



The Relationship Between Physical Condition and Medal Achievement of Tarung Derajat Athletes in Bandung Regency at POPDA XIV West Java

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Abstract

Physical condition is a determining factor that determines an athlete's ability to maintain peak performance and technical mastery under competitive pressure. This study aims to analyze the contribution and relationship between physical condition and the medal achievements of Tarung Derajat athletes from Bandung Regency at the 2025 West Java Provincial Student Sport Week (POPDA) XIV event. The research method used is quantitative descriptive with a correlational design. The research subjects involved 26 athletes (14 male and 12 female) selected using the total sampling technique. The test instruments included flexibility, speed, agility, strength, and endurance, while performance data was converted into numerical scores based on medal achievements. The Shapiro-Wilk normality test showed that the performance data was not normally distributed, so hypothesis testing used Spearman's correlation. The Spearman's correlation test confirmed a very strong and statistically significant positive relationship between total physical condition and medal achievement with a correlation coefficient of ($r_s = 0.927$; $p = 0.001$) because, this finding empirically proves that physical condition quality is a determining factor that is directly proportional to the chances of winning medals, where the better the athlete's physical condition, the greater the athlete's chances of achieving maximum performance.

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INTRODUCTION

Physical condition is one of the determining factors for achieving athletic performance (Putri & Atradinal, 2020). Optimal physical preparation enables athletes to endure physical and mental pressure during competition (Riduwan et al., 2022). To maintain performance from the beginning to the end of the game, it is necessary to provide early training and implement systematic, targeted, and continuous training programs to achieve maximum results.

Tarung Derajat is an Indonesian martial art that originated in Bandung on July 18, 1972, by Guru H. Ahmad Drajat, known as AA Boxer. Tarung Derajat is one of Indonesia's indigenous martial arts that continues to grow and gain popularity. In addition to technique and tactics, performance in Tarung Derajat is heavily influenced by the athlete's physical condition. This includes components such as flexibility, speed, agility, balance, strength, explosive power, and endurance, (Setiawan et al., 2018)

Provincial Student Sports Week (POPDA) XIV 2025 is a sports achievement program that realizes achievements at the regional level. POPDA is also a form of effort to seek out talented students (Nugroho & Ali, 2024). In the study (Keolahragaan et al., n.d.) According to Sanrock, the "Golden Age" refers to children aged 4-6 years old who experience brain growth and development that is almost the same as adults. Based on this theory, the peak performance of athletes in various sports usually occurs between the ages of 18 and 24. Therefore, to achieve the best performance, sports training must begin at an early age, around 4-14 years old. If you want to achieve high performance, the concept of sports training must be implemented from an early age. Research (Nugroho & Ali, 2024) also said that performance coaching can be done from an early age by developing training programs according to the age and abilities of the athletes. For example (Rahma Yulia, 2025) An athlete who has achieved dozens of national and international achievements, who began training at a very young age, namely 10 years old. By paying attention to the sports coaching system and path, it must be carried out in a fundamental, systematic, efficient, and integrated manner from an early age, in order to lead to the same goal.

To maximize the children's performance at the 2025 POPDA XIV event, they must be supported with excellent physical condition through continuous training. (Putri & Atradinal,

2020). Previous research (Pendidikan et al., 2020) explains that with continuous training, an athlete can win many medals by participating in a regional training program over a sufficiently long period of time. Similar research suggests that to achieve good results and performance, short but repeated training sessions are necessary to reach the desired performance targets. Repeated training will maximize physical condition (Hidaya, 2023)

Bandung Regency has very promising Tarung Derajat athletes, but in several previous competitions, the athletes' performance has sometimes been inconsistent. One factor that is thought to contribute to this suboptimal performance is the lack of adequate support for the athletes' physical condition, in terms of training methods, facilities, and monitoring and evaluation of physical condition (Apriana & Nur, 2024). As preparations for the 2025 XIV POPDA (Regional Sports Week) get underway, it is important to assess the extent to which the physical condition of Tarung Derajat athletes from Bandung Regency can influence their medal haul.

In this case, the Bandung Regency Youth and Sports Agency continues to strive to nurture athletes (Widya, n.d.). Similar studies have shown that physical condition has a significant effect on the performance of martial artists, including Tarung Derajat, at both the district and provincial levels (Prameswari et al., 2025). Although the relationship between physical condition and medal achievement has been widely studied, it has only focused on adult athletes, such as in the study by (Prameswari et al., 2025). Therefore, the author hopes that this study will reveal the extent to which physical condition affects medal achievement among student athletes.

METHOD

This study applies a quantitative descriptive method with a correlational design to analyze the contribution of physical condition to medal achievements. In which physical condition variables are measured 4 months before the competition takes place, while performance data is obtained from the final results of the 2025 West Java Provincial Student Sports Week (POPDA XIV Jabar 2025) from the official results of POPDA XIV 2025.

The subjects in this study were all Tarung Derajat athletes from Bandung Regency who competed in the 2025 XIV POPDA. The research subjects were selected based on the following inclusion and exclusion criteria.

Inclusion Criteria :

1. Tarung Derajat athletes from Bandung Regency who are officially registered as participants in the 2025 West Java XIV POPDA.
2. Athletes who participated in and completed the entire series of physical condition tests in accordance with the research procedures.
3. Athletes must be free from injury and in good physical and mental health at the time of data collection.
4. Athletes who participated in the 2025 West Java POPDA XIV competition and have official achievements/medals.
5. Athletes who are willing to be research subjects and give their consent.

Exclusion Criteria :

1. Athletes who do not complete the entire series of physical tests.
2. Athletes who experience injury, illness, or certain medical conditions at the time of testing.
3. Athletes who are not registered as official participants of the 2025 West Java XIV POPDA.
4. Athletes who refuse during the data collection process.
5. Athletes who did not participate in the 2025 West Java POPDA XIV competition, and therefore do not have any data on their achievements/medals.

Sampling was conducted using the total sampling technique, involving 26 athletes, consisting of 14 male athletes and 12 female athletes. The researchers developed research procedures to ensure that the objectives set could be achieved optimally.

The instruments used to collect data included a series of physical tests and documentation of achievements. The physical components measured consist of: Flexibility using the sit and reach test, Speed using the 30-meter sprint test, Agility using the T-Test, Strength through push-ups and sit-ups for 1 minute, Aerobic Endurance using the bleep test. Performance data was identified based on official medal wins converted into numerical scores: gold was worth 3 points, silver was worth 2 points, and bronze was worth 1 point. To overcome potential bias during measurement and technical errors during data collection, standardized test procedures and consistent measurement implementation were applied. All physical test instruments were carried out in accordance with standard guidelines and supervised by the same examiner to minimize subjectivity.

The scheduling and sequence of tests were arranged taking into account physical fatigue, accompanied by adequate rest breaks between tests. Athletes who are not in optimal physical condition are not involved in the measurement process. Data recording is carried out directly and systematically to reduce the potential for recording errors, so that the measurement results obtained reflect the athletes' physical condition objectively.

Data analysis was conducted in several stages using SPSS statistical software. Data was transformed into Z-Scores to produce a composite Physical Condition variable (X). Next, a normality test was performed using the Shapiro-Wilk method as a prerequisite for hypothesis testing. Because one of the variables was not normally distributed, the relationship between Total Physical Condition and Achievement was tested using a non-parametric statistical technique, namely Spearman's correlation.

This procedure covers the stages carried out by researchers, starting from the preparation stage, implementation, to data analysis processing. Each stage is designed in a structured manner and in accordance with the research methods used, as shown in **Figure 1**.

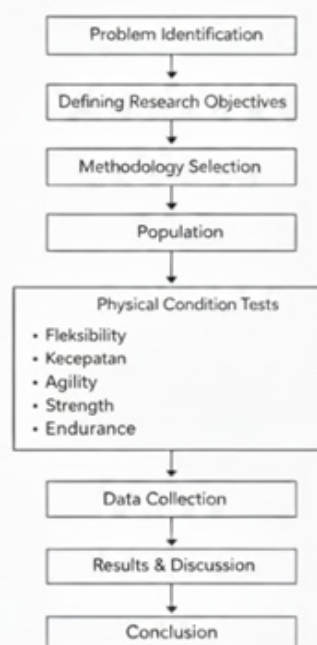


Figure 1. Step of Research.

RESULTS AND DISCUSSION

Based on descriptive statistical analysis of 26 Tarung Derajat athletes from Bandung Regency

cy who participated in the 2025 West Java Provincial Sports Week (POPDA XIV Jabar), Table 1 shows that the Total Physical Condition variable, calculated using composite Z-Score transformation, has a mean value of 0.0000 with a standard deviation of 5.7670. The range of physical values was between -12.52 as the lowest value and 9.31 as the highest value. Meanwhile, in terms of achievement (medals), obtained an average score of 2.31 with a maximum achievement score of 6.

Table 1. descriptive analysis

Variable	N	Min	Max	Mean	Std.Deviation
Total Physical condition (X)	26	-12,52	9,31	0,0000	5,76700
Achievement (Y)	26	0	6	2,31	1,490

Table 2. Shapiro Wilk results show that Physical Condition (X) data is normally distributed ($p=0.187>0.05$), but Achievement (Y) data is not normally distributed ($p=0.031<0.05$).

Table 2. Normality Test Shapiro-wilk

Variable	Statistik	Df	Sig.	information
Total Physical condition (X)	0,946	26	0,187	normally
Achievement (Y)	0,913	26	0,031	not normally

Table 3. Based on these conditions, hypothesis testing was conducted using Spearman's nonparametric correlation statistic. The results of the inferential analysis revealed a strong and statistically significant positive relationship between overall physical condition and medal achievement, as indicated by a correlation coefficient (r_s) of 0.927. With a significance value of $p=0.001$ $\alpha<0.05$, so the results are significant. This empirically proves that physical condition is a determining factor that is directly proportional to the chances of winning a medal.

Table 3. Spearman's Correlation Test

Variable	Physical Condition (X)	Achievement (Y)
Correlation Coefficient	1.000	0,927
Sig.(2-tailed)	.	0,001
N	26	26

Based on the official results of the 2025 West Java Provincial Sports Week XIV (Juara & Putra, 2025) Bandung Regency won first place overall championship with a total 7 gold, 6 silver, and 4 bronze medals in the following events: Bandung Regency won the overall championship with a total of 7 gold, 6 silver, and 4 bronze me-

dals in the following events: Women's Fighting 40.1-43 kg, Women's Fighting 46.1-49 kg, Mixed Vibration Movement Art, Women's Vibration Movement Art, Men's Gharang Movement Art, Women's Single Movement Art, and Men's Single Movement Art won gold medals, while the events Men's Fighting 49.1-53 kg, Men's Fighting 53.1-57 kg, Women's Fighting 49.1-52 kg, Women's Fighting 52.1-55 kg, Women's Ranger Movement Art, and Men's Vibration Movement Art won Silver Medals, and Bronze Medals were won in the Men's Fighting 37.1-41 kg, Men's Fighting 45.1-49 kg, Men's Fighting 57.1-61 kg, and Women's Fighting 43.1-46 kg categories (Cabang Olah Raga Tarung Derajat Pekan Olahraga Pelajar Daerah (Popda) XIV Jawa Barat 2025 Bandung, 26-29 September 2025 Daftar Perolehan Medali, 2025). Which, based on the findings of this study, confirms that the success of the Bandung Regency Tarung Derajat contingent is highly dependent on the physical condition of the athletes. The very high correlation ($r_s=0.927$) indicates that without excellent physical support, mastery of techniques and tactics will not be able to produce maximum performance. This is in line with research (Prameswari et al., 2025) which states that physical parameters have a linear correlation with performance because optimal fitness allows athletes to maintain peak performance under competitive pressure. (Riduwan et al., 2022) also emphasizes that periodic physical evaluations are a crucial predictive tool for coaches to assess athletes' combat readiness before championships.

Mechanically, explosive movement ability in Tarung Derajat is highly dependent on biomotor components. (Putri & Atradinah, 2020) explains that punching and kicking techniques will only have maximum power if supported by physical capacity that supports continuous explosive activity.

According to (Apriana & Nur, 2024) Physical condition is a very dominant factor in achieving athletic performance, because an athlete must be able to perform movements with high intensity and optimal endurance. In addition to technique and tactics, physical condition greatly influences an athlete's performance. Tarung Derajat is played individually or in teams, and an athlete can perform well if they are in good physical condition. Therefore, these findings confirm that physical condition is an important factor in the performance of Tarung Derajat athletes in achieving success.

Research (Penuh, 2020) Physical condition is one of the requirements for achieving success. Without good physical condition, it is impossible

for athletes to reach their maximum potential. Good physical condition also supports technique and tactics, thereby improving athletes' performance and reducing the incidence of injuries during training and competition. Significant results (Triansyah et al., 2021) saying that the higher the physical condition, the higher the achievement.

CONCLUSION

This study confirms that physical condition is the main foundation in supporting the achievements of Tarung Derajat athletes from Bandung Regency at the 2025 West Java XIV POPDA. The results of the study also show how optimal physical condition plays an important role in supporting athletes' ability to consistently perform at their best during competitions, thereby directly impacting their achievements and medal wins.

Conceptually, the results of this study reinforce the view that mastery of techniques and tactics in martial arts cannot stand alone without the support of adequate physical capacity. Excellent physical condition not only increases the effectiveness of athletes' movements and endurance during competition, but also serves as a protective factor in minimizing the risk of fatigue and injury, especially in prestigious, high-intensity competitions.

The practical implications of this study indicate that Tarung Derajat athlete training programs need to prioritize physical conditioning in their training plans. Coaches and trainers preparing for regional and provincial championships are advised to conduct regular evaluations and monitoring of physical condition as a basis for developing measurable, systematic, and sustainable training programs.

However, this study still has limitations because it only focuses on the relationship between overall physical condition and achievement in student athletes. Therefore, further research is recommended to examine other factors that also have the potential to influence athletes' performance, such as technical aspects, tactics, psychology, competition experience, and the quality and periodization of training programs, so as to provide a more comprehensive picture of the determinants of Tarung Derajat athletes' performance.

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