain indicates potential inadequacies in training intensity or a deficiency in sport-specific physical routines.

The poor results underscore coaches' need to prioritize

physical fitness more rigorously in their training agendas. Liu and Chen (2023) contend that coaches are pivotal in fostering a fitness culture via organized conditioning sessions and by advocating off-field fitness activities. To optimize player performance, coaches must formulate personalized conditioning regimens that address each athlete's unique requirements, using focused workouts aligned with their physical strengths and limitations. This corresponds with the conclusions of Wang et al. (2021), who discovered that tailored conditioning regimens markedly boost player fitness, diminish injury risks, and improve overall match performance.

The superior score for endurance training indicates that endurance activities, including long-distance running, interval sprints, and sustained aerobic workouts, may be more effectively incorporated into existing practices than other conditioning components. To optimize physical conditioning results, coaches must ensure that endurance training is supplemented with strength, speed, and agility exercises. Zhang and Li (2022) assert that a comprehensive conditioning strategy, incorporating both aerobic and anaerobic elements, is vital for enhancing athletic performance in team sports such as handball.

### Psychological and Mental Training

**Table 4.** Assessment of Coaching Methods and Training Techniques in Chinese University Handball in terms of Psychological and Mental Training

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Utilizing mental training strategies may improve our concentration and fortitude.	1.97	0.85	Low	7.5
2. The coaching team offers assistance in handling stress and pressure.	1.96	0.87	Low	9.5
3. Visualization exercises are a consistent component of our training regimen.	2.02	0.94	Low	2.5
4. We get instructions on how to enhance our focus while participating in games.	2.06	0.93	Low	1
5. The psychological training enhances my motivation and self-assurance.	1.99	0.86	Low	5
6. The instructors promote a mindset focused on optimism and resilience.	1.96	0.87	Low	9.5
7. We explore techniques for managing performance anxiety.	2.01	0.95	Low	4
8. My psychological fortitude has improved due to our training.	2.02	0.91	Low	2.5
9. As part of our psychological training, we engage in the practice of goal-setting procedures.	1.98	0.89	Low	6
10. The cognitive training offered enhances my performance in high-stress situations.	1.97	0.87	Low	7.5
<b>COMPOSITE MEAN</b>	<b>1.99</b>	<b>0.73</b>	<b>Low</b>	

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

Table 4 presents an evaluation of coaching methodologies and training strategies in Chinese university handball in relation to psychological and mental training. The composite mean score is 1.99, with a standard deviation of 0.73, signifying a low evaluation. The analysis of the data showed that respondents do not agree that the coaching team helps them deal with stress and pressure ( $M = 1.96$ ), that the instructors encourage a mindset based on optimism and resilience ( $M = 1.96$ ), or that using mental training strategies could improve their focus and resilience ( $M = 1.97$ ). Items 2 and 6 attained the lowest mean score of 1.96 based on the participants' responses. In contrast, item number 4 (We receive guidance on improving our concentration during

gameplay) produced the highest mean score of 2.06.

This indicates that athletes recognize insufficient mental preparation is essential for elite sports performance. Wang and Qian (2023) assert that mental resilience and stress management are critical for sustaining performance under duress, underscoring the necessity for psychological skills training in competitive handball. The low score indicates a deficiency in coaching tactics, suggesting that mental training approaches may not be adequately included in standard training regimens.

The inadequate scores in promoting an optimistic and resilient mentality highlight the necessity for coaches to implement a more proactive strategy in mental coaching. Sun

and Zhao (2021) propose that fostering a supportive and encouraging team atmosphere can improve players' psychological well-being, enhancing overall performance. Coaches should utilize positive reinforcement, team-building activities, and individual counseling sessions to cultivate an optimistic outlook in players. This corresponds with Wang and Qian (2023), who discovered that athletes thrive in a mentally favorable atmosphere, since it augments drive, dedication, and concentration during contests.

The comparatively elevated score for focus guidance

indicates the presence of specific mental training components, although they may lack enough breadth or profundity. Liu et al. (2022) endorse mental training programs incorporating advanced focus-enhancing approaches, including mindfulness, imagery training, and competitive simulation drills. By combining these techniques into routine training sessions, coaches may assist players in sustaining concentration during matches and enhancing their capacity to manage pressure.

**Table 5.** Assessment of Coaching Methods and Training Techniques in Chinese University Handball in terms of Individualized Development Plans

Indicators	Mean	SD	Verbal Interpretation	Rank
1. I have a customized training regimen designed to meet my requirements.	2.02	0.97	Low	6
2. The coaching team offers precise comments to enhance my performance.	2.07	0.99	Low	3.5
3. My training plan encompasses both my areas of proficiency and areas for improvement.	2.01	0.98	Low	8
4. The coaches prioritize my growth as an athlete.	2.07	0.98	Low	3.5
5. The customized strategies assist me in attaining my specific objectives.	2.01	0.94	Low	9
6. The coaching team consistently monitors and modifies my improvement.	2.02	0.95	Low	6
7. The customized training improves my entire performance.	2.02	0.96	Low	6
8. I am assigned targeted exercises to address areas in which I need improvement.	2.08	0.95	Low	2
9. The coaches provide individualized lessons to concentrate on my growth.	2.00	0.95	Low	10
10. My personalized plan has specific objectives and significant milestones to monitor and assess my development.	2.14	1.02	Low	1
<b>COMPOSITE MEAN</b>	<b>2.04</b>	<b>0.81</b>	<b>Low</b>	

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

In terms of individualized development plans, Table 5 provides an evaluation of coaching methods and training techniques in Chinese university handball. The composite's mean score is 2.04, with a standard deviation of 0.81, signifying a low evaluation. This implies that the students do not concur that the coaches provide individualized lessons to concentrate on their growth ( $M = 2.00$ ), that the customized strategies assist them in attaining their specific objectives ( $M = 2.01$ ), and that the training plan encompasses both their areas of proficiency and areas for improvement ( $M = 2.01$ ). Responses indicated that item 9 recorded the lowest mean score of 2.00, whilst item 10 (My personalized plan has specific objectives and significant milestones to monitor and assess my development) achieved the highest average score of 2.14.

This indicates that the existing coaching methodology may insufficiently emphasize the customization of training sessions to cater to players' distinct strengths and shortcomings. Yang et al. (2023) contend that individualized coaching is essential for player development, as it facilitates modifying approaches and plans according to individual requirements. The inadequate score underscores the necessity for increased individualized sessions and customized feedback to enhance personal development.

Low scores were recorded for items about tailored methods

for attaining specified goals ( $M = 2.01$ ) and plans that integrate strengths and weaknesses ( $M = 2.01$ ). The data indicate that players consider their training insufficient to address skill improvement and deficiencies effectively. Gao and Sun (2022) discovered that individualized training regimens, which equilibrate strengths and weaknesses, are more efficacious in facilitating athletes' consistent development. The findings suggest that coaches should dedicate effort to creating personalized training programs that ensure balanced skill enhancement and correspond with each athlete's goals.

The comparatively elevated score for establishing explicit targets and milestones indicates that participants acknowledge the significance of progress monitoring; nonetheless, the process might be enhanced by more regular assessments and feedback. Zhou et al. (2023) emphasize the necessity of periodic progress evaluations and plan modifications informed by performance indicators to guarantee ongoing advancement. Coaches should strive to do frequent progress evaluations, modify training programs as necessary, and uphold transparent feedback mechanisms to facilitate personalized development. This would optimize training tactics under each player's developmental trajectory, thus improving performance and overall pleasure.

**Table 6.** Assessment of Coaching Methods and Training Techniques in Chinese University Handball in terms Scouting and Recruitment

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Our team has a very efficient approach to identifying and enlisting fresh talent.	2.02	0.88	Low	5.5
2. The scouting procedure is used to identify athletes who are very compatible with our club.	2.06	0.94	Low	3
3. New members are seamlessly assimilated into the squad.	2.09	0.96	Low	2
4. The implementation of the recruiting plan enables us to establish a robust workforce.	2.04	0.91	Low	4
5. The coaching staff actively participates in the scouting and recruiting process.	1.98	0.88	Low	10
6. Prospective recruits are assessed based on their abilities and prospects.	2.10	0.96	Low	1
7. The scouting process involves a comprehensive evaluation of prospective players.	2.01	0.92	Low	7.5
8. Recruitment endeavors prioritize the identification of athletes that harmonize with our team dynamics.	2.00	0.94	Low	9
9. The recruiting procedure enhances the overall performance of our staff.	2.01	0.90	Low	7.5
10. The coaching staff assists recruits in acclimating to the team's playing style.	2.02	0.93	Low	5.5
<b>COMPOSITE MEAN</b>	<b>2.03</b>	<b>0.77</b>	<b>Low</b>	

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

Table 6 provides an evaluation of coaching methodologies and training strategies in Chinese university handball concerning scouting and recruitment. The table shows a mean score of 2.03 with minimal variability, as evidenced by a standard deviation of 0.77. This indicates a low assessment and a disagreement regarding the coaching staff's active involvement in the scouting and recruiting process ( $M = 1.98$ ), the recruitment efforts' focus on identifying athletes who align with team dynamics ( $M = 2.00$ ), and the thorough evaluation of potential players during the scouting process ( $M = 2.01$ ). Item number 5 received the lowest average score of 1.98, but item number 6 (prospective recruits are assessed based on their abilities and prospects) achieved the highest mean score of 2.10.

This outcome indicates that coaches may not be proactively involved in discovering and choosing fresh talent, thereby impacting the quality and suitability of recruits. Huang and Wei (2023) assert that coach participation in scouting is

essential for aligning recruiting with the team's tactical requirements and cultural context. The low score highlights the need for more coach involvement in recruiting, ensuring that potential players possess requisite abilities and align with the team's dynamics.

The inadequate scores in several facets of scouting and recruitment underscore a substantial deficiency in the existing methodology for attracting fresh talent. Guo et al. (2021) advocate for a comprehensive scouting approach that assesses physical and psychological characteristics, including adaptability, communication abilities, and mental fortitude. To enhance recruiting results, coaches ought to engage more actively in the process and provide players with ideas that align with the team's playing style and culture. Moreover, recruiting initiatives must prioritize players' long-term potential and development rather than just current competencies, as Zhang and Zhao (2023) indicated.

**Table 7.** Summary of the Assessment of Coaching Methods and Training Techniques in Chinese University Handball

	N	Mean	SD	Verbal Interpretation
Fundamentals and Skill Development	428	2.03	0.74	Low
Tactical and Strategic Training	428	2.13	0.80	Low
Physical Conditioning	428	1.97	0.73	Low
Psychological and Mental Training	428	1.99	0.73	Low
Individualized Development Plans	428	2.04	0.81	Low
Scouting and Recruitment	428	2.03	0.77	Low
<b>Overall</b>	<b>428</b>	<b>2.03</b>	<b>0.55</b>	<b>Low</b>

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

The comparatively elevated score for assessing technical talents indicates that the existing scouting method had a degree of structure. Yet, it requires enhancement to

incorporate thorough assessments that consider a player's overall compatibility. Chen et al. (2021) contend that effective recruiting results frequently hinge on the equilibrium between

skill evaluation and cultural fit, ensuring that new members augment personal performance and team cohesion. Coaches should strive to establish a comprehensive recruitment process incorporating consistent input from team members

and employing a broader array of criteria to assess prospective recruits.

### Assessment of the Respondents of their Individual and Team Cohesion

**Table 8.** Assessment of Individual and Team Cohesion in terms of Interpersonal Relationships

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Team members consistently assist one another both during and outside of games.	2.11	0.88	Low	8.5
2. I am at ease when addressing personal matters with my colleagues.	2.20	0.94	Low	1
3. Team members exhibit a significant degree of trust.	2.17	0.93	Low	3.5
4. Teammate conflicts are promptly and harmoniously handled.	2.12	0.90	Low	6.5
5. I see a sense of esteem and regard from my teammates.	2.11	0.91	Low	8.5
6. Team members engage in transparent and candid communication.	2.12	0.91	Low	6.5
7. My colleagues and I often provide valuable criticism to one another.	2.07	0.88	Low	10
8. The crew has a strong feeling of togetherness.	2.17	0.91	Low	3.5
9. I have developed strong bonds with several colleagues.	2.19	0.94	Low	2
10. Team members often motivate one another throughout both practice sessions and games.	2.13	0.92	Low	5
<b>COMPOSITE MEAN</b>	<b>2.14</b>	<b>0.76</b>	<b>Low</b>	

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

Table 8 presents the respondents' assessment of their individual and team coherence in interpersonal interactions. The data analysis produced a mean composite score of 2.14 and a standard deviation of 0.76, indicating a low level of assessment. This indicates their dissent about the notion that colleagues frequently offer constructive criticism to each other (M = 2.07), that team members reliably support one

another both inside and outside of games (M = 2.11), and that they perceive a sense of esteem and respect from their teammates (M = 2.11). Item number 7 had the lowest average score of 2.07, but item number 2 (I am at ease when addressing personal concerns with my coworkers) attained the highest mean score of 2.20.

**Table 9.** Assessment of Individual and Team Cohesion in terms of Team Identity

Indicators	Mean	SD	Verbal Interpretation	Rank
1. I have a profound feeling of affiliation with the team.	1.99	0.82	Low	10
2. We have a shared vision and objectives for the team.	2.03	0.87	Low	9
3. Collectively, all members of the team rejoice and acknowledge the achievement.	2.07	0.85	Low	5.5
4. I get satisfaction from being a member of this team.	2.08	0.87	Low	4
5. We are motivated by a collective sense of team spirit.	2.09	0.88	Low	2.5
6. We engage in team rituals and customs that enhance our connection and cohesion.	2.09	0.91	Low	2.5
7. The clarity and definition of our team identity are evident.	2.07	0.87	Low	5.5
8. I am dedicated to maintaining the team's principles and benchmarks.	2.05	0.85	Low	7
9. Team members exhibit unwavering loyalty to the team.	2.10	0.91	Low	1
10. Our team has a unique and distinguishing character that distinguishes us from others.	2.04	0.84	Low	8
<b>COMPOSITE MEAN</b>	<b>2.06</b>	<b>0.71</b>	<b>Low</b>	

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

The inadequate ratings in several facets of interpersonal relationships indicate a substantial deficiency in team-building initiatives. Li and Wang (2021) advocate for the implementation of systematic team-building activities that prioritize communication, mutual support, and respect, which

are crucial for cultivating a cohesive team atmosphere. Coaches must prioritize establishing an inclusive culture in which players feel appreciated, respected, and supported in personal and team-related problems.

Table 9 presents the participants' assessments of individual

and team cohesion in terms of team identity, yielding a composite mean score of 2.06 and a standard deviation of 0.71. The descriptive data indicates a low evaluation for this variable, revealing disagreement regarding the enhancement of physical strength through basketball learning (M = 1.96), the acquisition of professional skills in basketball (M = 1.96), and the increase in interest in basketball (M = 1.97). Based on the participants' feedback, item numbers 2 and 3 obtained the lowest average score of 1.96, while item numbers 4 (The learning in basketball gives me a sense of achievement) and 5 (The learning in basketball improves my sports knowledge) received the highest average score of 2.04.

The persistently poor ratings in several aspects of team

identification underscore the necessity for enhanced tactics to bolster players' affiliation with the club. Liu et al. (2023) advocate for integrating team-building activities that highlight common objectives, reciprocal support, and shared experiences, which are crucial for strengthening team identity. Coaches should prioritize the establishment of a more inclusive atmosphere that fosters individual growth while aligning personal development with team performance. This methodology corresponds with Zhou and Wang (2022), who propose that cultivating a robust team identity necessitates continuous endeavors to link individual accomplishments with shared objectives.

**Table 10.** Assessment of Individual and Team Cohesion in terms of Conflict Resolution

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Team conflicts are swiftly and successfully resolved.	2.03	0.99	Low	9
2. We have implemented protocols for settling conflicts.	2.10	1.02	Low	2
3. The team members are receptive to discussing disputes and actively seeking resolutions.	2.04	0.94	Low	7
4. The coaching staff aids in the equitable resolution of disagreements.	2.07	0.99	Low	4.5
5. I see that my issues are acknowledged and taken into account during confrontations.	2.08	0.99	Low	3
6. We use confrontations as a chance to enhance team cohesiveness.	2.03	0.96	Low	9
7. The team fosters a constructive atmosphere even in difficulties.	2.05	0.96	Low	6
8. Conflicts are suitable for our collective team's effectiveness.	2.17	1.05	Low	1
9. I am pleased with the team's management of disputes.	2.07	1.00	Low	4.5
10. Conflicts serve as opportunities for learning and personal development rather than causing division.	2.03	0.99	Low	9
<b>COMPOSITE MEAN</b>	<b>2.07</b>	<b>0.83</b>	<b>Low</b>	

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

Table 10 presents the assessment of individual and team cohesion regarding conflict resolution among selected respondents, yielding a composite mean score of 2.07 and a standard deviation of 0.83. The descriptive data shows that this variable got a low score, which means that students don't agree that team conflicts are quickly and effectively resolved (M = 2.03), that confrontations are used to make teams stronger (M = 2.03), or that conflicts should be seen as chances to learn and grow as individuals (M = 2.03). An analysis of their responses indicates that items 1, 6, and 10 had the lowest mean score of 2.03, whilst item 8 (Conflicts are conducive to our collective team's efficiency) attained the highest mean score of 2.17.

The results suggest that players may see disagreements as poorly managed, adversely affecting team cohesiveness and individual growth. Liu and Zhang (2023) assert that effective dispute resolution is crucial for team cohesiveness, as it cultivates trust and transparency among members, facilitating growth and enhanced performance. The low scores underscore the need for more proactive conflict management tactics that promote the perception of confrontations as learning opportunities.

The inadequate scores in all areas pertaining to conflict resolution indicate a more extensive problem in how teams address disagreements and confrontations. Wang and Li (2022) advocate for the incorporation of conflict resolution

training into team development programs, emphasizing communication skills, empathy, and problem-solving methodologies. Coaches ought to cultivate an atmosphere in which disagreements are perceived as inherent events that, when well-managed, may enhance relationships and performance. This methodology corresponds with Zhao and Sun (2021), who assert that seeing disagreements as chances for growth can improve team cohesiveness and individual resilience.

Table 11 presents the evaluation of individual and team cohesion in terms of commitment, with a composite mean score of 2.03 and a standard deviation of 0.77. The descriptive data reveals a low evaluation for this variable, suggesting that students do not agree that they consistently engage in all team practices and activities (M = 1.95), that despite challenges, their commitment to the team remains steadfast (M = 1.97), and that team members constantly exhibit unwavering dedication during both practice sessions and games (M = 2.01). Based on their responses, item number 6 recorded the lowest mean score of 1.95, whilst item 7 (Team members provide mutual support to retain their commitment) attained the highest mean score of 2.10.

**Table 11.** Assessment of Individual and Team Cohesion in terms of Commitment

Indicators	Mean	SD	Verbal Interpretation	Rank
1. I am wholeheartedly dedicated to ensuring the team's success.	2.05	0.97	Low	4
2. The team players continuously demonstrate unwavering commitment throughout both practice sessions and games.	2.01	0.92	Low	7.5
3. I am prepared to exert more effort for the sake of the team.	2.01	0.92	Low	7.5
4. Our primary focus is on achieving team objectives rather than individual aspirations.	2.08	0.98	Low	2
5. The team has a robust work culture and a commitment to continuous progress.	2.07	0.99	Low	3
6. I consistently participate in all team practices and activities.	1.95	0.89	Low	10
7. Team members provide mutual support to maintain their commitment.	2.10	0.97	Low	1
8. I am driven to maintain exemplary performance standards for the team.	2.02	0.92	Low	5.5
9. Despite facing difficulties, our dedication to the team remains unwavering.	1.97	0.94	Low	9
10. I possess a strong feeling of accountability for the success of my colleagues.	2.02	0.92	Low	5.5
<b>COMPOSITE MEAN</b>	<b>2.03</b>	<b>0.77</b>	<b>Low</b>	

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

This low score indicates considerable difficulty with consistent involvement, suggesting possible concerns such as insufficient motivation, ambiguous objectives, or external conflicts that impede attendance. Huang and Li (2023) assert that regular participation is essential for commitment in team sports, as it enhances team dynamics and strengthens individual investment in shared objectives. Inconsistent involvement can undermine team cohesiveness, impair plan implementation, and obstruct the cultivation of trust and collaboration among members.

The disparity between the minimum and maximum mean scores highlights the necessity for tactics that improve engagement and foster mutual support within the team. Mitigating obstacles to involvement is essential for enhancing sustained engagement, but fortifying interpersonal bonds may bolster commitment. Coaches may cultivate a more dedicated and unified team atmosphere by instituting complete programs emphasizing motivation, team cohesiveness, and individual accountability.

**Table 12.** Assessment of Individual and Team Cohesion in terms of Team Building Activities

Indicators	Mean	SD	Verbal Interpretation	Rank
1. We often participate in endeavors that foster camaraderie and cohesion within the crew.	2.02	0.97	Low	4.5
2. Using team-building activities has significantly enhanced our ability to collaborate and communicate effectively.	2.04	0.95	Low	3
3. Engaging in these activities enhances my comprehension of my colleagues.	2.00	0.93	Low	8.5
4. I get great pleasure from engaging in team-building exercises.	1.96	0.93	Low	10
5. Team-building exercises are a crucial component of our training curriculum.	2.01	0.92	Low	6.5
6. These exercises have enhanced our trust and collaboration.	2.01	0.94	Low	6.5
7. Regularly, we contemplate team-building activities to improve their efficacy.	2.07	0.99	Low	2
8. The use of team-building exercises has had a beneficial effect on our performance during games.	2.02	0.94	Low	4.5
9. These events have enhanced my sense of camaraderie with my colleagues.	2.00	0.94	Low	8.5
10. The coaching staff emphasizes the significance of team-building activities.	2.08	0.97	Low	1
<b>COMPOSITE MEAN</b>	<b>2.02</b>	<b>0.79</b>	<b>Low</b>	

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



Table 12 displays an evaluation of individual and team cohesion in relation to team-building exercises. The tabulated data yielded a composite mean score of 2.02 and a standard deviation of 0.79, signifying a poor ranking. This indicates their dissent regarding the enjoyment derived from team-building exercises (M = 1.96), the enhancement of their understanding of colleagues through these activities (M = 2.00), and the improvement of their sense of camaraderie with colleagues (M = 2.00). Item number 4 recorded the lowest mean score of 1.96, but item number 10 (The coaching staff underscores the importance of team-building activities)

attained the highest mean score of 2.08.

The persistently low scores in team-building components indicate a necessity for enhanced tactics that render these activities more engaging, significant, and congruent with team objectives. Zhang et al. (2023) advocate for implementing varied and dynamic team-building activities according to the team's unique requirements to enhance interpersonal connections. Coaches ought to prioritize developing activities that are engaging and meaningful, augmenting players' incentive to engage and fortifying team togetherness.

**Table 13.** Assessment of Individual and Team Cohesion in terms of Support Systems

Indicators	Mean	SD	Verbal Interpretation	Rank
1. Sufficient support structures are in place to facilitate my personal and athletic growth.	2.11	1.01	Low	4
2. The coaching team is easily accessible and encouraged.	2.09	0.98	Low	5
3. I possess access to a variety of resources that aid in enhancing my performance.	2.08	0.96	Low	7
4. The team offers mental health assistance as necessary.	2.15	1.02	Low	2
5. I get ample support from my colleagues in the pursuit of my objectives.	2.04	0.96	Low	9.5
6. The institution provides amenities that improve our training experience.	2.04	0.96	Low	9.5
7. The medical assistance given adequately fulfills my requirements as an athlete.	2.08	0.95	Low	7
8. Our staff can get dietary advice and assistance.	2.18	1.00	Low	1
9. I can depend on the team for emotional assistance during challenging circumstances.	2.12	1.01	Low	3
10. The existing support mechanisms significantly enhance my general well-being.	2.08	0.96	Low	7
<b>COMPOSITE MEAN</b>	<b>2.10</b>	<b>0.83</b>	<b>Low</b>	

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

Table 13 delineates the evaluation of individual and team cohesion concerning support systems. The tabulated data yielded a composite mean score of 2.10 and a standard deviation of 0.83, signifying a low ranking. The respondents indicate a lack of agreement regarding sufficient support from colleagues in achieving their objectives (M = 2.04), the availability of amenities that enhance their training

experience (M = 2.04), and access to diverse resources that improve their performance (M = 2.08). Based on their responses, item numbers 5 and 6 obtained the lowest mean score of 2.04 and item number 8 (Our staff can get dietary advice and assistance) obtained the highest mean score of 2.18.

**Table 14.** Summary of the Assessment of Individual and Team Cohesion

	N	Mean	SD	Verbal Interpretation
Interpersonal Relationships	428	2.14	0.76	Low
Team Identity	428	2.06	0.71	Low
Conflict Resolution	428	2.07	0.83	Low
Commitment	428	2.03	0.77	Low
Team Building Activities	428	2.02	0.79	Low
Support Systems	428	2.10	0.83	Low
<b>Overall</b>	<b>428</b>	<b>2.07</b>	<b>0.54</b>	<b>Low</b>

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

Table 13 assesses participants' opinions of individual and team cohesiveness concerning support systems among

Chinese university handball teams. The composite mean score of 2.10, accompanied by a standard deviation of 0.83,

indicates a predominantly unfavorable assessment of the existing support services. The lowest mean ratings were recorded for questions concerning adequate assistance from colleagues in meeting objectives (M = 2.04) and the accessibility of facilities that improve training experiences (M = 2.04). The low ratings indicate that athletes may perceive insufficient support from their teammates or lack essential resources, impairing individual and team performance. Li and Zhang (2023) assert that sound support systems are crucial to sports since they provide players with the necessary physical, emotional, and logistical resources to optimize their performance. Unreceived support may diminish motivation, engagement, and overall team cohesiveness.

The persistently poor ratings in several facets of support systems signify a substantial necessity for enhanced infrastructure and support mechanisms. Liu and Zhao (2021) propose that improving support systems necessitates a comprehensive strategy, integrating access to superior facilities, mental health treatments, and ongoing peer support. Coaches and management must emphasize the establishment of complete support systems that address athletes' physical and psychological demands, assuring a holistic approach to performance and cohesiveness.

#### Relationship between the Coaching Methods and Training Techniques and Individual and Team Cohesion

**Table 15.** Correlation Matrix Between the Coaching Methods and Training Techniques and Individual and Team Cohesion

	Interpersonal Relationships	Team Identity	Conflict Resolution	Commitment	Team Building Activities	Support Systems	Overall
Fundamentals and Skill Development	0.39	0.27	0.29	0.28	0.37	0.28	0.38
	< .001	< .001	< .001	< .001	< .001	< .001	< .001
Tactical and Strategic Training	0.26	0.32	0.30	0.37	0.40	0.32	0.42
	< .001	< .001	< .001	< .001	< .001	< .001	< .001
Physical Conditioning	0.31	0.34	0.27	0.31	0.38	0.39	0.42
	< .001	< .001	< .001	< .001	< .001	< .001	< .001
Psychological and Mental Training	0.36	0.32	0.24	0.31	0.24	0.36	0.36
	< .001	< .001	< .001	< .001	< .001	< .001	< .001
Individualized Development Plans	0.27	0.33	0.32	0.39	0.35	0.31	0.41
	< .001	< .001	< .001	< .001	< .001	< .001	< .001
Scouting and Recruitment	0.36	0.28	0.34	0.31	0.42	0.35	0.44
	< .001	< .001	< .001	< .001	< .001	< .001	< .001
Overall	0.42	0.38	0.35	0.39	0.44	0.41	0.51
	< .001	< .001	< .001	< .001	< .001	< .001	< .001

Legend: .00-0.19: Very Weak; 0.20-0.39: Weak; 0.40-0.59: Moderate; 0.60-0.79: Strong; 0.80-1.00: Very Strong

The analysis of the Spearman's rho correlation revealed p-values that are lower than the 0.05 level of significance for all the variables. This means that the data found significant findings that there is a linear relationship between coaching methods and training techniques and individual and team cohesion. Specifically, the assessment of coaching methods and training techniques is correlated with the assessment of individual and team cohesion, which manifested in the correlation coefficients ranging from 0.24 to 0.51 (weak to moderately positive). This may imply that when the level of coaching methods and training techniques increases, so does the level of individual and team cohesion, and vice versa.

The investigation of Spearman's rho correlation revealed statistically significant correlations between coaching approaches, training techniques, and individual and team cohesiveness, evidenced by p-values below the 0.05

significance threshold across all assessed variables. This research indicates a linear correlation between the quality of coaching methods and training approaches and the degree of cohesiveness among team members, individually and collectively. Correlation values varied from 0.24 to 0.51, signifying mild to strong positive correlations. The results indicate that enhancements in coaching methods and training approaches correlate with individual and team cohesiveness gains.

This study's favorable correlations underscore the essential influence of coaching methods and training strategies on individual and team cohesiveness. Implementing a comprehensive coaching technique that considers physical and psychological elements may improve team cohesiveness, resulting in superior performance outcomes and a more favorable team culture.

**Table 16.** Challenges Faced by University Handball Coaches in China When Implementing Innovative Coaching Strategies and Training Techniques

Themes	Defining Elements	Informants
<b>Resistance to Change</b>	<i>"Many players seemed hesitant the first time I tried to introduce a new offensive strategy that required them to make quick decisions." They liked returning to the old drills because they were familiar with them. Some of them didn't want to change at all for a few weeks before they started to get used to it."</i>	Coach 12
	<i>"Getting the coaching staff on board was the hardest thing for me." Many of them have been teaching for a long time and are used to old-fashioned methods. They weren't sure about trying new things, which made it hard to make the changes I wanted."</i>	Coach 5
	<i>"Some players were honest about how hard they initially thought the new training methods were. They didn't think the changes were important and would rather focus on what they already knew."</i>	Coach 9
<b>Limited Resources and Facilities</b>	<i>"We don't have the high-tech tools we need to look at video footage of how players move." A performance analysis tool would have been great for giving immediate feedback, but our university doesn't have that kind of technology."</i>	Coach 15
	<i>"The gym where we train doesn't have enough room or the right set-up to do drills that use new techniques effectively." This reduces our time to try out new ideas during practice."</i>	Coach 2
	<i>"For some strategies to work, you need modern recovery equipment and specialized training tools." Without them, we can only practice the drills to a basic level, which isn't good enough to get the desired results."</i>	Coach 14
<b>Insufficient Training and Professional Development</b>	<i>"I haven't had many chances to attend workshops or training programs that teach modern coaching methods." Most of our training is still built in old-fashioned ways, which keeps me from learning about new things."</i>	Coach 11
	<i>"When I attempted to implement a new defensive strategy, I realized I wasn't fully confident in teaching it because I hadn't received proper training to deliver this technique effectively."</i>	Coach 1
	<i>"There aren't enough chances for professional growth that focus on new ways of coaching." I learn many things independently by using online tools, which isn't the same as getting help from an expert or doing things for real."</i>	Coach 13
<b>Time Constraints</b>	<i>"We only have a short time for training, and it's hard to add new strategies without messing up the routine." The athletes also have schoolwork, which limits the time they can exercise."</i>	Coach 3
	<i>"Since training lasts only a few hours a week, there isn't enough time to learn and use new techniques." Before we can see growth with a new method, we often have to return to old-fashioned drills to prepare for games."</i>	Coach 8
	<i>"The school schedule at my university is hectic, and many players miss practice because they have to study." It's harder to keep up with training when things aren't consistent, let alone try something new."</i>	Coach 4
<b>Cultural and Communication Barriers</b>	<i>"Because of the traditional culture of respecting authority figures, some players are afraid to ask questions or give feedback during practice." Because of this, it's hard to tell if they understand the new methods."</i>	Coach 6
	<i>"I tried to teach them a common handball strategy among Western teams, but they had trouble understanding it." I learned later that the different ways they were used to sports culture affected how they took the new method."</i>	Coach 7
	<i>Sometimes, my players don't fully understand the technical terms I use, especially when they come from teaching methods used in other countries. This makes communication more rigid, which makes it harder to explain the point of new drills."</i>	Coach 13

Table 16 affirms the results of interview with 15 college handball teachers in China. The interviews focused on their challenges when using new teaching and coaching methods. The table is organized around five main themes in the interviews: not wanting to change, not having enough tools and facilities, not getting enough training and professional

growth, not having enough time, and cultural and communication barriers. There are defining parts for each theme, which are quotes from coaches that show how hard it is to deal with each type of problem.

The study shows that coaches' most significant challenges are people who don't want to change. Several coaches said

that players hesitated to try new techniques initially, with some sticking to what they knew. Players didn't just show this hesitation; it was also demonstrated by teaching staff, who have a long history of preferring traditional methods. This reluctance can make it take longer to use new methods and harder to build an innovative mindset within the team. This theme has significant implications: if players and teachers don't strongly support new techniques, they might not be used consistently, which could cause team growth to be broken up. To make the environment more accepting, coaches need to use change management techniques like introducing new methods slowly, communicating the benefits over and over, and getting players and staff more involved in making decisions.

In conclusion, the interviews show that university handball coaches in China face many problems when using new teaching methods. Resistance to change, a lack of resources, inadequate professional development, time limits, and cultural barriers are some of the problems that have been found. These show the importance of taking a broad approach that handles structural and interpersonal dynamics. Universities can make it easier for new coaching methods to be used and improve team performance by making the setting more supportive, giving coaches better tools, investing in their education, making training plans more efficient, and encouraging open communication.

## 4. Conclusion

1.The low scores for teaching methods and training techniques show that organized, up-to-date methods are needed to help people learn new skills, get in better shape, and grow mentally, calling university programs to spend money on complete training upgrades to improve player growth and team success.

2.Similarly, low team harmony scores show that relationships between team members, team identity, and team engagement are weak, needing improvement in unity and efficiency smart team-building, conflict resolution, and identity-strengthening activities.

3. Teaching methods and team cohesion are linked in a good way, which shows that better coaching can really improve team interactions.

4.The challenges of resistance to change, limited resources, lack of professional development, time constraints, and cultural barriers indicate systemic issues, emphasizing the need of institutional support, better resources, professional training, efficient scheduling, and culturally adaptive coaching to fully implement innovative strategies and strengthen team cohesion.

## 5. Recommendations

1.University programs should invest in advanced coaching methods that integrate skill development, physical conditioning, and psychological training. This can be achieved by incorporating evidence-based practices, personalized training plans, and modern performance analysis tools to ensure comprehensive player development.

2.Coaches should implement regular team-building activities that promote trust, unity, and effective communication. Structured workshops on conflict resolution, commitment-building exercises, and activities that foster a strong team identity should be integrated into training routines to enhance overall cohesion.

3.Coaches should employ holistic approaches that align technical skills with interpersonal development. This could involve training programs that balance tactical instruction with exercises that build teamwork, shared goals, and mutual support among players.

4.Universities should prioritize securing funding to improve training facilities and provide modern equipment. Partnerships with sports organizations and seeking government or private sector sponsorships can help bridge resource gaps and enable more effective implementation of innovative coaching methods.

5.Regular training programs, workshops, and seminars focusing on modern coaching techniques should be offered to coaches. Collaborations with international coaching bodies and access to online training resources can ensure coaches stay updated on innovative strategies.

6.Training programs should be better aligned with players' academic schedules to maximize participation. Coaches should focus on time-efficient, high-impact training methods that fit within the available timeframes, ensuring consistent engagement and continuity in skill development.

7.Coaches should receive training in culturally adaptive methods that promote open communication and encourage feedback. This approach can help bridge cultural gaps, making players more receptive to new strategies and fostering a more inclusive training environment.

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