

Physical condition preparation of combat sport athletes for fighting simulation in experimental research: coach perspective analysis

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Abstract

Background and Study Aim There is a lack of scientific information on how much time is ideal for physical conditioning preparation needed before conducting experimental research in the form of a pretest. The purpose of this study is to fill the information gap by collecting data and in-depth analysis of the preparation time considered optimal by coaches in facing match simulations at pretest time.

Material and Methods This type of research is qualitative, with an unstructured interview approach and field observation as well as evidence of scientific publications. The sample is 10 coaches represented by 2 coaches each from karate, judo, taekwondo, boxing, and pencak silat. Coach characteristics: aged 45 - 57 years, with experience as athletes ± 10.5 years, and experience as coaches ± 21.3 years. In addition, they must have a minimum coaching license at the national to international level, a bachelor's degree in sports science, and a high level of proficiency (black belt or equivalent). Data analysis uses narrative analysis methods to identify common themes and patterns that emerge from the data.

Results Aspects of technique and tactics, the importance of mastering basic techniques, fighting strategy, mastering attack distance, and defense. Aspects of physical components show that endurance and speed are crucial elements that need to be improved first. In addition, the importance of integrating types of training for muscle strength and agility is emphasized. Aspects of mental, this study highlights the importance of mental training including relaxation and visualization techniques that improve focus, self-confidence, and concentration in athletes. Then the ideal time recommended is at least 6 weeks with intensive training sessions 3-5 times per week, before starting the pretest of the study through simulation.

Conclusions The results of this study can be a reference for researchers who need to be prepared for experimental research other than using the Declaration of Helsinki. In addition, the important point is to avoid injury in the battle simulation when collecting initial pretest data, because the fighter simulation is designed like a real match. The hope is that the results of this study can be a guideline used by researchers to obtain more reliable research results.

Keywords: physical condition, athlete health, injury prevention, sports safety

Introduction

In competitive sports, especially combat sports, match simulations are often used as an important training and evaluation method to measure an athlete's readiness and ability before entering a real match [1]. This simulation requires not only thorough physical preparation from the athlete, but also complex mental and strategic preparation. This preparation is organized and guided by the coach, who plays a key role in determining the effectiveness and safety of the training sessions [2].

Experimental research in combat sports, involving match simulations as pretests and posttests, demands a deep understanding of the various aspects that influence athletes' performance [3]. One of them is the preparation time needed before the athlete starts the match simulation, namely the pretest. This preparation time is a crucial factor that can affect the results of the match simulation and the athlete's overall performance

[4]. Intensive and targeted physical preparation not only improves athletes' performance in match simulations but is also crucial in improving their overall health and endurance. By strengthening their physical condition, athletes are not only protected from excessive fatigue but also from potential risks of injury that can occur during the fight [2]. Therefore, well-designed training should include components to improve endurance, strength, and flexibility, thereby helping athletes reach their peak performance while reducing the likelihood of injury. Therefore, coaches have a critical role in determining the duration and content of this preparation period to ensure that athletes can perform at their peak and reduce the risk of injury [5].

The findings of previous studies, in taekwondo, require a periodization model using a block-periodized training model, the focus of which includes developing general aerobic endurance, muscle strength, and basic techniques [6]. Then, in boxing at the amateur level, it is important to prepare physically during training with a strength/

power training model, due to the uncertain competitive schedule [7]. Studies on judo, karate, and taekwondo explain that success in competition in their training includes general preparation and physical preparation [8]. In MMA [mixed martial arts], preparing body weight according to the match class being followed, and integral training such as combining technical skills and functional abilities in fighting styles for 2 months in pre-competition [9].

However, there is a lack of information on how much time is ideal for physical conditioning preparation needed before conducting research in the form of a pretest. Then, there is no scientific basis for the most ideal stages of a preparation strategy according to coaches in the context of experimental research on combat sports. In addition, the results of this study will develop previous research on karate and Brazilian jiu-jitsu [BJJ], which explains the need for further investigation into failure in combat simulations caused by the physical abilities of athletes [10, 11]. This raises the need to learn more about the perceptions and approaches used by coaches in preparing athletes for match simulations, namely pretests.

This study aims to fill the gap in information by collecting data and conducting in-depth analysis of the preparation time considered optimal by coaches in facing match simulations in experimental research. Indirectly, the results of this study can be used as additional requirements besides the Declaration of Helsinki, which is very important for researchers who want to conduct experimental research. Therefore, this study is important to be conducted with the main aim of providing recommendations that are based on researchers and coaches in compiling athlete preparation protocols during pretests. Thus, it can be expected that the

quality of match simulations in experimental research in the field of combat sports will increase, as well as produce more accurate and representative data from the actual abilities possessed by athletes.

Materials and Methods

Participants

The sample of this study consisted of 10 coaches from various combat sports: karate, judo, taekwondo, boxing, and pencak silat. Each combat sport was represented by two coaches. The characteristics of the coaches as research samples, first, were between 45 and 57 years old. Second, the coaches were former athletes, which was calculated from the time the coach first competed, so the beginning of the athlete's initial training was not counted. Third, the coaches also had a license, which was calculated from the time the coach had an official license at the basic to advanced level, as proof of experience as an official coach. Because with an official license, the coach must go through special training, an exam as a coach, have athletes under his/her guidance, and accompany athletes in official competitions [12], coaches who previously had athletes but did not have a license were not counted demographically. Then, additional characteristics of other coaches were having a bachelor's degree in sports science and a high level of proficiency (e.g., black belt or equivalent), as presented in Table 1.

Research Design

This type of research is qualitative, which aims to explore the perceptions and strategic approaches of combat sport coaches in preparing athletes for simulation matches in the context of experimental research. The qualitative approach was chosen because of its ability to understand social phenomena

Table 1. Demographic Characteristics of Participating Coaches by Sport

Combat Sport	Number	Age Range (years)	Athlete Experience (years)	Coaching Experience (years)	Qualification Level
Karate	Coach 1	57	10.7±1.2	27.3±2.5	International License, Black Belt
	Coach 2	47	9.4±6.2	20.1±0.3	National License, Black Belt
Judo	Coach 1	52	10.8±0.9	23.2±1.8	International License, Black Belt
	Coach 2	48	11.1±5.8	19.7±2.2	National License, Black Belt
Taekwondo	Coach 1	54	10.5±8.3	21.3±2.1	International License, Black Belt
	Coach 2	46	11.1±2.2	18.7±3.1	International License, Black Belt
Boxing	Coach 1	51	10.7±5.2	22.4±3.4	International License
	Coach 2	45	9.3±7.6	19.3±2.7	National License
Pencak Silat	Coach 1	52	11.1±4.2	20.6±2.3	National License
	Coach 2	48	10.4±1.8	19.4±4.5	National License

from the perspective of participants, so it can provide deeper insights into the perspectives, motivations, and experiences of coaches that cannot be achieved through quantitative methods. This study adapts the results of research on training methods from swimming coaches for skill achievement [12], with some necessary modifications.

The data collection procedure was conducted through two main methods: interviews and field observations. In-depth interviews were conducted to explore coaches' experiences, perspectives, and practices related to their athlete preparation prior to match simulation. The interviews were designed to be flexible and semi-structured, allowing researchers to obtain rich and detailed responses. Field observations were conducted to gain first-hand insight into how coaches prepare athletes in training settings, including their interactions with athletes and the application of training methods. This research received an official letter from the university, 013/SK.UMBS/I-3/2025, and data collection was carried out during January 2025.

Primary data were collected through the interview and observation sessions, with the researcher paying attention to the nuances of non-verbal communication and the context in which the training took place. In the interview, there were main questions that would be asked to the trainer, and these questions were developed to obtain more accurate information. The researcher also took detailed field notes during the observation to document observations that were not captured through the interview alone. Some of the main questions that were asked to the coaches are presented in Table 2.

Statistical Analysis

Data collected from interviews and observations were analyzed using narrative analysis methods to identify common themes and patterns emerging from the data. The qualitative data analysis involved a systematic coding process, theme synthesis, and interpretation to provide an in-depth understanding of the dynamics of athlete preparation by coaches. All qualitative procedures followed best practices for thematic analysis, ensuring reliability through coder triangulation. For

the demographic characteristics of the participants (age, athlete experience, and coaching experience), descriptive statistical analysis was applied. The data are presented as means ± standard deviations ($M \pm SD$). No inferential statistical tests were conducted, as the study focused on exploratory qualitative insights rather than hypothesis testing. All statistical descriptions were performed using Microsoft Excel.

Results

The results of this study are based on the analysis of the perspectives of each martial arts coach. In Table 3 below, the results are presented in a general form so that the analysis can be easily understood.

The presentation of this analysis is explained for each combat sport, because each coach has a different perspective. The explanation begins with the coach: karate, judo, taekwondo, boxing, and pencak silat.

Perspective from a Karate Coach

In interviews with karate coaches, several important aspects of athlete preparation have been revealed, which include technical and tactical aspects, physical components, athlete status, and mental preparation. Based on the coaches' experience, there is a specific combination of exercises that are integrated to prepare athletes optimally.

Technical and Tactical Aspects: Karate coaches emphasize the importance of mastering *kihon*, or basic techniques, as the main foundation. *Kihon* training not only improves the effectiveness of movements but also hones precision and energy efficiency during *kumite* (fighting). In addition, coaches integrate tactical training that includes attacking, blocking, and evading, which are essential in developing an athlete's fighting ability. Specifically for sparring training, *kumite* sessions are designed to practice techniques in dynamic, controlled scenarios, allowing athletes to apply tactics in match-like conditions.

Physical Component: The physical component includes endurance and speed, which are key elements in karate. Coaches state that basic aerobic endurance and speed training are essential. The

Table 2. Sample Interview Questions Used in Data Collection

Question Number	Interview Question
Q1	How do you usually prepare athletes before a match simulation?
Q2	How much time do you ideally allocate for preparation before a match simulation?
Q3	What type of training do you include in that preparation period?
Q4	How do you assess whether an athlete is ready to participate in a match simulation?
Q5	What physical or mental aspects do you consider most important in preparation?

Note: These questions served as the primary framework for interviews. Additional probing questions were asked when necessary.

Table 3. General analysis of components based on Combat Sport

Component	Karate	Judo	Taekwondo	Tinju	Pencak Silat
Aspects of Technique and Tactics	Train 'kihon' or basic techniques. Combinations of techniques include attacking, blocking or dodging, countering.	Practice basic techniques such as nage-waza and ne-waza.	Precise power and accuracy.	Technical skills of punching (jab, straight, hook, uppercut).	Practice basic movements such as hitting, kicking, scissoring, sweeping
Aspects of Physical Components	Endurance and speed.	Cardiovascular endurance, muscular endurance, and flexibility.	Endurance, speed and agility.	Cardiovascular and muscular endurance.	Aerobic endurance, strength, flexibility, speed.
Aspects of Mentality	Concentration, focus and control.	Calmness and focus.	Concentration and focus.	Concentration and focus.	Concentration and focus.
Aspects of Athlete Status	Recommended at brown belt, approximately 4 years training experience.	No history of chronic injuries.	Healthy, not overweight and has experience in competitions.	Active as a boxer, 2 years training experience, has participated in competitions.	Active as a silat athlete, not injured, physically and mentally healthy.
Physical Preparation Time	6 weeks.	More than 4 weeks.	6-8 weeks.	Minimum of 6 weeks.	8 weeks.

training program is designed with a combination of medium- to high-intensity training to maximize aerobic capacity, allowing athletes to maintain high intensity throughout *kumite*.

Mental Aspect: Coaches also emphasize the need for concentration and focus training, especially in the context of *kumite*, which requires very fast reaction times. Various mental techniques and visualizations are used to strengthen athletes' ability to control emotions and improve concentration during the match.

Athlete Status: In the context of this study, the coach stated that ideally the athletes involved are those who have a brown belt with around four years of training experience. Athletes at this level have had enough experience to undergo intensive training and understand the technical nuances and tactics of the match.

Physical Preparation Time: In terms of physical preparation time, coaches recommend a preparation period of approximately six weeks before the pretest begins. This is an ideal time for experienced athletes to hone their technical skills, improve their physical condition, and refine their match tactics, as well as ensure that they are in the best mental and physical condition for the pretest.

Perspective from a Judo Coach

From the interviews conducted with judo coaches, various important aspects in the preparation of judo athletes before the match simulation have been identified. Judo coaches emphasize the importance of mastering techniques, optimal physical condition, a strong mental approach, and athlete status.

Technical and Tactical Aspects: Judo coaches

emphasize the importance of mastering two main components of judo: *nage-waza* (throwing techniques) and *ne-waza* (ground grappling techniques). In preparation for a match, training sessions focus on honing these skills so that athletes can master a variety of throws and grappling techniques. This mastery not only increases the chances of winning a match but also helps athletes adapt to the various match situations they may encounter.

Physical Components: Coaches state that good physical condition is key for judo athletes, especially cardiovascular endurance, muscular endurance, and muscle flexibility. To achieve this, the training includes core training to strengthen the core muscles, flexibility training to improve flexibility, and endurance training designed to improve cardiovascular and muscular endurance.

Mental Aspect: In judo, dealing with the pressure of a match and managing adrenaline is a key aspect. Coaches integrate mental training to help athletes develop strategies to stay calm and focused during a match. Breathing techniques, match visualizations, and match scenarios that athletes encounter during training help them prepare for the dynamics of a real match.

Athlete Status: Coaches also noted the importance of selecting athletes who do not have a history of chronic injuries to participate in the study. This is to ensure that athletes can go through the entire training and match simulation period without exacerbating existing conditions or creating new problems.

Physical Preparation Time: The coach explained

that it is important first to understand the purpose of the research to be conducted. However, the judo coach suggested that routine training be carried out for more than four weeks, with a frequency of 3–5 training days per week, thus ensuring that the athletes are sufficiently trained to compete.

Perspective from a Taekwondo Coach

Interviews with Taekwondo coaches revealed the various training strategies and methodologies used to perfect athletes' skills and conditioning prior to simulated matches. Coaches conveyed the importance of integrating technical skills, physical conditioning, and mental preparation in developing competitive athletes.

Technical and Tactical Skills: In Taekwondo, coaches emphasize improving the power and accuracy of punches and kicks. This training involves not only physical strength but also precision training, where athletes regularly practice to improve their accuracy. Attacking, dodging, and countering tactics are also a major focus, with coaches ensuring that athletes can perform an intense frequency of kicks under dynamic and high-pressure conditions. This training requires intensive practice in match-like situations so that athletes become accustomed to the rhythm and intensity of real matches.

Physical Component: Coaches explain that in Taekwondo, endurance, speed, and agility are key. To achieve this, coaches implement interval training as part of an endurance training regimen. Interval training helps athletes improve their cardiorespiratory capacity while maintaining high intensity for a longer period. Agility and quick reaction time drills are also important, as these drills are designed to improve an athlete's ability to respond quickly and effectively to stimuli, which is critical in Taekwondo competition.

Mental Preparation: Taekwondo coaches also recognize the importance of mental preparation. Relaxation and visualization techniques are key components of mental training. Athletes are taught how to relax their bodies and minds before and during a match. Visualization is used to help athletes imagine the match and their techniques, which increases mental clarity and focus while in the arena. This helps athletes manage stress and maintain their concentration during a match.

Athlete Status: For the purpose of this study, coaches noted that athletes involved should ideally be healthy, not overweight, and have experience competing at the regional level. This experience is important because athletes already have an understanding of the pressures of competition and the internal dynamics involved in competing at a more serious level.

Physical Preparation Time: Coaches recommend a physical preparation period of around 6–8 weeks, with sessions 3–5 times per week. This time is

considered sufficient for athletes to hone their technical skills, update their physical condition, and integrate the mental training that has been prepared.

Perspective from a Boxing Coach

Interviews with boxing coaches provide insight into the approach taken to prepare athletes for competition. The coaches describe a comprehensive approach that encompasses technical and tactical aspects, physical components, and mental preparation, all geared toward maximizing athlete performance in the ring.

Technical and Tactical Aspects: In boxing, technical punching skills (jab, straight, hook, uppercut) and tactical skills are key. Coaches emphasize the importance of padding and punching bag drills, which not only increase punching power but also improve accuracy and timing. Coordination and footwork drills are also emphasized to improve the athlete's positioning and movement, which are essential in managing distance and position relative to the opponent. A major focus is placed on increasing the frequency of punches in training sessions, which aims to build the athlete's ability to strike, open up the opponent's defenses, and counterattack effectively.

Physical Component: Good physical condition is essential for boxers, from cardiovascular stamina to muscular endurance. Coaches describe the use of intense cardio endurance training to improve an athlete's aerobic capacity, as well as anaerobic endurance training to enhance their ability to fight at high intensity for longer periods. Training also includes strength training focused on maintaining and improving muscular endurance, which is essential in supporting high-powered, consecutive punches.

Mental Aspect: Boxing not only tests physical strength but also mental strength. Coaches integrate focus and concentration training, which is crucial in matches that require quick reactions to opponent attacks. This training also includes stress and fear management, as well as techniques for reading opponent movements to prepare athletes to face the psychological pressure during matches.

Athlete Status: The coach revealed that the ideal athlete for this type of training is one who is still actively competing, physically and mentally healthy, with at least two years of training experience and who has participated in boxing competitions. This experience is considered important to ensure that the athlete already has a basic understanding of what it takes to compete at a higher level. In addition, the coach will also add provisions for boxers who have a normal body mass index or are not obese.

Physical Preparation Time: According to the coach, optimal preparation for boxers requires a minimum of six weeks with a frequency of 3–5 sessions per

week. This period is considered sufficient to hone all aspects that have been explained, ensuring that boxers reach the peak physical and mental condition they need to simulate a match.

Perspective from a Pencak Silat Coach

In an interview with a Pencak Silat coach, various training strategies and methodologies were revealed that aim to perfect the skills and conditions of athletes before a simulated match. The coach presented an integrated approach to technical and tactical aspects, physical components, and mental preparation.

Technical and Tactical Aspects: Pencak Silat trainers emphasize the importance of mastering basic movements and techniques as the foundation of a silat athlete's skills. This training includes straight punches, crescent kick techniques, and straight kicks, which are integral parts of a silat athlete's repertoire. In addition, trainers also integrate basic training for throws, such as catching an opponent's kick, and basic scissor training, which is important for developing defensive and offensive skills in combat. This approach aims to hone technical skills while strengthening the athlete's tactical understanding of movement and timing in combat.

Physical Component: Physically, the training provided involves aerobic endurance training, which emphasizes heart strength. This is integrated with muscle strength and flexibility training to ensure that athletes are not only strong but also able to perform movements with agility and precision. Speed and reaction training are also a focus, with drills designed to improve the athlete's quick response to an opponent's attacks, which is crucial in the dynamic nature of Pencak Silat combat.

Mental Aspect: In mental preparation, coaches emphasize the importance of adapting to different opponent styles and fighting conditions. Paired training with a partner is used as a method to explore and adapt to different types of opponents, which helps athletes improve concentration and focus. This technique also allows athletes to experience the pressure of fighting in a controlled environment, improving their mental readiness for the real match.

Athlete Status: The coach stated that the ideal athlete for this training program is one who is active as a silat athlete, free from injury, physically and mentally healthy, with approximately two years of training experience. Such experience is important to ensure that the athlete has a solid foundation in Pencak Silat techniques and tactics and is able to follow an intense training program.

Physical Preparation Time: Regarding the physical preparation time, the coaches did not provide exact details, stating that it depends on the purpose of the study. However, these coaches recommend a training period of around eight weeks before the simulation

pretest. This period is considered sufficient to hone all the aspects mentioned, ensuring that athletes reach their peak condition technically, physically, and mentally.

Discussion

Research conducted to test the effectiveness of training methods in various martial arts sports shows the importance of integrating various technical, physical, and mental aspects in athlete training. From interviews with coaches from various disciplines, this study can demonstrate that comprehensive training, which focuses on the specific needs of each sport, has a significant impact on athletes' ability to face simulated combat and, especially, competition.

Aspects of Technique and Tactics

The first analysis on the technical and tactical aspects shows that the coach emphasized the importance of mastering basic techniques as the main foundation in training. The training not only increases the effectiveness of the athlete's movements but also prepares them to apply more complex strategies in attack and defense [13]. Types of training such as ranged attack drills and defensive drills are designed to help athletes understand the importance of position and timing in combat [14]. Modeling with teammates is also highly recommended, as it helps athletes adapt to different fighting styles and develop adaptability to unexpected fighting situations.

Furthermore, the importance of technical and tactical aspects is highly emphasized in training preparation because it is an essential foundation for the efficiency and effectiveness of an athlete's movements in a match. In the research shown by Costa et al. [16] and Antonietto et al. [17], mastery of technique not only allows athletes to execute attacks and defenses more accurately and energy-efficiently, but is also vital to preventing injuries. Meanwhile, good tactics allow athletes to quickly adapt to various opponent fighting styles, increase control over the fight, and speed up reactions and decisions during the competition [17]. The combination of these two aspects also increases the athlete's confidence, giving them the mental and physical edge necessary for dominance in the game.

Aspects of Physical Components and Training Models

The second analysis on physical components shows that endurance and speed are two main elements that must be given special attention. In addition, muscle strength and agility are also very important to support athlete performance. Endurance and speed are important physical components in combat sports; both components are related to maintaining a fighter's resistance to fatigue during attack and defense [18, 19]. Muscle

strength functions to provide power in attacks through punches or kicks, while also protecting against possible injury [20, 21, 22]. Meanwhile, agility is the ability to move and change direction quickly without losing balance. In combat, it functions to outwit the opponent when moving, avoid attacks, and then retaliate [23].

The results based on the trainer's perspectives show that technical drill training and interval training are basic training programs. Drill and interval training can increase the aerobic and anaerobic capacity of athletes because of the progressive training program in terms of training intensity or training volume [24, 25, 26]. Strength training, based on the perspective of a judo coach, uses the core training model. Core training can be combined into a circuit and affect the performance of fighters [27]. In addition, strength training can also be specific to fighting style or functional training [28], with the use of tools such as kettlebells, which have benefits for boxer flexibility [29]. Agility training, when combined with balance, will be beneficial because it strengthens the physical foundation that helps athletes maintain speed, stability, and body elasticity during fighting [30]. Agility training can be done using cones and ladders, which have been proven to be effective in increasing agility [31].

Aspects of Mentality

The third analysis on the mental aspect explains that the athlete's ability to manage psychological pressure during simulation is also no less important. According to the results of this study, the coach uses relaxation and visualization techniques to improve the focus and concentration of athletes. The form of mental training using visualization can include shadow practice, namely imagining fighting with the opponent through one's own shadow [32, 33]. Pair training is also used as a method to accustom athletes to the pressures of combat [34, 35], while training them to remain consistent in applying tactics even under pressure.

The advantage of integrating mental training into a preparation program is that it can increase self-efficacy, which can reduce levels of anxiety, stress, and depression before fighting [36, 37, 38]. In addition, the benefits of using mental training can also affect mental toughness and self-confidence in athletes [39, 40, 41], so that athletes feel confident in their abilities when fighting and optimistic about winning.

Aspects of Athlete Status

The fourth analysis on athlete status shows that, according to the coach's perspective, the athletes involved in this study are generally those who already have considerable training experience and have participated in competitions. Involving experienced athletes ensures that they are accustomed to competitive dynamics. The physical

and mental health of athletes is also a priority, with the selection of athletes who are not injured to ensure that training can be carried out optimally [42]. Experienced athletes have a better ability to adapt to the competitive stress conditions simulated in experiments, allowing studies to more accurately reflect real-world performance [43, 44]. Thus, experienced athletes have mastered techniques and strategies and can execute research instructions with high precision, increasing the accuracy of research results.

The higher emotional and mental maturity possessed by experienced athletes also contributes to their handling of stress and anxiety during simulations, ensuring that the data obtained reflects their true abilities rather than the influence of psychological factors [45, 46]. In addition, experienced athletes have a lower risk of injury during research due to better technical skills and higher body awareness, maintaining safety during research and minimizing disruption to data availability [47]. Thus, selecting experienced athletes also helps in minimizing variability in technical and physical abilities among the sample of athletes.

Aspects of Preparation Time

The fifth analysis on preparation time shows that the research results indicate the ideal preparation time, based on this study, is a minimum of six weeks with training sessions occurring 3–5 times per week. This period is considered sufficient to hone all aspects needed for athletes to be physically, technically, and psychologically ready to face match simulations. Based on previous research findings, six weeks or 18 sessions is the ideal minimum time in experimental research. This can be demonstrated by several studies. For example, in judo, six weeks can increase hand grip strength and creatine levels, and improve special judo fitness using the High-Intensity Interval Training model [48, 49]. In karate, a minimum of six weeks of training can also improve agility, *kizami-gyaku tsuki* punches, and reduce weight [31, 27]. In pencak silat, a minimum of six weeks of training can increase muscular strength through a plyometric training model, endurance through an interval training program, and mastery of basic pencak silat movements through web media [50, 51, 52]. In boxing, a minimum of six weeks of training also affects body composition during the competition period, punching power through resistance band and dumbbell training, and back and shoulder flexibility through kettlebell training [21, 29, 53, 54]. Therefore, it can be scientifically proven that six weeks of training before the simulation is very important to provide adequate time for athlete preparation.

Implications for Athlete Health and Safety

The implication of this study is the importance of

a holistic training program, which focuses not only on improving performance but also on preventing injuries and improving the long-term health of athletes. Effective integration of technical, physical, and mental training creates a robust support system, reduces the frequency and severity of injuries, and increases the physical endurance of athletes. A deep understanding of technique and tactics not only improves movement efficiency but also minimizes the risk of injury. Meanwhile, strength and agility training strengthen muscles and ligaments, supports body structures, and reduces the risk of injury. Mental training, including relaxation and visualization techniques, is essential for managing competition stress, which is important for athletes' mental and physical health, reducing anxiety and stress that can affect their performance.

In addition to the application of the principles of the Declaration of Helsinki that guarantee the protection and ethics in research involving human subjects, the determination of sufficient preparation time before conducting a simulated fight or match in a pretest and posttest setting is very critical. This should be considered an additional component that is no less important in the planning and implementation of experimental studies in the field of combat sports, ensuring that every aspect of the research is carried out according to the highest ethical and scientific standards.

Study Limitations

The limitation of this study is that the interview method used needs to be further tested for its level of validity, as the interview questions were developed based on the collection of scientific evidence and initial observations. In addition, a combination of analysis methods, such as quantitative-qualitative approaches, is needed to increase the level of trust in the findings for researchers. Future research should involve more complex analysis methods and include samples from a greater variety of combat sports and higher-quality coaching profiles.

Conclusions

This conclusion shows that training focused on

the specific needs of each sport significantly improves athletes' ability to face real and competitive combat situations. In terms of technique and tactics, the study revealed that mastery of basic techniques, combat strategy, mastery of attack distance, and defense are the keys to the effectiveness and efficiency of athlete movements. In the physical component, it shows that endurance and speed are crucial elements that need to be improved through planned training. Muscle strength and agility, which are strengthened through strength and agility training, play a vital role in supporting athlete performance.

From the mental side, this study highlights the importance of psychological training, including relaxation and visualization techniques, that improve athletes' focus, self-confidence, and concentration. The ideal time recommended is at least six weeks, with intensive training sessions 3 to 5 times per week. This period is important to hone all aspects needed so that athletes can perform optimally in physical, technical, and psychological terms during match simulations.

These results provide insight, especially for researchers and coaches in the field of combat sports, offering valuable guidance on the importance of physical preparation in pretests in experimental research. With the publication of the results of this study, it can serve as a reference for researchers who need to be prepared in addition to following the Helsinki Declaration.

In addition, an important point is to avoid injury during the fight simulation, since the fighter simulation is designed to resemble a real match. The results of this study are expected to serve as a guideline for researchers to obtain more reliable research outcomes. Thus, this study is highly relevant in supporting the development of more effective and efficient training programs that directly improve the quality and performance of athletes in future competitions.

Conflict of Interest

The author declares no conflict of interest.

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Cite this article as:

Prabowo TA. Physical condition preparation of combat sport athletes for fighting simulation in experimental research: coach perspective analysis. *Pedagogy of Health*, 2025;4(1):70–80. <https://doi.org/10.15561/health.2025.0105>

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Received: 12.03.2025

Accepted: 15.04.2025; Published: 30.06.2025