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The Effect Of Ladder Drill Training On The Speed Of Pulse Matra Futsal Club Players, Pasangkayu District

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ABSTRACT

This study aims to determine the effect of ladder drill training on increasing the speed of Matra Pulsa Futsal Club players in Pasangkayu Regency. The research method used is a pre-experiment with a Group Pretest-Posttest Design. The sample in this study amounted to 12 players who were selected purposively. The instrument used is a 50-meter running test, conducted before and after the treatment of ladder drill training for 6 weeks, with a frequency of training four times a week. The results of data analysis using the t-test showed that there was a significant increase between the pre-test results and the final test (tcount = 12.3732 > ttable = 2.201; p < 0.05). The average running time before training was 9.35 seconds, and after training decreased to 7.83 seconds. This study concludes that there is a significant effect of ladder drill training on the running speed of futsal players. This exercise is effectively used in training programs to improve physical abilities, especially the speed aspect in futsal games.

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INTRODUCTION

Speed is one of the most critical components in modern sports performance, particularly in high-intensity and fast-paced games such as futsal. Futsal, a condensed version of soccer, is played on smaller courts with fewer players, emphasizing rapid transitions, quick decision-making, and high-tempo movements (Castagna et al., 2019). In this context, a player's ability to accelerate, decelerate, and change direction quickly is a key determinant of performance. Speed not only enables players to evade defenders and exploit spaces but also influences defensive recoveries and team transitions (Barbero-Alvarez et al., 2021).

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Unlike traditional football, the nature of futsal places more frequent demands on short bursts of speed, agility, and quick footwork due to the limited space and time for decision-making (Pojskic et al., 2019). Therefore, improving speed is a central objective in the physical conditioning of futsal players at all levels, from elite athletes to amateur club members.

One of the most commonly utilized training methods to improve speed and agility is ladder drill training. Ladder drills involve quick and repetitive foot movements performed through a ladder placed on the ground. This training modality has been shown to enhance several components relevant to futsal performance, including neuromuscular coordination, stride frequency, foot speed, agility, and reaction time (Sporis et al., 2017). The exercises can be adjusted to target specific movement patterns required in futsal, such as lateral shuffles, high-knees, or in-and-out steps.

Moreover, ladder drills are not only effective but also practical and cost-efficient. They require minimal space and equipment, making them accessible to clubs and teams with limited training resources, such as those found in rural or underdeveloped regions (Yanci et al., 2020). This makes ladder drills particularly suitable for community-based clubs like the Pulse Matra Futsal Club in Pasangkayu District, where resources may be limited but the need for performance development remains significant.

Studies have shown that consistent use of ladder drills in training programs can lead to significant improvements in sprint speed and quickness in young athletes (Faude et al., 2017). By enhancing foot placement efficiency and lower-limb reactivity, ladder drills contribute directly to a player's ability to initiate rapid movements, which is essential in competitive futsal matches.

Despite the proven benefits of ladder drills in various contexts, many futsal clubs at the grassroots or amateur level still lack structured training methodologies. In Pasangkayu District, the Pulse Matra Futsal Club represents one of the leading community-based teams. However, like many teams operating outside urban centers, the club faces challenges in accessing advanced training knowledge and methodologies.

Informal observations and anecdotal reports suggest that players often struggle with acceleration, quick direction changes, and first-step speed—key elements of futsal performance. These deficits may be attributed to the absence of targeted drills designed to enhance these physical attributes. Without structured interventions focusing on speed development, players may plateau in performance or develop compensatory movement patterns that increase injury risk and reduce efficiency (Milanović et al., 2020).

Given the competitive nature of futsal and the increasing participation rates in regional tournaments, there is an urgent need for simple yet scientifically grounded training methods that can be implemented effectively in clubs like Pulse Matra.

Although various studies have examined the role of ladder drills in improving speed and agility, the majority of this research has been conducted in football or general athletic populations, with limited focus on futsal-specific applications (Nakamura et al., 2020). Even fewer studies have examined the impact of ladder drills on players in rural or

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semi-urban club settings, where training conditions and player backgrounds may differ substantially from professional environments.

Furthermore, there is a lack of empirical studies conducted in Indonesia, particularly in the Sulawesi region, that assess the practical outcomes of integrating ladder drills into futsal training routines. Most existing studies focus on elite teams or university athletes, leaving a research gap in understanding how such training interventions affect community-based teams like those in the Pasangkayu District (Rahmatullah et al., 2022).

This study aims to address that gap by providing evidence on the effectiveness of ladder drill training in improving sprint speed in futsal players at the amateur club level.

This research is novel in several ways. First, it focuses on a community-level futsal team in a geographically underrepresented region, offering insights into how sports science interventions can be adapted to local contexts. Second, the study emphasizes the application of ladder drill training as a standalone method to improve short-distance speed, a component crucial to futsal yet often overlooked in grassroots training programs.

Third, this study uses a pre-test and post-test experimental design to evaluate changes in speed performance following a structured ladder drill training regimen. By doing so, it bridges the gap between theoretical training benefits and real-world performance outcomes among non-professional athletes.

Finally, the study has practical implications for coaches, sports educators, and policy-makers looking to improve training quality in rural sports environments using cost-effective and easily implementable methods.

Given the importance of speed in futsal performance and the accessibility of ladder drills as a training tool, this study aims to investigate the effect of ladder drill training on the speed of players in the Pulse Matra Futsal Club, Pasangkayu District. The key research question is: Does ladder drill training significantly improve short-distance speed in futsal players at the community club level?

The study uses a quantitative experimental approach with pre-test and post-test assessments over a specific training period. It is expected that players who undergo ladder drill training will demonstrate statistically significant improvements in sprint speed compared to their baseline performance.

The results of this study are intended to inform coaches and sports development programs on effective, low-cost training strategies that can be implemented in rural futsal clubs to enhance player performance and foster regional sports development.

METHODS

This type of research is pre-experimental research. This pre-experimental design is used to reveal cause-and-effect relationships only by involving one group of subjects so that there is no strict control of external variables (Winarno, 2013: 61). The design used in this study is "The One Group Pretest Posttest Design" Data Analysis Technique or the absence of a control group (Sukardi, 2015: 184).

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A population is a collection or group of individuals that can be observed by members of the population itself or by other people who have a concern with it. The population is the entire research subject. If someone wants to examine all the elements in the research area, then the research is population research. The study or research is also called a population study or census study (Suharsim Arikunto, 2019). With this description, the population is the entire individual or object to be studied. Therefore, the population in this study were 12 people who were players of the Matra Pulsa Futsal Club, Pasangkayu Regency.

The sample is a part or a representative of the population under study. Winarno (2013) explains that 'the sample is part of the population that is the centre of our research attention, in the scope and time that we determine. Researchers will examine 12 players who regularly attend training, and researchers will examine players aged 15-17 years, who are ready to be taken as samples. The sampling technique used in this study was a purposive sampling technique. Purposive sampling is a sampling technique with certain considerations in Sugiyono, (2016: 85). The reason for using this purposive sampling technique is that it is suitable for use in quantitative research, or research.

As stated by Arikunto (2019, p.) research instruments are tools or facilities used by researchers in data collection so that the work is more efficient and the results are better, in the sense of being careful, complete, and systematic, so that they are easily processed. Adhi (2018) in this exam, the instrument used to collect data information in the review is a test. The tool used to measure running speed is a stopwatch. The tool used in measuring the ability to run speed in this review, using the exam tool, is used by (Lee E Brown, 2016), preparing for speed.

In capturing data on player criteria, it is necessary to create an assessment table that is used. The assessment is as follows:

Table 1.
Player Criteria

Criteria	Second
Very Good	9-10
Good	11-12
Fair	13-14
Poor	15-16
Very Poor	17-18

RESULTS AND DISCUSSION

This research was conducted at the Matra Pulsa Futsal Club in Pasangkayu Regency, which amounted to 12 players. Training location at the MP Store, Pasangkayu Futsal field.

Pre-test data on the ability of the 50 Meter Running Speed of Matra Pulsa Futsal Club, Pasangkayu Regency, before being given Ladder Drill training, thus obtained data on the results of the 50 Meter Running Speed test as follows:

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Table 2.
Data from the pre-test results of the 50 Meter Running Speed test, Ability Before Given Ladder Drill Exercise

No	Group A	Pre-test Results of the 50 Meter Run (sec)
1	Akbar Hidayat	10.01
2	Zulkarnain	10.26
3	Arya	10.05
4	Alvin	9.55
5	Radit	9.04
6	Rian	10.03
7	Syahrian	9.88
8	Muh.Yusuf	9.02
9	Alam	9.02
10	Rifal	9.19
11	Eril	8.07
12	Alif	8.04
	Minimum	**8,04**
	Maximum	**10,26**
	Mean	**9,3467**
	Std. Deviation	**0,75262**

Based on Table 1(initial test)above, the results of the 50-meter run test at the Matra Pulsa Futsal Club in Pasangkayu Regency, before being given Ladder Drill training, obtained the highest time of 8.04 seconds, while the lowest time was 10.26 seconds. For percentages can be seen in the table below

Table 3.
Frequency Distribution of Pre-test Data

No	Interval	Category	Frequency	Percentage
1	≤ 8,22	Very Good	2	16,66%
2	8,22 < X ≤ 8,97	Good	0	0,00%
3	8,97 < X ≤ 9,71	Fair	5	41,66%
4	9,71 < X ≤ 10,46	Poor	5	41,66%
5	≥ 10,46	Very Poor	0	0,00%
	Amount		**12**	100%

Table 4.
Data from the Post-test Results of the 50 Meter Running Speed Test Ability After Given Ladder Drill Training

No	Group A	Post-test Results of the 50 Meter Run (sec)
1	Akbar Hidayat	7.76
2	Zulkarnain	8.03
3	Arya	8.11
4	Alvin	7.09
5	Radit	7.11
6	Rian	9.25
7	Syahrian	9.20
8	Muh.Yusuf	8.13
9	Alam	7.05
10	Rifal	8.01
11	Eril	7.04
12	Alif	7.12
	Minimum	**7,04**
	Maximum	**9,25**
	Mean	**7,8250**
	Std. Deviation	**0,79437**

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Based on Table 4 (Posttest) above, the results of the 50-meter run test at the Matra Pulsa Futsal Club, Pasangkayu Regency, after being given Ladder Drill training, obtained the highest time of 7.04 seconds, while the lowest time was 9.25 seconds. For percentages can be seen in the table below

Table 5.
Frequency Distribution of Post-Test Data

No	Interval	Category	Frequency	Percentage
1	≤ 6,64	Very Good	0	0,00%
2	6,64 < X ≤ 7,43	Good	5	41,66%
3	7,43 < X ≤ 8,21	Fair	5	41,66%
4	8,21 < X ≤ 9	Poor	2	16,66%
5	≥ 9	Very Poor	0	0,00%
Amount			**12**	**100%**

Table 6.
Normality Test Results for Ladder Drill Training Data

Data Group	Kolmogrov Smirnov	Sig	α	Criteria
Pre-Test 50-meter sprint speed test	177	0,20	0,05	**Normal**
Post-Test 50-meter sprint speed test	229	0,08	0,05	**Normal**

Based on Table 6 above, it can be seen that the value for the pre-testof 50 meter running speed for ladder drill training is 177 with a probability of 0.20, and for the final test of 50-meter running for ladder drill training is 229 with a probability of 0.08. Both probability values for the pre-testand the final test are greater than α 0.05, so it is concluded that the data obtained are normally distributed, so further analysis can be conducted using parametric tests with t-tests.

CONCLUSION

Based on the results of the analysis and discussion of the results of the study, it can be concluded that this ladder drill exercise shows that t count is greater than t table, while t count is 10.6873 while t table at a significant level of 5% d.b (N-1)=(12-1)=11 is 2.201, so there is an effect of ladder drill training on increasing speed in Matra Pulsa Futsal Club players, Pasangkayu Regency. So that (H0) in this study is rejected and the alternative hypothesis (Ha) is accepted.

Based on the results of the study, the following suggestions are given to trainers and other researchers: 1. For the coach, in training dribbling skills, so that it is not monotonous and boring to provide a variety of dribbling skills. 2. We recommend that to increase speed in Pasangkayu Regency Matra Pulsa Futsal Club players, FMP administrators combine ladder drill exercises so that players have good speed in dribbling the ball and speed in running. 3. For readers, to provide references regarding effective Futsal playing techniques.

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