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Analysis of the Physical Fitness Profile of EF Phase Students of SMA Negeri 12 Makassar Based on the Indonesian Student Fitness Test (TKSI) Instrument

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ABSTRACT

This study aims to analyze and describe the physical fitness profile of Phase EF students (SMA/SMK/MA) at SMA Negeri 12 Makassar using the national standard Indonesian Student Fitness Test Instrument (TKSI) Phase EF. TKSI Phase EF measures six fitness components: endurance (Beep Test), arm muscle strength (Dipping Test), leg muscle explosive power (Vertical Jump Test), agility (T Test and Hand Touch Reaction Test), and eye-hand coordination (Hand and Eye Coordination Test). The method used is direct observation and measurement of the subjects. The results of the study on 8 students of grade 11.8 showed that the overall fitness profile of the students was classified as Good. The components that showed superior results were agility (T-Test), eye-hand coordination, and reaction speed (Hand Touch Reaction Test), where 87.5% of students achieved the category "Good" or higher. The most prominent component as an area that needs improvement is explosive power (Vertical Jump Test), where the majority of students (62.5%) only achieved the category "Medium". There are differences in performance between boys and girls, with boys excelling in strength/explosive power tests, and girls competing in endurance and arm muscle strength tests. Integrating a plyometric training program to improve leg muscle explosiveness is recommended.

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INTRODUCTION

Physical fitness is a crucial aspect in human resource development, especially for students who are in the final phase of growth and development. For high school students (SMA/SMK/MA) or those categorized as EF Phase in the Independent Curriculum, an optimal level of fitness not only supports daily physical activity but also affects study concentration and long-term health.

Physical fitness is a crucial aspect of student development that often receives less attention amid increasing academic demands. In fact, a good level of fitness not only supports physical health but also contributes significantly to students' learning abilities, concentration, and overall well-being. Students with optimal physical fitness tend to be

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more active, have stronger endurance, and are better able to participate effectively in learning activities.

In today's modern era, sedentary lifestyles are becoming more common. The growing use of gadgets, digital entertainment, and reduced physical activity at home and school has led many students to experience declining levels of fitness. This situation is further worsened by the lack of awareness about the importance of physical activity and environmental factors that do not always support healthy living habits. If not addressed, low physical fitness may lead to various problems such as obesity, fatigue, poor motor coordination, and even decreased academic performance.

Schools, as educational institutions, play a strategic role in fostering active and healthy habits. Through Physical Education, Sports, and Health (commonly known as PE), students are introduced to activities aimed at improving fitness components such as muscular strength, endurance, agility, flexibility, and cardiorespiratory fitness. However, the implementation of these programs often faces challenges, including limited facilities, less engaging teaching methods, and low student motivation.

Therefore, improving students' physical fitness has become an urgent need that must be addressed through more structured, engaging, and developmentally appropriate programs. These efforts are expected not only to enhance students' physical abilities but also to cultivate long-term healthy lifestyle habits, enabling them to grow into a fit, productive, and resilient generation capable of facing future challenges.

Realizing the importance of standard evaluation, the Ministry of Education and Culture of the Republic of Indonesia has established the Indonesian Student Fitness Test Instrument (TKSI) as a national standard measuring tool. The EF Phase TKSI is specifically designed to assess six important components of fitness in adolescents, including cardiovascular endurance (Beep Test), arm muscle strength (Dipping Test), leg muscle explosiveness (Vertical Jump Test), agility (T Test and Hand Touch Reaction Test), and coordination (Hand and Eye Coordination Test).

The implementation of this test is vital to obtain valid empirical data regarding the fitness profile of students at SMA Negeri 12 Makassar. With this data, physical education programs can be evaluated and adjusted to address students' specific weaknesses. This study aims to implement and analyze the results of the EF Phase TKSI test to comprehensively map the level of physical fitness of students.

The specific objectives of this research are: (1) To objectively describe the level of physical fitness of Phase EF students based on TKSI assessment norms, and (2) To identify students' strengths and weaknesses in each component of the EF Phase TKSI test, including endurance, strength, explosiveness, agility, reaction speed, and coordination.

METHODS

This study uses a quantitative descriptive research design that aims to analyze the level of physical fitness of SMA Negeri 12 Makassar students. Data was obtained directly through the implementation of all components of the Indonesian Student Fitness Test (TKSI) Phase EF, which has been standardized by the Ministry of Education and Culture.

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Research Subject

The research subjects are high school students (SMA/SMK/MA) who are included in the EF Phase category. In this report, the subjects tested consisted of 8 students in grade 11.8.

Test Instruments

The instruments used are all components of the Indonesian Student Fitness Test Instrument (TKSI) EF Phase:

1. Beep Test (Cardiovascular Endurance)
2. Dipping Test (Arm/Shoulder Muscle Strength)
3. Vertical Jump Test (Leg Muscle Explosiveness)
4. T Test (Agility)
5. Hand Touch Reaction Test
6. Hand and Eye Coordination Test.

RESULTS AND DISCUSSION

Data were collected through observation methods and direct measurements of the subjects. The measurement results of each test item are converted into assessment categories (Very Good, Good, Moderate, Poor, Very Low) in accordance with the Phase EF TKSI norms.

Table 1.
Results of research data analysis

Fitness Components	Test Item	Category Good/Very Good	Medium to Bottom Category	Percentage Good/Very Good
Cardiovascular Endurance	Beep Test	7 (3 B. Once, 4 Good)	1 (Medium)	87.5%
Arm/Shoulder Muscle Strength	Dipping Test	6 (4 B. Once, 2 Good)	2 (Medium)	75.0%
Leg Muscle Explosiveness	Vertical Jump Test	3 (Good)	5 (Medium)	37.5%
Agility	T Test	7 (Good)	1 (Medium)	87.5%
Hand-eye coordination	Hand and Eye Coordination Test	7 (3 B. Once, 4 Good)	0	100.0%
Reaction Speed	Hand Touch Reaction Test	7 (Good)	1 (Medium)	87.5%

The results of the fitness assessment reveal a varied profile of students' physical abilities across several key components. Overall, the majority of students demonstrated strong performance in cardiovascular endurance. Through the Beep Test, 87.5% of students fell into the Good or Very Good category, indicating that most participants possess a high level of cardiorespiratory fitness. Only one student was classified in the Medium category, showing that endurance is generally a strong area for this group.

1. Similarly, agility emerged as another prominent strength. Results from the T-Test showed that 87.5% of students achieved a Good rating, with only one student categorized as Medium. This suggests that the students are capable of performing rapid directional changes effectively, a skill crucial for many sports and physical activities.

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2. Hand-eye coordination stands out as the strongest component, with 100% of the students scoring within the Good or Very Good category. This demonstrates consistent proficiency across all participants, reflecting well-developed motor coordination skills.
3. Reaction speed also showed positive outcomes, with 87.5% of students classified as Good and only one student in the Medium category. These results indicate that most students can respond quickly to stimuli, an ability often associated with strong neuromuscular function.
4. In contrast, leg muscle explosiveness was identified as the weakest component among the fitness variables tested. Only 37.5% of students achieved a Good rating on the Vertical Jump Test, while the remaining 62.5% fell into the Medium category. This indicates that lower-body power is an area that requires focused improvement through targeted training such as plyometric exercises or strength conditioning.
5. Meanwhile, arm and shoulder muscle strength showed moderate results, with 75% of students in the Good or Very Good category on the Dipping Test. Although the majority performed well, 2 students were categorized as Medium, suggesting that upper-body strength is generally adequate but still has room for improvement.

Overall, the data show that students tend to excel in coordination-based and agility-based skills, as well as endurance, while power-related components—particularly leg explosiveness—are less developed. These findings highlight the importance of designing training programs that maintain students' strengths while addressing the components that require further enhancement.

The findings of this study provide a comprehensive overview of students' fitness levels across several key physical components. Overall, the data indicate that the students demonstrate strong performance in endurance, agility, coordination, and reaction speed, while certain strength and power components require further development. One of the most notable results is the high level of cardiovascular endurance among the students. With 87.5% categorized as Good or Very Good based on the Beep Test, it can be inferred that the majority of students possess adequate aerobic capacity to support prolonged physical activity. This finding aligns with previous literature suggesting that regular school activities and physical education classes contribute positively to students' cardiorespiratory fitness. The presence of only one student in the medium category further strengthens the conclusion that endurance training has been relatively effective for this group.

Agility also showed similarly strong outcomes, with 87.5% of students performing in the Good category. This suggests that the students have well-developed neuromuscular coordination and movement efficiency, enabling them to execute rapid directional changes. Given that agility is often enhanced through sports participation and dynamic PE activities, these results may reflect consistent exposure to movement-based learning during physical education lessons. Hand-eye coordination emerged as the highest-performing component, with 100% of students falling into the Good or Very Good category. This uniform proficiency indicates that the students have well-developed

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fine motor control and perceptual-motor integration. Such results may be influenced by daily activities involving visual–motor tasks, as well as PE activities that require object manipulation, such as ball games.

Reaction speed also showed strong outcomes, with 87.5% of students achieving Good results. This finding suggests that the students are capable of responding quickly to stimuli, which is essential for both sports performance and functional daily activities. These high results across coordination and reaction-related components highlight that neuromotor skills are generally well-developed in this group. In contrast, the weakest component identified in this study was leg muscle explosiveness. Only 37.5% of students reached the Good category in the Vertical Jump Test, indicating limited lower-body power. This weakness may stem from insufficient engagement in activities that emphasize explosive strength, such as jumping, sprinting, or plyometric exercises. The dominance of medium-category results suggests that targeted training interventions are needed to improve students' lower-body muscular power.

Upper-body strength showed moderate outcomes, with 75% of students achieving Good or Very Good results. Although this reflects adequate muscular strength in the arm and shoulder region, the presence of students in the medium category suggests that improvements are still necessary. Strength training is often underemphasized in school PE programs, which may contribute to variability in strength-related components. Taken together, the results indicate a clear pattern: students exhibit higher proficiency in endurance, agility, coordination, and reactivity, while muscular strength—particularly leg power—remains a relative weakness. This pattern implies that the current physical activity environment may favor skill-based and endurance-based tasks while underemphasizing strength and power development.

The findings highlight the need for a more balanced physical fitness program that addresses these disparities. Incorporating structured strength and power training into physical education curricula could improve overall fitness profiles. Additionally, interventions focusing on lower-body power, such as plyometric circuits, squat-based training, and sport-specific drills, may help elevate performance in the weaker components.

CONCLUSION

Based on the results of the fitness assessment, it can be concluded that the students generally demonstrate strong performance in several key components of physical fitness, particularly cardiovascular endurance, agility, hand–eye coordination, and reaction speed. These components consistently showed high percentages in the Good or Very Good categories, indicating that students possess well-developed aerobic capacity, neuromotor coordination, and responsiveness. However, the findings also reveal areas that require improvement, especially in leg muscle explosiveness, which had the lowest percentage of students in the Good category. Upper-body strength, although relatively better, still shows room for further development. These results suggest that while students excel in coordination- and endurance-based skills, strength and power components are not yet adequately developed. Overall, the study highlights the

importance of implementing a more balanced physical fitness program that not only maintains students' strengths but also focuses on enhancing weaker components—particularly lower-body power and muscular strength. Such improvements are essential to achieving a more comprehensive and optimal fitness profile for students.

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