The Level Of Physical Fitness On The Athletes Achievements Of The FIKK UNM Athletic Club

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ABSTRACT

Physical fitness is a fundamental factor that supports athlete performance and achievement in sports, particularly in athletics, which requires optimal endurance, strength, speed, and agility. Athletes with good physical fitness are generally able to perform movements more efficiently, maintain performance during competition, and reduce the risk of fatigue. Therefore, evaluating the level of physical fitness and its relationship with athlete performance is important in order to understand the factors that contribute to athletic success. This study aimed to examine the relationship between physical fitness levels and athlete achievements among members of the FIKK UNM Athletic Club.

This research employed a quantitative approach with a correlational research design. The sample consisted of 20 athletes selected using a purposive sampling technique. Physical fitness data were collected through standardized fitness tests measuring endurance, arm muscle strength, and agility. Meanwhile, athlete achievement data were obtained from official records of recent competitions participated in by the athletes. Data analysis was conducted using the Pearson Product Moment correlation test to determine the relationship between physical fitness components and athlete performance, while multiple linear regression analysis was used to examine the simultaneous contribution of the physical fitness variables. The results revealed a significant positive relationship between physical fitness components and athlete achievements. Endurance showed a correlation value of $r = 0.67$ ($p = 0.000$), arm muscle strength $r = 0.55$ ($p = 0.000$), and agility $r = 0.51$ ($p = 0.001$). Furthermore, regression analysis indicated that endurance, arm muscle strength, and agility simultaneously contributed 77% to athlete performance. In conclusion, physical fitness plays an important role in determining the achievements of athletes in the FIKK UNM Athletic Club. Improving endurance, muscular strength, and agility through systematic training programs can significantly enhance athlete performance in athletics competitions.

AUTHORS' CONTRIBUTION

A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

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INTRODUCTION

Achievement in the field of sports, particularly athletics, is closely related to the physical condition and fitness level of athletes. Athletics is considered one of the
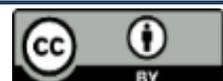
fundamental sports disciplines that emphasizes the integration of physical ability, technical skills, and psychological readiness in order to achieve optimal performance. In athletics competitions such as running, jumping, and throwing events, athletes must possess excellent physical fitness because these activities demand high levels of strength, speed, endurance, agility, coordination, and explosive power (Bompa & Buzzichelli, 2019; Kenney et al., 2020). Without adequate physical fitness, athletes may struggle to maintain performance consistency, resist fatigue, or reach peak performance during competitions.

Physical fitness is generally defined as the body's ability to perform daily activities efficiently without experiencing excessive fatigue while still having sufficient energy reserves for other activities (Giriwijoyo & Sidik, 2017; McArdle et al., 2018). In the context of sports performance, physical fitness becomes a key determinant of an athlete's success because it supports physiological functions, improves movement efficiency, and enhances the body's ability to adapt to training loads and competitive demands (Suchomel et al., 2018; Slimani et al., 2019). Consequently, the level of physical fitness possessed by athletes often reflects the effectiveness of their training programs and overall physical preparation.

Scientific literature categorizes physical fitness into two primary components: health-related fitness and skill-related fitness (Corbin et al., 2019). Health-related fitness includes cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition, all of which contribute to general health and physiological efficiency. Meanwhile, skill-related fitness includes speed, agility, coordination, balance, reaction time, and explosive power, which are essential for sports performance (Tomlin & Wenger, 2019; Haff & Triplett, 2018). Both components interact to form the physical foundation required for athletes to perform optimally during training and competitions.

Athletics athletes, especially those involved in competitive training environments such as university sports clubs, are expected to maintain high levels of both health-related and skill-related physical fitness. Students participating in sports education programs are not only required to master theoretical knowledge but must also demonstrate physical capability that reflects their academic and athletic competence (Lubans et al., 2019). Therefore, the evaluation of physical fitness among university athletes is essential to ensure that they meet the required performance standards.

The Faculty of Sports Science and Health at Universitas Negeri Makassar (FIKK UNM) actively promotes athletic development through its sports clubs, including athletics. Athletes in these clubs participate in structured training programs designed to improve physical capacity and competitive performance. However, despite these structured programs, the actual level of physical fitness among athletes may vary due to differences in training intensity, lifestyle factors, recovery practices, and individual physiological characteristics (Turner, 2017; Mujika, 2018).

Assessing the level of physical fitness among athletics athletes is therefore important for several reasons. First, it provides empirical data on the physical condition of athletes. Second, it allows coaches and trainers to evaluate the effectiveness of

existing training programs. Third, it serves as a basis for designing more targeted conditioning programs that can improve athletic performance (Stone et al., 2021; Suchomel et al., 2019). Without systematic assessment, training programs may not optimally address the physical demands required for athletic success.

Previous studies have shown that athletes with higher levels of physical fitness tend to demonstrate better performance outcomes in various sports disciplines. For example, research by Haugen et al. (2019) found that sprint performance is strongly associated with muscular power and speed-related fitness components. Similarly, endurance capacity has been identified as a critical determinant of performance in middle- and long-distance running events (Joyner & Coyle, 2018). These findings confirm that physical fitness is a crucial element in the development of athletic performance.

Nevertheless, the relationship between physical fitness and athletic achievement remains complex. Athletic performance is influenced by multiple factors, including psychological readiness, tactical understanding, nutrition, and environmental conditions (Kiely, 2018; Halson, 2019). Therefore, evaluating the level of physical fitness in athletes remains a fundamental step in understanding how physical capabilities contribute to overall performance outcomes.

Over the past decade, numerous studies have investigated the role of physical fitness in enhancing athletic performance across various sports disciplines. Research in sports science consistently highlights the importance of physical conditioning as the foundation for technical and tactical development (Bompa & Buzzichelli, 2019). Athletes with well-developed physical capacities are able to execute sport-specific skills more effectively, maintain high performance levels throughout competitions, and reduce the risk of injury (Haff & Triplett, 2018).

Recent empirical studies emphasize the role of cardiorespiratory endurance as a key component in athletic performance. Cardiorespiratory fitness improves oxygen transport and utilization during physical activity, allowing athletes to sustain high-intensity efforts for longer periods (Kenney et al., 2020). Studies involving elite endurance athletes indicate that higher VO_2max values are associated with improved running performance and greater physiological efficiency (Joyner & Coyle, 2018).

Muscular strength and explosive power also play critical roles in athletics events. Strength training has been widely recognized as an effective method to improve sprint speed, jumping ability, and throwing performance (Suchomel et al., 2018). For example, research conducted by Comfort et al. (2019) demonstrated that athletes with higher lower-body power output tend to achieve better results in explosive sports movements such as sprint starts and vertical jumps. In addition to strength and endurance, agility and coordination are equally important for athletic performance. Agility refers to the ability to change direction rapidly while maintaining control of body movements, whereas coordination involves the integration of multiple muscle groups to produce efficient movement patterns (Sheppard & Young, 2016). Studies show that athletes with superior agility and coordination often perform better in complex sports situations that require quick decision-making and rapid movement adjustments.

Recent advancements in sports science have also emphasized the importance of monitoring athletes' physical fitness levels through systematic testing and evaluation. Modern training programs frequently incorporate periodic fitness assessments to track athletes' progress and identify areas that require improvement (Turner, 2017). Commonly used tests include VO_2max testing, vertical jump tests, sprint speed tests, agility tests, and muscular strength assessments. These measurements provide objective data that can guide coaches in optimizing training programs.

Furthermore, sports scientists have increasingly recognized the role of integrated physical training models that combine endurance, strength, speed, and agility training to enhance overall performance (Mujika, 2018). Such integrated approaches ensure that athletes develop balanced physical capacities that support the demands of their specific sports disciplines. In the context of university sports programs, physical fitness assessment also serves as an important tool for evaluating students' readiness to participate in competitive sports. Research conducted in university athletic environments indicates that structured conditioning programs can significantly improve students' physical fitness levels and sports performance (Slimani et al., 2019).

Despite extensive research on physical fitness and athletic performance, several gaps remain in the existing literature. First, many studies focus primarily on elite or professional athletes, while relatively fewer studies examine physical fitness levels among university-level athletes, particularly those participating in sports clubs within academic institutions (Halson, 2019). University athletes represent a unique population because they balance academic responsibilities with athletic training, which may influence their physical fitness levels and training adaptation. Second, existing research often investigates specific components of physical fitness separately, such as endurance or strength, without providing a comprehensive evaluation of overall physical fitness levels. However, athletics performance requires the integration of multiple fitness components simultaneously, including endurance, strength, speed, agility, and coordination (Kiely, 2018). Therefore, a more holistic assessment of physical fitness is necessary to better understand the physical condition of athletes. Third, there is limited empirical data regarding the physical fitness profiles of athletics athletes within Indonesian university sports environments. While several studies have explored physical fitness among school students or professional athletes, research focusing specifically on university athletics clubs remains relatively scarce. This lack of data limits the ability of coaches and sports educators to design evidence-based training programs tailored to the needs of university athletes.

In particular, the physical fitness level of athletes in the FIKK UNM Athletic Club has not been systematically documented in scientific research. Considering that this club serves as a training ground for students specializing in sports science and athletic development, understanding the physical fitness profile of its athletes is essential. Such information can help identify strengths and weaknesses in athletes' physical conditions and guide the development of more effective training strategies. Therefore, further research is required to examine the physical fitness levels of athletes within university

athletic clubs, especially in the Indonesian context. By providing empirical data on the physical fitness profiles of these athletes, researchers can contribute to the development of more targeted and effective training programs that enhance athletic performance.

Based on the research problems and gaps identified above, this study aims to analyze the level of physical fitness among athletes of the FIKK UNM Athletic Club and examine its relationship with athletes' achievements. Specifically, the study seeks to evaluate key components of physical fitness such as endurance, strength, agility, and speed in order to determine the overall physical condition of athletes participating in the club. The novelty of this research lies in several aspects. First, the study focuses specifically on athletics athletes within a university sports club environment, which has received relatively limited attention in previous research. Second, the research adopts a comprehensive approach to assessing physical fitness by integrating multiple fitness components rather than focusing on a single aspect. Third, the study provides empirical data that can serve as a reference for coaches, sports educators, and researchers in developing more effective training programs within university athletic contexts. In addition, this study contributes to the growing body of literature on sports science by providing evidence from the Indonesian context, particularly from the Faculty of Sports Science and Health at Universitas Negeri Makassar. The findings are expected to provide valuable insights into the relationship between physical fitness levels and athletic performance among university athletes.

In conclusion, physical fitness plays a fundamental role in determining athletes' performance and achievements in athletics sports. Components such as endurance, strength, agility, and speed form the physical foundation that enables athletes to perform effectively during training and competitions. Although previous studies have demonstrated the importance of physical fitness in sports performance, there remains a lack of empirical research examining the overall physical fitness levels of university athletics athletes, particularly within Indonesian sports education institutions. Therefore, this study seeks to address this gap by analyzing the level of physical fitness among athletes of the FIKK UNM Athletic Club and examining its contribution to athletic achievement. The findings of this research are expected to provide valuable insights for coaches, sports scientists, and educators in designing more effective training programs that enhance athletes' physical readiness and competitive performance.

METHODS

This study employed a quantitative research approach with a correlational design to examine the relationship between physical fitness components and athlete achievements among members of the FIKK UNM Athletic Club. The quantitative approach was selected because it allows researchers to measure variables objectively and analyze the statistical relationship between physical fitness indicators and athletic performance outcomes. Correlational research is widely used in sports science to

investigate how physiological and physical attributes influence performance variables without manipulating experimental conditions (Thomas et al., 2015; Creswell & Creswell, 2018). In the context of athletics, this approach is appropriate because athlete performance is influenced by measurable physical factors such as endurance, strength, and agility, which can be quantified through standardized fitness assessments (Kenney et al., 2020).

Athletics is a fundamental sport discipline consisting of several event categories such as running, jumping, and throwing, each requiring different physical abilities and performance capacities (Bompa & Buzzichelli, 2019). Previous studies have indicated that physical fitness components, including muscular strength, cardiorespiratory endurance, and agility, are strongly associated with athletic performance across different sports contexts (Suchomel et al., 2018; Slimani et al., 2019). Therefore, examining the relationship between physical fitness and athlete achievements is essential in order to understand how physical conditioning contributes to competitive success.

The participants of this study were active athletes from the FIKK UNM Athletic Club, Faculty of Sports Science and Health, Universitas Negeri Makassar. A total of 20 athletes were selected as the research sample using a purposive sampling technique. This sampling method was chosen because it allows the researcher to select participants who meet specific criteria relevant to the objectives of the study (Etikan & Bala, 2017). The inclusion criteria included: (1) athletes who were officially registered members of the FIKK UNM Athletic Club, (2) athletes who had participated in regular training programs for at least one year, and (3) athletes who had participated in official competitions at regional or national levels. Selecting athletes with these characteristics ensured that the participants possessed sufficient training experience and performance records relevant to the study.

Data collection was conducted using two main instruments, namely a physical fitness test battery and documentation of athlete performance achievements. The physical fitness test battery consisted of several standardized tests designed to measure physical fitness components relevant to athletics performance. These tests included: (1) a cardiorespiratory endurance test to assess aerobic capacity, (2) an arm muscle strength test to measure upper-body muscular strength, and (3) an agility test to evaluate the athlete's ability to change direction quickly and efficiently. These fitness components were selected because they represent essential physiological capacities required in athletics events (Haff & Triplett, 2018; Stone et al., 2021).

The measurement of athlete achievements was conducted through documentation analysis of athletes' competition records. These records included official competition results obtained from tournaments or championships in which the athletes had participated within a specified period. Athlete performance data were compiled and categorized based on competition results, rankings, or achievement scores. Performance documentation is widely used in sports research as an objective indicator of athletic success (Turner, 2017; Mujika, 2018).

Data analysis was performed using inferential statistical techniques with the assistance of SPSS statistical software. Initially, descriptive statistics were used to summarize the characteristics of the research variables, including mean scores and standard deviations. Subsequently, the Pearson Product Moment correlation test was applied to determine the strength and direction of the relationship between physical fitness variables and athlete achievements. Pearson correlation is commonly used in sports science research to analyze relationships between continuous variables (Field, 2018).

Furthermore, multiple linear regression analysis was conducted to determine the simultaneous contribution of the independent variables—cardiorespiratory endurance, arm muscle strength, and agility—to the dependent variable, namely athlete achievement. Multiple regression analysis allows researchers to assess the predictive power of multiple variables simultaneously and determine which variables have the greatest influence on performance outcomes (Hair et al., 2019). All statistical analyses were conducted using a significance level of $\alpha = 0.05$, which is widely accepted in sports science research for determining statistical significance.

RESULTS AND DISCUSSION
Result
Descriptive Statistical Analysis

The descriptive statistical analysis was conducted to provide an overview of the physical fitness level and athlete achievements among members of the FIKK UNM Athletic Club. The variables analyzed included endurance, arm muscle strength, agility, and athlete achievement. The results of the descriptive analysis are presented in Table 1.

Table 1.
Descriptive Statistics of Research Variables

Variable	N	Mean	Std. Deviation	Category
Endurance	20	42.15	5.21	Good
Arm Muscle Strength	20	35.40	4.83	Good
Agility	20	15.82	2.14	Moderate–Good
Athlete Achievement	20	78.60	8.75	Good

The results in Table 1 indicate that the overall physical fitness level of athletes in the FIKK UNM Athletic Club falls within the good category. The highest average score was observed in the endurance component, suggesting that athletes possess relatively strong aerobic capacity. Meanwhile, agility showed slightly lower average values compared to other components, indicating potential areas for improvement in training programs.

Normality Test

The normality test was conducted to determine whether the research data were normally distributed. The Shapiro–Wilk test was used because the sample size was less than 50 participants. The results are presented in Table 2.

Table 2.
Normality Test Results

Variable	Shapiro–Wilk Sig.	α	Information
Endurance	0.211	0.05	Normal
Arm Muscle Strength	0.175	0.05	Normal
Agility	0.243	0.05	Normal
Athlete Achievement	0.189	0.05	Normal

The results indicate that all variables have significance values greater than 0.05, meaning that the data distribution for all variables meets the assumption of normality. Therefore, parametric statistical analysis can be applied in the subsequent analysis stages.

Homogeneity Test

The homogeneity test was performed to determine whether the variance among the variables was homogeneous. The Levene's Test was applied to evaluate this assumption. The results are presented in Table 3.

Table 3.
Homogeneity Test Results

Variable	Levene Statistic	Sig.	Information
Physical Fitness Variables	1.27	0.312	Homogeneous

Based on the results shown in Table 3, the significance value obtained was 0.312, which is greater than 0.05. This indicates that the data variance among the research variables is homogeneous, meaning that the dataset meets the homogeneity requirement for further statistical analysis.

Pearson Correlation Analysis

The Pearson Product Moment correlation test was used to determine the relationship between each physical fitness component and athlete achievement. The results of the correlation analysis are presented in Table 4.

Table 4.
Pearson Correlation Results between Physical Fitness and Athlete Achievement

Variables	r	P value	Information
Endurance	0.67	0.000	Significant
Arm Muscle Strength	0.55	0.000	Significant
Agility	0.51	0.001	Significant

The results indicate that all physical fitness variables have a significant positive correlation with athlete achievements. Endurance shows the strongest relationship with athlete performance (r = 0.67), followed by arm muscle strength (r = 0.55) and agility (r = 0.51). These findings suggest that athletes with higher levels of physical fitness tend to demonstrate better performance outcomes in athletics competitions.

Multiple Linear Regression Analysis

To determine the simultaneous contribution of the independent variables (endurance, arm muscle strength, and agility) to athlete achievements, a multiple linear regression analysis was conducted. The results are presented in Table 5.

Table 5.
Results of Multiple Linear Regression Analysis

Independent Variable	Contribution (%)
Endurance, Arm Muscle Strength, Agility	77%

The regression analysis indicates that the three independent variables collectively contribute 77% to the achievements of FIKK UNM Athletic Club athletes. This value represents the coefficient of determination (R^2 = 0.77), meaning that the majority of athlete performance variation can be explained by physical fitness factors. The remaining 23% is influenced by other factors not examined in this study, such as psychological readiness, training experience, nutrition, recovery strategies, and technical skills.

Conceptual Diagram of Physical Fitness Contribution

To illustrate the contribution of physical fitness components to athlete achievement, the following conceptual diagram is presented.

Figure1.
Diagram of Physical Fitness Contribution

The diagram shows that the three physical fitness components simultaneously contribute to athlete performance. Among these variables, endurance demonstrates the strongest influence on athletic achievement.

Discussion

The results of this study demonstrate that the level of physical fitness among athletes of the FIKK UNM Athletic Club has a significant relationship with athlete achievement. The statistical analysis revealed that endurance, arm muscle strength, and agility all showed positive and significant correlations with athlete performance. Among these variables, endurance demonstrated the strongest correlation, followed by arm muscle strength and agility. These findings confirm that physical fitness is one of the primary determinants of athletic performance, particularly in sports disciplines such as athletics that demand high physiological capacity and neuromuscular coordination.

From a theoretical perspective, physical fitness is a multidimensional concept consisting of several physiological and motor components that enable individuals to perform physical activities effectively. These components include cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, speed, agility, coordination, and balance, which collectively determine the body's ability to perform

motor tasks efficiently and sustain physical activity over time . In the context of competitive sports, these physical attributes serve as the fundamental basis for technical execution, tactical implementation, and overall athletic performance.

The findings of this study align with previous research demonstrating that physical fitness plays a crucial role in improving sports performance. Athletes with higher levels of physical fitness tend to exhibit greater movement efficiency, improved physiological adaptation, and better resistance to fatigue during training and competition. Research in sports science also indicates that improvements in physical fitness components such as strength, power, and aerobic capacity significantly enhance athletic performance outcomes in various sports disciplines . Therefore, the positive relationship found in this study between physical fitness and athlete achievements among FIKK UNM athletes is consistent with the broader body of literature in sports physiology and performance science.

One of the most important findings of this study is that endurance demonstrated the strongest correlation with athlete achievement. This result is consistent with the physiological demands of athletics, particularly running events, which rely heavily on aerobic capacity and cardiorespiratory endurance. Cardiorespiratory endurance refers to the ability of the heart, lungs, and circulatory system to deliver oxygen to working muscles during prolonged physical activity. High levels of endurance allow athletes to maintain optimal performance levels for longer durations and delay the onset of fatigue. Previous studies have confirmed that aerobic capacity is strongly associated with performance in endurance-based sports, as it enhances oxygen transport, metabolic efficiency, and energy production during exercise .

In athletics training, endurance is often developed through structured aerobic and anaerobic conditioning programs, such as interval training, continuous running, and high-intensity training sessions. These training methods improve cardiovascular efficiency and increase the body's capacity to utilize oxygen during physical activity. As a result, athletes with higher endurance levels are better able to maintain speed, power, and technical consistency throughout competitions. The strong correlation between endurance and athlete achievement observed in this study therefore highlights the importance of endurance training as a key component in athletic preparation programs.

Another important finding of this study is the significant relationship between arm muscle strength and athlete achievement. Muscular strength is defined as the ability of muscles to exert force against resistance. In athletics events such as throwing, jumping, and sprinting, muscular strength plays a vital role in generating explosive movements and maintaining movement stability. Strength contributes not only to power production but also to injury prevention and movement efficiency during sports activities.

Scientific evidence shows that muscular strength development is associated with improvements in explosive power, speed, and overall athletic performance. Strength training stimulates neuromuscular adaptations that increase muscle fiber recruitment, enhance motor unit synchronization, and improve the efficiency of force production during movement. These adaptations enable athletes to produce greater force during activities such as sprint starts, jumps, and throwing actions. Previous studies have also

shown that strength training programs significantly improve physical performance indicators such as sprint speed, vertical jump height, and throwing distance in athletes.

In addition to endurance and muscular strength, agility was also found to have a significant relationship with athlete performance in this study. Agility refers to the ability to change direction quickly while maintaining balance and control of body movement. Although agility is more commonly associated with team sports such as soccer or basketball, it also plays an important role in athletics, particularly in events that require rapid acceleration, deceleration, and coordination of body movements.

Agility is considered one of the skill-related components of physical fitness that contribute to movement efficiency and motor coordination. Skill-related fitness components include agility, speed, coordination, balance, power, and reaction time, which collectively influence an athlete's ability to perform sport-specific movements effectively . Athletes with better agility are able to adjust their movements more efficiently, maintain balance during dynamic movements, and respond quickly to changes in movement patterns during training and competition.

The significant correlation between agility and athlete achievement in this study suggests that agility training may contribute to improved athletic performance. Modern sports training programs often incorporate speed, agility, and quickness (SAQ) training methods to enhance neuromuscular coordination and movement efficiency. Research indicates that SAQ training programs can significantly improve speed, reaction time, and agility, which ultimately contribute to better sports performance and competitiveness .

The regression analysis conducted in this study further revealed that endurance, arm muscle strength, and agility simultaneously contributed 77% to athlete achievement. This finding indicates that the majority of athletic performance variation among FIKK UNM athletes can be explained by physical fitness components. In sports science, the coefficient of determination obtained from regression analysis is often used to evaluate the predictive power of independent variables in explaining performance outcomes. A contribution value of 77% can be considered relatively high, suggesting that physical fitness is a major factor influencing athletic performance in this context.

However, it is important to note that approximately 23% of the variance in athlete achievement is influenced by other factors not examined in this study. Athletic performance is a complex phenomenon influenced by multiple interacting factors, including psychological readiness, motivation, nutrition, training experience, coaching quality, and recovery strategies. For example, psychological factors such as confidence, motivation, and mental resilience have been shown to significantly influence athletes' ability to perform under competitive pressure.

Similarly, nutritional intake plays an essential role in supporting physical performance by providing the energy and nutrients required for training adaptation and recovery. Proper nutrition helps maintain optimal body composition, enhances muscle recovery, and supports metabolic processes necessary for high-intensity exercise. Athletes who maintain balanced nutritional intake are more likely to sustain high levels of physical performance during competitions.

Training experience and program design are also important factors affecting athlete performance. Athletes who follow structured and scientifically designed training programs are more likely to develop higher levels of physical fitness and technical proficiency. Periodized training programs that integrate endurance, strength, speed, and agility training are particularly effective in improving overall athletic performance.

Another important factor influencing athlete achievement is recovery management. Adequate recovery allows the body to repair damaged muscle tissue, restore energy stores, and adapt to training stimuli. Without proper recovery, athletes may experience fatigue, decreased performance, and increased risk of injury. Therefore, recovery strategies such as rest, nutrition, hydration, and active recovery exercises are essential components of athletic training programs.

The findings of this study have important practical implications for sports training and athlete development, particularly within university sports programs. For coaches and sports educators at the FIKK UNM Athletic Club, the results highlight the importance of implementing comprehensive physical conditioning programs that focus on improving endurance, muscular strength, and agility. Training programs should be designed to develop these physical components systematically in order to enhance athlete performance.

Additionally, regular physical fitness testing should be conducted to monitor athlete progress and evaluate the effectiveness of training programs. Physical fitness assessments provide valuable data that can help coaches identify athletes' strengths and weaknesses and adjust training strategies accordingly. Monitoring athlete fitness levels also helps prevent overtraining and reduce the risk of injury.

From an academic perspective, this study contributes to the growing body of literature on sports science by providing empirical evidence on the relationship between physical fitness and athlete achievement in a university athletics context. Most previous studies have focused on elite or professional athletes, while research involving university-level athletes remains relatively limited. Therefore, the findings of this study provide valuable insights into the physical fitness profiles of university athletes and their impact on athletic performance.

Furthermore, this study supports the theoretical framework that physical fitness is a critical determinant of sports performance. The significant relationships observed between endurance, muscular strength, agility, and athlete achievement reinforce the importance of physical conditioning in athletic training programs. By improving these physical fitness components, athletes can enhance their physiological capacity, movement efficiency, and overall performance.

In conclusion, the results of this study indicate that physical fitness plays a significant role in determining athlete achievement among members of the FIKK UNM Athletic Club. Endurance, arm muscle strength, and agility were all found to have positive and significant relationships with athlete performance, with endurance showing the strongest influence. These findings emphasize the importance of developing comprehensive physical conditioning programs that target multiple fitness components

to improve athletic performance. Future research is recommended to explore additional factors influencing athlete achievement, such as psychological, nutritional, and training variables, in order to provide a more holistic understanding of athletic performance development.

CONCLUSION

Based on the results of the data analysis, this study concludes that the level of physical fitness has a significant relationship with the achievements of athletes in the FIKK UNM Athletic Club. The statistical analysis using the Pearson Product Moment correlation test indicates a strong relationship between physical fitness variables and athlete performance, with a correlation coefficient of $r = 0.77$ and a significance value of $p < 0.05$. This result demonstrates that physical fitness is an important determinant of athletic performance and contributes significantly to the success of athletes in athletics competitions.

Further analysis of each component of physical fitness reveals that endurance has a significant relationship with athlete performance, with a correlation value of $r = 0.67$ ($p = 0.000$). This finding indicates that athletes who possess higher levels of cardiorespiratory endurance tend to achieve better performance outcomes, particularly in athletics events that require sustained physical effort such as running. Endurance enables athletes to maintain performance intensity for longer periods and delay the onset of fatigue during competition.

The results also show that arm muscle strength has a significant correlation with athlete performance, with a correlation value of $r = 0.55$ ($p = 0.000$). Muscular strength plays a crucial role in generating explosive movements and producing maximum force during athletic activities. Stronger muscles allow athletes to perform powerful movements, improve acceleration, and enhance overall movement efficiency during sports performance.

In addition, agility was found to have a significant relationship with athlete performance, with a correlation value of $r = 0.51$ ($p = 0.001$). Agility reflects an athlete's ability to change direction quickly while maintaining balance and coordination. This component is essential for improving movement efficiency and supporting technical execution in athletics activities that require rapid adjustments in body movement.

The multiple linear regression analysis further indicates that endurance, arm muscle strength, and agility simultaneously contribute 77% to athlete achievements, while the remaining 23% is influenced by other factors such as psychological readiness, nutrition, training experience, and recovery management.

Overall, the findings of this study reinforce the theoretical concept that physical fitness is a fundamental prerequisite for athletic performance. These results provide valuable insights for coaches and trainers at the FIKK UNM Athletic Club to design more effective training programs that prioritize the development of endurance, muscular strength, and agility in order to improve athlete performance in future competitions.

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