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# The Role of Reguler Physical Activity In Improving Fitnes And Cardiovascular Health Of Sports Science Students In 2025 With The 60-Meter Running Of Men's TKJI

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**Abstract**

*Regular physical activity plays a crucial role in improving physical fitness and maintaining cardiovascular health, particularly for sports science students who are required to maintain optimal physical condition. This study aims to analyze the effect of regular physical activity on improving the fitness and cardiovascular health of sports science students in 2025 using the Indonesian Physical Fitness Test (TKJI) parameters, specifically the 60-meter run item. The research method used is a qualitative descriptive method with a quasi-experimental approach. The subjects were male sports science students who participated in a regular physical activity program for a certain period. Data were obtained through measuring the 60-meter run, as well as observing changes in resting heart rate as an indicator of cardiovascular health. The results showed a significant increase in 60-meter running speed and a decrease in resting heart rate after implementing the regular physical activity program. This indicates that consistent physical exercise can increase heart and lung capacity, improve muscle efficiency, and strengthen the overall cardiovascular system. Thus, regular physical activity has been shown to play a significant role in improving students' physical fitness and cardiovascular health.*

***Keywords***: *regular physical activity, physical fitness, cardiovascular health, sports science students, TKJI, 60 meter run*

## Introduction

Physical activity is a crucial component in maintaining and improving physical fitness and cardiovascular health. In the fast-paced and sedentary context of modern life, many individuals experience a decline in physical activity levels, which negatively impacts their overall health.

According to the World Health Organization (WHO, 2020), lack of physical activity is a major risk factor for non-communicable diseases such as obesity, hypertension, and coronary heart disease.

Therefore, regular physical activity needs to be an integral part of a healthy lifestyle, especially for young people such as students, who are in the process of developing long-term healthy habits (Nurhidayat, 2025) .

Sports science students face academic and professional demands not only to understand the theory of physical activity but also to be able to apply it effectively in everyday life. Regular physical activity performed with appropriate intensity and frequency can significantly impact physical fitness, including endurance, strength, agility, and speed (Ferdianto & Prihanto, 2017) .

One important component of physical fitness that can be measured objectively is running speed. The 60-meter run test included in *the Indonesian Physical Fitness Test* (TKJI) is an effective instrument for assessing speed capabilities and the body's response to regular physical exercise (Kushartanti & Aifo, 2013) .

Physical fitness is closely related to cardiovascular health, as physical activity can improve the efficiency of the heart and lungs in

delivering oxygen throughout the body. According to Fox and Bowers (2013), regular physical activity can strengthen the heart muscle, increase the volume of blood pumped per beat, and lower the resting heart rate, which is an indicator of heart efficiency.

Sports science students who have a good level of cardiovascular fitness will perform more optimally in carrying out academic activities, practical work, and sports activities that require high physical performance (Ревишвили, 2025) .

In the academic context of 2025, it is crucial to conduct research evaluating how regular physical activity plays a role in improving the fitness and cardiovascular health of sports science students.

By using the TKJI, specifically the 60-meter run item, this study can provide an objective picture of students' fitness levels and physical response speed. This data serves as an important reference for assessing the effectiveness of the implemented physical training program, while also encouraging students to be more disciplined in performing physical activities in accordance with scientific training principles.

Thus, this study aims to analyze the role of regular physical activity in improving the fitness and cardiovascular health of sports science students in 2025 through measurements using the 60-meter run TKJI.

The results of this study are expected to provide scientific contributions in the development of fitness-based physical education curricula, as well as serve as a basis for developing effective and sustainable training programs for students to achieve optimal fitness levels that support their cardiovascular health and academic performance

## Methods

research uses a descriptive method with a qualitative approach, or based on the results of field tests that aim to systematically describe the condition of the physical fitness level of Sports Science students at Singaperbangsa University, Karawang in 2025.

This approach was chosen because this research does not manipulate variables but rather focuses on describing real phenomena in the field based on the results of measurements and observations (Priyono, 2016; Syahrul, Tressyalina, & Zuve, 2017).

**TKJI Value Table for 60 Meter Run (For Boys aged 16-19 years)**

| 60 Meter Run | Mark | Category |
|---|---|---|
| **sd** – 7.2" | 5 | Very good |
| 7.3" – 8.3" | 4 | Good |
| 8.4" – 9.6" | 3 | Currently |
| 9.7" – 11.0" | 2 | Not enough |
| 11.1" **etc.** | 1 | Less than once |

The type of design used is a direct test in the field, where the research subjects are given a test carried out by measuring using the Indonesian Physical Fitness Test (TKJI) 60 Meter Run.

The study was conducted at the Singaperbangsa University Karawang soccer field in May 2025. Prior to the test, all participants were given an explanation of the study's objectives and procedures, followed by a 10–15-minute warm-up to prevent injury.

Participants then underwent a 60-meter run, instructed to cover the distance as quickly as possible. Run times were measured using a digital stopwatch with an accuracy of 0.01 seconds. The running times were then converted to TKJI categories and analyzed using a simple descriptive statistical approach to determine the distribution of scores by physical fitness category.

The research population was all active students of the Sports Science study program, class of 2025, with a sample of 16 male students selected using purposive sampling technique, namely determining the sample based on certain criteria such as age range (18–22 years), good physical health conditions, and willingness to participate in the research.

This technique is considered appropriate because this research requires homogeneous subjects in physiological aspects and age characteristics (Siyoto & Sodik, 2015).

## Results And Discussion

### Research Results

Based on the 16 test samples taken, the results varied greatly, eight students with a score of 1, six students with a score of 2, one student with a score of 3, one student with a score of 4.

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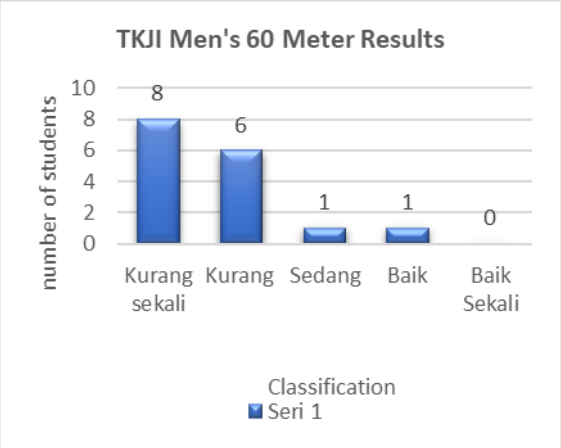
**Table 1.** Results of the TKJI Men's 60-meter Run




These results indicate that the majority of students have low levels of physical fitness. 87.5% of respondents fell into the Very Poor and Poor categories, while only 12.5% fell into the Moderate and Good categories.

**Discussion**

These data indicate that students' cardiovascular endurance is still suboptimal, likely due to a lack of routine physical activity or regular aerobic exercise. Physiologically, low TKJI scores indicate that the body's organs have not yet fully adapted to physical activity.

This condition is generally characterized by a high resting heart rate, rapid fatigue during physical activity, and a long recovery time. Similar results were found in Wahyudi's (2022) study, which stated that students who exercise less than three times per week tend to have a low $VO_2$ max capacity and are in the "poor" fitness category.

Visually, the distribution of results shows a predominance of low scores, reflecting that Sports Science students need to increase their training intensity and modify their daily activity patterns to achieve a better fitness category. (Kurniawan & Amiq, 2025) .

The results of this study confirm that regular physical activity plays a crucial role in improving physical fitness, particularly in the context of cardiovascular health. When a person engages in regular physical exercise, the body's systems adapt to the increased energy and oxygen demands.

This physiological adaptation process includes an increase in cardiac stroke volume, a decrease in resting heart rate, an increase in the number of capillaries and mitochondria in muscles, and an increase in the lungs' ability to efficiently exchange gases (Susanto, 2019; Prasetyo, 2022).

Continuous aerobic exercise such as running, cycling, and swimming has been shown to increase $VO_2$ max values by 15–25% within 8–12 weeks (Rahmawati, 2021). This increase indicates that the cardiovascular system is functioning more efficiently in pumping blood throughout the body, and muscle tissue can utilize oxygen more optimally.

This adaptation is an important basis for preventing cardiovascular disorders such as hypertension, coronary artery disease, and atherosclerosis (Putri, 2022; Nugroho, 2019). In addition to physiological effects, physical exercise also has significant psychological impacts. Regular physical activity has been

shown to reduce levels of the stress hormone cortisol and increase the secretion of endorphins, which promote feelings of happiness and relaxation. Students who exercise regularly generally have higher levels of concentration, better sleep quality, and more stable academic productivity (Santoso, 2019; Suharjana, 2019 ).

**Conclusio**

The results of the Indonesian Physical Fitness Test (TKJI) 60-meter run showed an increase in students' speed and endurance after undergoing a regular physical activity program.

These improved test results demonstrate that consistent exercise can improve physical performance, particularly in terms of speed and cardiovascular capacity. This aligns with fitness theory, which states that appropriate exercise intensity, duration, and frequency will have a positive effect on heart function and blood circulation.

Furthermore, regular physical activity plays a crucial role in preventing the risk of cardiovascular disease from a young age. Sports science students who habitually maintain an active lifestyle demonstrate better fitness levels than those who rarely exercise.

This confirms that consistently implementing physical activity habits not only improves athletic performance but also serves as a long-term investment in health.

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