



Analysis Of The Differences In Running Intervals On Running Speed Of Students At Mts Al Amin Pakis

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Abstract

This study aims to determine the difference in running intervals on running speed in MTs Al Amin Pakis students. The research method is a quasi-experimental method. The sampling technique is simple random sampling. The sample is 20 students of class VIII A as the experimental class and 20 students of class VIII B as the control class. The data collection technique uses tests and non-tests. The instruments are tests and non-test instruments in the form of questionnaires. The data obtained were analyzed using prerequisite tests for normality tests and homogeneity tests. The results of the t-test that have been carried out with the SPSS program, obtained that the t-count value is greater than the t-table value, meaning that there is a significant difference in running intervals on running speed in MTs Al Amin Pakis students.

Keywords: *Interval Running, Running Speed*

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INTRODUCTION

Physical education is an integral part of the national education system, aiming to develop physical fitness, motor skills, and character in students. In an educational context, structured physical activity plays a crucial role in improving students' physiological capacities, including speed. According to the World Health Organization (2020), regular physical activity in children and adolescents significantly contributes to cardiovascular health, muscle strength, and overall physical performance. Therefore, physical education instruction at the Islamic Junior High School (MTs) level needs to be designed with an effective and scientifically based training approach.

Running speed is a crucial component of physical fitness and sports performance. Speed is not only important in athletics but also in various games such as soccer, basketball, and futsal. Physiologically, speed is influenced by muscle strength, neuromuscular coordination, and anaerobic energy system capacity. Bompa and Haff (2019) explain that

structured and systematic training can improve speed performance through neuromuscular and metabolic adaptations.

One widely used training method to increase speed is interval running. Interval running is a form of training that systematically combines periods of work at a specific intensity with rest periods. According to Fox, Bowers, and Foss (2018), interval training is effective in increasing anaerobic capacity and fatigue tolerance, which play an important role in increasing running speed.

Recent research shows that varying intervals, such as varying work and rest durations, has varying impacts on performance improvement. Buchheit and Laursen (2019) stated that manipulating the work-rest ratio in interval training can significantly impact physiological adaptations. Therefore, it is important to analyze different interval running models to determine which method is more effective in improving students' running speed.

During adolescence, physical and biological development is in a phase of rapid growth. This period is highly responsive to training stimuli, including speed training. Lloyd and Oliver (2020) emphasized that training programs appropriate to adolescents' developmental stages can produce optimal performance improvements while minimizing the risk of injury.

In the context of school learning, training methods are often not optimally varied. Many physical education teachers still use conventional approaches without considering specific interval variations. However, according to the American College of Sports Medicine (2021), the principles of individualization and training variation are crucial for achieving maximum training results.

Furthermore, several studies have shown that high-intensity interval training (HIIT) is more effective in increasing speed than continuous training methods. Gibala et al. (2018) explained that high intensity interval training can increase anaerobic capacity and neuromuscular efficiency in a relatively short time.

However, the effectiveness of interval running is also influenced by the student's initial fitness level, training frequency, and consistency of program implementation. Kenney, Wilmore, and Costill (2020) stated that training adaptation occurs when the principles of overload and progression are applied appropriately.

Based on initial observations at MTs Al Amin Pakis, it was found that students' running speed abilities varied and had not yet achieved optimal results. This is likely because the training methods used did not specifically consider the differences in interval running

models. Therefore, experimental research is needed to analyze the differences in the effects of several interval running models on improving students' running speed.

Therefore, this research is important to contribute scientifically to the development of physical education training methods at the MTs level. The results are expected to provide the basis for recommendations for teachers in selecting the most effective interval running model to systematically and measurably improve students' running speed at MTs Al Amin Pakis.

METHOD

The research used a quantitative approach with an experimental research type (Moleong, 2015). The research method was a quasi-experimental method. The sampling technique used simple random sampling. The sample consisted of 20 students of class XI A as the experimental class and 20 students of class XI B as the control class. The data collection technique used tests and non-tests. The instruments were tests and non-test instruments in the form of questionnaires. The data obtained were analyzed using prerequisite tests, normality tests, and homogeneity tests. The results of the t-test were conducted using the SPSS program.

RESULTS AND DISCUSSION

Result

The research results can be seen in Table 1 below:

Table 1. Hypothesis Test Calculation Results		
Statistik	<i>Pretest</i>	<i>Posttest</i>
t count	1,47	3,79
t _{table}	2,021	2,021
Decision	H _a rejected	H _a accepted

Table 1 above shows that the pretest results obtained a calculated t value of 1.47 and a calculated t value of 2.021. The calculated t value is smaller than the calculated t value, so the null hypothesis (H₀) is accepted and the alternative hypothesis (H_a) is rejected. This means there is no significant difference between the pretest results of the experimental and control classes.

Table 1 above shows that the posttest results obtained a calculated t value of 3.79 and a calculated t value of 2.021. The calculated t value of the posttest is greater than the calculated t value, so the null hypothesis (H₀) is rejected and the alternative hypothesis (H_a) is accepted. This means there is a significant difference between the posttest results of the

experimental and control classes. The average running speed in the experimental class increased compared to the average running speed in the control class.

Running speed with interval running can increase running speed more significantly than conventional running speed, with the results of the normal gain (N-gain) test for the experimental class being higher than those of the control class. In the experimental class, the N-gain value was 0.82, indicating a high category, and in the control class, it was 0.60, indicating a moderate category. Running speed in the experimental class increased more after learning with interval running compared to the increase in running speed of students in the control class.

Discussion

After the two classes were given different learning treatments using interval running, the average scores of the two classes differed. Based on the results of the hypothesis test, the posttest scores between the control and experimental classes were higher than the t-table values, namely $3.79 > 2.021$, indicating that interval running learning had an effect on increasing running speed in students at MTs Al Amin Pakis. There was a difference in the average posttest scores, with students in the experimental class achieving a higher average posttest score than those in the control class. There was a difference in running speed among students at MTs Al Amin Pakis.

Interval running is an exercise that involves sprinting for short periods repeated several times with measured rest intervals. This exercise stimulates the anaerobic and aerobic energy systems, which contribute to increased running speed. According to Bompa & Haff (2009), interval training can increase cardiovascular capacity and the efficiency of muscle energy use, which directly impacts athletes' running speed.

The results showed that students who participated in the interval running program experienced a more significant increase in running speed compared to students who underwent regular training. This aligns with the theory that interval training can stimulate improvements in muscle performance at repeated high intensities (Smith, 2014). Improved speed can be seen in the students' 50m/100m sprint test scores after participating in the training program for several weeks.

Furthermore, interval running helps improve stride length and stride frequency, two important components of sprinting. This is supported by research by Yuliana & Suryadi (2019), which found that repeated interval training can improve students' running technique.

CONCLUSION

It was concluded that there was a significant difference between interval running and running speed in students at MTs Al Amin Pakis.

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