

## **Analysis Of Leg Muscle Explosive Power Through The One Leg Triple Jump Test On 9th Grade Students Of Mts. Ar-Rahman**

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**Abstracts:** This study aims to determine the level of explosive power of leg muscles (leg muscle explosive power) MTs.Ar-Rahman Class 9 students using the testOne Leg Triple Jump(OLTJ). Explosive leg muscle power is a very important element of physical fitness, especially in sports that require strong thrust, such as the long jump and sprint.One Leg Triple JumpThis method was chosen because it effectively measures the explosive strength of the thigh and calf muscles in three consecutive jumping stages (hop, step, and jump). The research method used was descriptive quantitative with a survey technique. The research population was all 9th grade students of MTs. Ar-Rahman, with a sample of 10 students taken using the technique.purposive sampling. The research instrument used was the one-legged three-step jump test (One Leg Triple Jump Test) measured in centimeters (cm). The test data were analyzed using descriptive statistics to determine the category of leg muscle explosive power (Very Good, Good, Moderate, Less, Very Less). The results of the study showed that the average leg muscle explosive power of students was in the sufficient category. There was also an average difference between the strength of the dominant leg and the non-dominant leg. The results of the study are expected to provide an overview of the profile of students' leg muscle strength, which is useful as material for evaluating physical education teaching programs, especially in athletics material.

**Keywords:** Leg Muscle Explosive Power,One Leg Triple Jump, Plyometrics, Physical Test.

### **INTRODUCTION**

Physical education, sports, and health (PJOK) at the Madrasah Tsanawiyah (MTs) level plays a crucial role in developing students' physical fitness and motor skills. One component of physical fitness that is crucial in supporting sports performance, particularly in athletics, is explosive power (explosive powerIn 9th grade students, physical development is in a transitional period towards late adolescence, where leg muscle strength becomes the main foundation for various physical activities and school sports achievements.

Plyometric comes from the Greek word "plyethyein" which means to increase, or can also be interpreted from the words "plio" and "metric" which mean more and measure, respectively which means stretching (Radcliffe and Farentinos, 1985: 3). The principle of the plyometric training method is that the muscles

always contract both when lengthening (eccentric) and shortening (concentric). Plyometric training is useful for increasing muscle nerve reactions, explosiveness, speed and the ability to generate force (power) in a certain direction.

Explosive power of leg muscles is the ability of muscles to exert maximum force in a very short period of time. According to Sajoto (1995:17), explosive power is a person's ability to exert maximum force with the greatest effort in the shortest possible time. In the context of sports, this involves the integration of strength and velocity. Explosive power or power is the ability of muscles to exert maximum force in a very short time. He also calls it the ability to overcome resistance at high speed in complete movements Harsono (1988, 2001).

To specifically measure leg muscles, one instrument that is considered effective is the test. One Leg Triple Jump According to Ismaryati (2008), the One Leg Triple Jump test aims to measure the explosive power of the leg muscles in a horizontal direction. Unlike the regular long jump, this test requires single-leg stability and high coordination during consecutive pushes, so the results are more specific in describing the functional strength of each student's legs.

Based on initial observations at MTs. Ar-Rahman, particularly among ninth-grade students, variations in physical abilities were observed during athletics practice. Some students appeared to struggle with powerful push-offs, but no concrete data has been scientifically measured on their leg muscle explosiveness. This lack of information on students' physical profiles has resulted in inaccurate training or learning programs for physical education (PJOK).

## **RESEARCH METHODS**

### **1. Types and Approaches Of Research**

This research uses a quantitative approach with a descriptive method. Descriptive research aims to describe or photograph a phenomenon systematically, factually, and accurately based on data obtained in the field without providing any specific treatment to the research subjects. According to Sugiyono, descriptive research is used to determine the value of an independent variable, whether one or more variables, without making comparisons or connecting them with other variables (Sugiyono, 2019).

### **2. Time and Place of Research**

The research was conducted at the MTs. Ar-Rahman sports field. Data collection took place in the even semester of the 2025/2026 academic year, specifically in January 2026.

### **3. Population and Sample**

The population in this study was all 22 ninth-grade students at MTs. Ar-Rahman. The sampling technique used purposive sampling, which is a sampling technique based on specific considerations tailored to the research objectives. Sugiyono stated that purposive sampling is used when researchers have specific criteria for the subjects to be sampled (Sugiyono, 2019:133).

Based on these criteria, the research sample consisted of 10 male students in grade IX with the following criteria:

1. be in good health,
2. did not experience any injuries to the lower limbs, and
3. willing to take part in the entire series of research tests.

### **4. Research Instruments**

The instrument used in this study was the One Leg Triple Jump Test. This test aims to measure the explosive power of the leg muscles in a horizontal direction by performing three consecutive jumps using one leg. According to Ismaryati, the One Leg Triple Jump is an effective test for measuring explosive leg muscle ability because it involves strength, speed, and coordination simultaneously (Ismaryati, 2008).

The test results are measured in meters (m) using a measuring tape, and the best value from the experiment conducted is recorded as the final score.

### **5. Test Implementation Procedures**

The One Leg Triple Jump test is carried out with the following procedure:

1. Students stand behind the starting line with one strongest supporting leg.
2. Students do three consecutive jumps (hops) forward using the same leg.
3. The final jump ends with a landing using both feet simultaneously to maintain balance.
4. The distance of the jump is measured from the starting line to the closest heel that touches the ground on the final landing.

### **6. Data Analysis Techniques**

The test data were analyzed using descriptive statistics, including the highest, lowest, and average scores. The measurement results were then classified into leg muscle explosive power categories (Very Good, Good, Adequate, Poor, and Very Poor). Descriptive statistical analysis was used to provide an objective overview of the characteristics of the research data.

## RESULTS AND DISCUSSION

### 1. Research result

Based on the One Leg Triple Jump test conducted on 9th grade students of MTs. Ar-Rahman, data on the achievement of various jump distances was obtained. In general, the explosive power of students' leg muscles was concentrated in the range of 3 to 4 meters. The highest score was 4.90 meters, the lowest score was 2.80 meters, and the average was 3.56 meters. If referring to the norms for assessing explosive leg muscles for adolescents (14-15 years), the average result of 3.56 meters indicates that the majority of students are in the "Enough" to "Less" category. However, there was a special achievement from one student who was able to reach a distance of 4.90 meters, which is close to the "Good" category.

### 2. Discussion

The research results show that the explosive power of the leg muscles of 9th-grade students at MTs. Ar-Rahman still needs to be improved. An average jump of 3–4 meters indicates that the students' explosive power when performing consecutive push-offs on one leg is not yet optimal.

Some important points that were found in this study are:

1. Average ability dominance: The majority of students were able to jump 3 meters. This indicates that their basic coordination has been established, but they lack the "explosive power" or power to propel their bodies further on the second and third jumps. According to Sajoto's (1995) theory, explosive power is highly dependent on muscle strength and muscle contraction speed.
2. Analysis of the highest score (4.90m): One student's success in reaching a distance of almost 5 meters (4.90m) indicates outstanding physical potential. This is likely influenced by physical activity outside of school or the student's involvement in extracurricular sports that regularly train leg strength.
3. Field constraints: During the test, it was found that many students experienced a decrease in distance on the third jump. This indicates their power endurance is still low. Inability to maintain balance when landing on one foot also contributed to less than optimal jump distance.

Biomechanically, the One Leg Triple Jump test requires the quadriceps and gastrocnemius muscles to work eccentrically and concentrically quickly. The low average results on this test indicate that the Physical Education (PJOK) curriculum

at MTs. Ar-Rahman needs to focus more on bodyweight training, such as squat jumps and lunges, to strengthen the foundation of students' explosive power.

## CONCLUSION

Based on the results of research and discussion regarding the analysis of leg muscle explosive power through the One Leg Triple Jump test on ninth grade students of MTs. Ar-Rahman, it can be concluded that the level of explosive power of the students' leg muscles is generally in the sufficient category. This is indicated by the average value of the jump results of 3.56 meters, with the longest distance of 4.90 meters and the shortest distance of 2.80 meters. These results indicate that the majority of students have had quite good basic motor coordination, but the ability to produce maximum explosive power in a short time still needs to be improved. In addition, differences in abilities between individuals were found, which indicates that physical activity factors, training habits, and involvement in sports activities outside of school can affect the level of explosive power of students' leg muscles. The One Leg Triple Jump test has proven effective as an instrument to measure explosive power of leg muscles specifically and functionally, because it is able to describe the ability of push-off, balance, and coordination of students' leg muscles. Therefore, the results of this study can be used as evaluation material for PJOK teachers in compiling and developing learning programs and physical training, especially those focused on increasing explosive power of leg muscles through planned and sustainable training.

**Data Tes One Leg Triple Jump For Students Of Mts. Ar-Rahman Grade 9**

NO	STUDENT NAME	JUMP RESULT (meters)	INFORMATION
1.	Rafaizan	3,10	Enough
2.	Too much	2,80	Terendah
3.	Maul	3,45	Enough
4.	Son	4,90	Highest
5.	Sankara	3,30	Enough
6.	Israel	3,20	Enough
7.	Alfazani	3,75	Enough

8.	Intercession	4,10	Good
9.	Azzam	3,45	Enough
10.	Symbol	3,60	Enough
Total		35,65	
Rate-rate		3,56	Category ( Enough )

Data Statistics Summary:

4. Number of samples: 10 students
5. Longest distance: 4.90 meters
6. Shortest distance: 2.80 meters
7. Average: 3.56 meters

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