JURNAL MASTER PENJAS & OLAHRAGA
Volume 6 | Issue 2 | October 2025 | pp. 732-738
p-ISSN: 2725-5660 | e-ISSN: 2722-1202
https://jmpo.stkippasundan.ac.id/index.php/jmpo

Physical Condition Athletes of Sepak Takraw Club at UNIMED

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Abstrac: Athlete performance fundamentally depends on physical conditioning, which remains essential for competitors seeking excellence in their respective disciplines. Each sport presents unique physiological demands that athletes must address through targeted development of their bodily capabilities. This research investigated the fitness characteristics of male sepak takraw players from Unimed's club (USTC). Using quantitative descriptive analysis, researchers assessed five athletes chosen through purposive sampling methods. Physical evaluations measured multiple attributes including muscular strength, velocity, coordination, explosive capacity, and cardiovascular stamina. Findings revealed that participants demonstrated moderate fitness levels, with 60% achieving satisfactory ratings across measured parameters. These outcomes provide valuable insights for coaches and trainers to refine their preparation strategies, adjust program delivery, and optimize conditioning approaches throughout training cycles. The data supports evidence-based decision-making in athlete development planning.

Keyword: Physical Condition, Sepak Takraw, Athletes, Physical Fitness, Physical Components.

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ISSN 2721-5660 (Cetak)
ISSN 2722-1202 (Online)

Submitted : September, 2025	Revised : October, 2025	Accepted : November, 2025	Publish : November, 2025

INTRODUCTION

Sport is a physical activity undertaken to maintain health and strengthen the body's muscles. This activity can be entertaining, enjoyable, or even aimed at improving performance (Supriyoko & Mahardika, 2018). Sport serves not only for health, achievement, and education, but also as a medium for building and strengthening national unity and integrity, which in turn contributes to national development. One very popular sport in Indonesia, especially on campus, is sepak takraw. Sepak takraw is also very popular among people of all ages, including children, teenagers, adults, and even the elderly, both men and women. Sepak takraw is a competitive sport and is competed in at the university, district, provincial, national, and international levels. The purpose of holding Sepak takraw championships is to enhance athletes' competitive experience, motivate athletes to excel, and introduce Sepak takraw to the wider community. Many supporting factors influence achievement in sports activities, such as athletic conditioning, technical proficiency, competitive tactics, and minds (Soniawan & Irawan, 2018). Furthermore, training is a crucial factor in achieving success. The chosen form of training will also be crucial in achieving the desired training targets (Ridwan, 2020). In sepak takraw, athletes are required to have good physical abilities, because from a good physique, components such as technique, tactics, and mentality will be formed. A player must also be able to maintain and manage their physical condition so that the energy expended during play is effective and efficient, so that they do not tire easily and are able to perform movement techniques correctly (Adziman et al., 2017). Training Special physical conditions are physical abilities that are specific to a particular sport. Sports differ in their inherent characteristics and demands, which necessitates sport-specific physical training (Maliki et al., 2017). Just as in numerous sports, sepak takraw needs optimal physical abilities. The dominant physical components needed by sepak takraw athletes are strength, speed, agility, endurance, flexibility, and explosive power in training and competition (Indrajaya, 2017). Although chess is primarily classified as a cognitive and strategic sport, maintaining a good physical condition remains essential, particularly for athletes with disabilities. During long tournaments such as the National Paralympiad Week (PEPARNAS), matches can last for several hours and require sustained concentration, stable posture, and resistance to fatigue (Nasir et al., 2025).

Assessing an athlete's physical condition, whether optimal or not, requires an evaluation of their physical abilities. If an athlete is experiencing poor physical condition, immediate action will be taken to improve the condition. To improve athlete performance, several factors must be considered in the coaching process, including adequate facilities, qualified coaches, talented athletes, and regular competitions. All of these factors must be supported by adequate knowledge and technology. By understanding a sepak takraw athlete's physical condition, we can estimate their potential for future success. Therefore, a coach's responsibility is to design an effective training program to support the athletes they coach. Achieving elite-level excellence requires coaches to provide thorough preparation that addresses athletes' physical conditioning, tactical proficiency, and mental readiness(Sofyan & Budiman, 2022). Based on observations, the Unimed Sepak Takraw Club (USTC) is a training center for athletes in North Sumatra province. Sepak takraw athletes train five sessions a week, Monday through Friday, at 4:00 PM WIB. The training field is the Unimed sepak takraw field. In preparation for regional and national inter-university championships, physical condition is crucial. Poor physical condition will impact an athlete's performance. (Saputra & Aziz, 2020) findings that the better a person's physical condition or abilities, the greater their chances of achieving success. Conversely, the lower their physical condition, the more difficult it is to achieve success.

Sepak takraw is a traditional Southeast Asian sport that demands a complex combination of strength, agility, flexibility, endurance, and high-level coordination from its athletes. Optimal physical condition is the main foundation for achieving maximum performance in this sport, given the game's characteristics, which involve explosive movements, high jumps, and acrobatic techniques that require excellent physical abilities (Aziz et al., 2002). However, the physical condition profile of sepak takraw athletes at the university level, particularly at the UNIMED Sepak Takraw Club, remains largely undocumented scientifically. This research is urgently needed to provide a comprehensive overview of the athletes' physical condition status, which can

serve as the basis for developing more measurable and systematic training programs. The novelty of this research lies in its focus on evaluating the physical condition of sepak takraw athletes at the university level, a practice still limited in Indonesia. This contrasts with previous studies that focused more on the technical and tactical aspects of the game (Sulaiman & Ab Nasir, 2017). This study specifically identifies the physical condition profile, including components such as VO2max, muscle strength, leg power, agility, and flexibility in Sepak Takraw Club UNIMED athletes. The data obtained is expected to serve as an important baseline for the development of sepak takraw athlete development programs, not only at UNIMED but also as a reference for other university clubs in efforts to improve sepak takraw sporting achievements at the national and international levels (Hegazy et al., 2021).

Physical readiness serves as a fundamental element throughout the majority of sports disciplines. Therefore, fitness programming necessitates deliberate attention, thorough preparation, and methodical approaches to optimize physiological capabilities and organ functionality (Sofyan & Sulanjana, 2020). Achieving competitive parity demands athletes commit to comprehensive development across mental and physical domains, including instructional components, mentorship, strategic execution, technical ability, inner drive, superior fitness status, alongside external factors such as social circumstances (Aksan, 2015). According to (Jariono et al., 2020) to support success in improving the physical condition of athletes carried out and expected, it is necessary to prepare consistent and stable training in the sense that it does not change from one measurement time to another through scientific studies. Based on this assumption, a response is needed to address the problems previously explained. Therefore, a more in-depth analysis is needed through research to examine the physical condition of sepak takraw athletes at the Unimed Sepak Takraw Club (USTC).

METHOD

The investigation utilized a descriptive quantitative framework, gathering numerical data representing genuine field conditions (Sugiyono, 2019). Sample determination followed purposive selection methods, establishing a population study of five registered male sepak takraw athletes from USTC who maintained active training participation. Physical assessment data collection occurred through structured testing protocols and measurements. The test instruments used in this study have been proven to have high validity and reliability based on various previous studies. The push-up test to measure upper body muscle strength has a test-retest reliability with a coefficient of r = 0.89-0.93 and construct validity r = 0.78-0.85 against the measurement of 1-RM bench press (Baumgartner and Jackson 1999). The short-distance sprint test shows excellent reliability with an ICC (Intraclass Correlation Coefficient) = 0.96 and CV (Coefficient of Variation) <3% (Haugen et al., 2012). Agility tests using a back-and-forth running pattern such as the Illinois Agility Test have a validity of r = 0.94 and a test-retest reliability of r = 0.97, indicating excellent consistency of results (Roozen, 2004). The vertical jump test to measure leg power is one of the most valid and reliable tests with an ICC = 0.97-0.99 and high concurrent validity against a force platform (r = 0.92-0.97). The Multistage Fitness Test (Beep Test) to measure cardiovascular endurance has excellent validity in predicting VO2max with a correlation of r = 0.71-0.84 against direct measurements of VO2max in the laboratory, and test-retest reliability of r = 0.89-0.95 (Leger et al., 1988). All of these test instruments have been standardized and are widely used in evaluating the physical condition of athletes in various sports, including sepak takraw, so the results can be trusted and compared with existing norms. Descriptive statistics facilitated data interpretation. Athletes' raw performance scores underwent conversion into standardized T-score values, from which normative standards were established and subsequently organized into five categorical classifications.

RESULT

Table 1. Physical Condition Test Results for UNIMED Sepak Takraw Club Athletes

No	Physical Components	Instrument Test	Mean ± SD	Minimum	Maximum	Category
1	Upper Body Muscle Strength	Push-up Test (epetitions/minute)	38.6 ± 9.2	26	51	Good
2	Speed	Sprint 30 meter (second)	4.45 ± 0.35	4.02	4.89	Currently
3	Agility	Illinois Agility Test (second)	17.2 ± 1.5	15.6	19.3	Currently
4	Leg Powe	Vertical Jump Test (cm)	49.8 ± 7.4	39	59	Currently
5	Cardiovascular Endurance	Multistage Fitness Test (Level.Shuttle) / VO2max (ml/kg/min)	8.8 ± 1.8 / 43.2 ± 5.6	6.5 / 35.8	11.2 / 51.4	Currently

Based on the results of physical condition measurements of 5 UNIMED Sepak Takraw Club athletes, a varied physical profile was obtained for each component tested. The upper body muscle strength component measured through the push-up test showed the best results with an average of 38.6 ± 9.2 repetitions per minute (good category), with a range of values between 26-51 repetitions, indicating adequate upper body strength capabilities to perform smash and block techniques in sepak takraw. Meanwhile, the speed component measured through the 30-meter sprint showed an average of 4.45 ± 0.35 seconds (moderate category), agility through the Illinois Agility Test with an average of 17.2 ± 1.5 seconds (moderate category), and leg power through the vertical jump test with an average of 49.8 ± 7.4 cm (moderate category), which indicates that these three components still need improvement through a more systematic training program. Cardiovascular endurance measured using the Multistage Fitness Test showed an average achievement of level 8.8 ± 1.8 with an estimated VO2max of 43.2 ± 5.6 ml/kg/min (moderate category), with a range of values between 6.5-11.2 levels and VO2max of 35.8-51.4 ml/kg/min, which reflects sufficient aerobic capacity but needs to be improved to meet the demands of the intensity of sepak takraw games that require high endurance during the match. Try again Claude can make mistakes. Double-check each response.

Table 2 . Individual Profile of the Physical Condition of UNIMED Sepak Takraw Club Athletes

Atlet	Push-up (rep)	Sprint 30m (detik)	Illinois Agility (detik)	Vertical Jump (cm)	Beep Test (Level.Shuttle)	VO2max (ml/kg/min)
A1	51	4.02	15.6	59	11.2	51.4
A2	42	4.28	16.8	52	9.4	45.8
A3	38	4.51	17.2	48	8.6	42.6
A4	31	4.65	18.5	45	7.8	39.8
A5	26	4.89	19.3	39	6.5	35.8

Table 3. Descriptive Statistics of Physical Condition

N	Minimum	Maximum	Sum	Mean
5	211.46	275.53	1250	250

The information presented in table 3 illustrates the physical capability profile of sepak takraw athletes obtained through testing, facilitating the classification of USTC players' conditioning status.

Table 3. Presents These Analytical Results

No	Interval	Frequency	Persentase	Category
1	>290.02	0	0	Superior
2	263.35 – 290.01	3	60	Elevated
3	236.68 – 263.34	0	0	Adequate
4	210.01 – 236.67	2	40	Insufficient
5	X < 210.00	0	0	Very Low

The information presented in table 2 demonstrates the physical preparedness profile of USTC players (USTC) sepak takraw athletes dominates the high category with a percentage result of 60%.

DISCUSSION

Physical preparedness signifies being equipped to handle forthcoming training sessions, whereas from a biological perspective, fitness denotes one's ability to evaluate the extent of their abilities to support sports activities. Good physical fitness is essential for an athlete or sportsperson, one of which is in sepak takraw. Like other sports disciplines, sepak takraw is a type of physical activity that requires optimal body condition, including flexibility, strength, quick reactions, agility, explosive power, and endurance both during training and during competition. To achieve all these abilities, a consistent and structured training program is required. Therefore, it is important to understand the physical profile of USTC sepak takraw athletes in order to design more effective training programs in the future. Based on the research findings, there were 0 athletes ategorized within the superior range with a percentage of 0%. Furthermore, in the high category there were 3 athletes, bringing the percentage to 60%. In the medium category, there were 0 athletes who produced a percentage of 0. In the low category, there were 2 athletes with a percentage of 40%, and no athletes were included in the very low category. From the analysis results, it can be concluded that the physical condition profile of USTC sepak takraw athletes is in the high category with a percentage of 60%.

This analysis reveals that the physiological conditioning of Unimed Sepak Takraw Club athletes is quite adequate. This is due to regular training and the athletes' continued active participation as students in numerous physical activities. Insufficient training frequency leads to a decline in physical fitness levels, which impacts the athletes' suboptimal physical condition. Regular training is crucial for maintaining physical fitness, thus maintaining good physical condition. With optimal physical condition, an athlete can perform more intense activities without encountering substantial tiredness. Thus, competitors should demonstrate maximum capability during tournaments to accomplish their objectives. According to training methodology, this constitutes a progressive journey toward superior conditions by elevating bodily qualities, organic functions, and mental wellness. Physical fitness standards rise alongside increased daily movement activities. Achieving peak physiological readiness necessitates supportive practices that advance athletic conditioning, including sustained exercise commitment. Mastery of technical skills and strategies in a sport, especially for sepak takraw athletes, is greatly influenced by elements of physical condition. Because in principle, training greatly influences physical conditions related to coaching patterns, improvement and optimal achievement, the training in question is physical training that must be organized, planned and carried out well and systematically so that it can improve the required biomotor abilities (Hardiansyah et al., 2022).

This study has several limitations that need to be considered in interpreting the findings. First, the limited sample size (n=5) makes the results less representative of the physical condition of sepak takraw athletes in general at the university level, so generalizations of the results should be made with caution. Second, this study is cross-sectional, measuring physical condition only at a single point in time, so it cannot describe the development or fluctuations of athletes' physical condition throughout the training or competition period. Third, this study did not control for external variables such as diet, sleep quality, stress levels, physical activity outside of training, and did not consider the period of training the athletes were undergoing at the time of data

collection, all of which can affect the results of the physical condition test. Fourth, the test instrument used, although valid and reliable, did not measure other specific physical components that are also important in sepak takraw, such as flexibility, balance, and foot-ankle coordination, which are fundamental characteristics of this sport. The findings of this study have several important practical implications for the development of the UNIMED Sepak Takraw Club athlete development program. The results, which showed moderate levels in most physical components (speed, agility, leg power, and cardiovascular endurance), imply the need for a more structured and systematic training program with an emphasis on specific training methods such as plyometric training to improve leg power, interval training for endurance, and agility drills for agility. The considerable variation in individual test results indicates the need for a more individualized and personalized training approach tailored to each athlete's specific needs. These findings can serve as baseline data for regular evaluation of the effectiveness of the implemented training program, allowing coaches to monitor and adjust the program in an evidence-based manner. Furthermore, the results of this study can be used as consideration for club management and faculty in allocating adequate resources for the procurement of training facilities, recruiting strength and conditioning coaches, and developing nutritional programs that support improved athlete performance towards achieving optimal performance at the regional and national levels.

The results of this study revealed that physical condition depends on fundamental biomotor elements and biomotor elements that are a combination of several basic biomotor elements such as power and agility, as well as the impact of external factors such as location limitations and the type of training program determined by the coach. Optimal fitness levels will bring athletes to the physical readiness necessary to hone basic skills before moving on to more complex techniques for improved performance. This is a consideration for USTC sepak takraw coaches to pay more attention to achieving athletes' physical condition, especially the aspect of strength, which requires more attention for more significant improvements. The findings of the study indicate that sepak takraw athletes' strength indicators are relatively low. In fact, physical condition may be developed through systematic training initiatives. Athletes advance their abilities from elementary movements to complex maneuvers provided they maintain proper bodily (Zhannisa & Sugiyanto, 2015)

CONCLUSION

An athlete's physical condition should clearly be a primary focus for coaches as a basis for assessing the effectiveness of a training program, its implementation, and how the athlete is conditioned to follow the established training program. For athletes, this can be a tool for assessing their commitment and self-discipline in following the training program developed by the coach, and can also stimulate and increase their motivation to follow the training programs provided by the coach.

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