

# Football Skills: Training Methods and Motor Educability

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**Abstract**—This research compares the influences of drill training and tactical training method on football skills. A total of 32 school athletes, aged 14-15 years participating in this study were grouped into 4 clusters using the ordinal pairing technique. Each of the group was trained using drill training method (n=16) and tactical training method (n=16). Training was conducted 3 times a week, each session taking 90 minutes. The IOWA Brace test was applied to measure the motor educability while David Lee skill test developed by Subagyo Irianto was employed in examining the football skills. For data analysis purpose, this study applied a two-way ANOVA. Results of the entire exercise indicate that drill training method has greater influence on football skills compared to tactical training with  $0.047 < 0.05$  significance level. Furthermore, athletes with high motor educability level have better football skill than those with low level on  $0.001 < 0.05$  significance level. The results also indicate significant influence of training method and motor educability on football skills with  $0.043 < 0.05$  significance level.

**Keywords**—*football skills, training method, motor educability*

## I. INTRODUCTION

According to FIFA, 4% of the total world's population participate in football, the most popular sport in the world. This value represents about 265 million referees and 5 million referees [1]. Football is basically an intermittent sport which involves individual's motor skills such as running, jumping, kicking, dribbling, and tackling [1]. In football, some skill techniques are prerequisites and are exceedingly crucial for performance during the match. Such skills include the ability to win the ball mastery, outwit opponents by passing or dribbling, and, in the end, score goals [2]. The aforementioned skills as various football feints are considered most important component to be involved in training all along up to senior level [3].

Following the results of the interviews and direct observations in some training sessions, researchers observed that some training methods has not been suitable to players in certain ages. It was evident that training doses focus more on the desired results rather than the needs of a specific player. Training development is the process through which players undergo lifetime experiences in relation to talents or skills development. Generally, the better the coaching, the faster the skill development will be. Importantly, Coaches should adapt to and learn appropriate methods. Where necessary, they should employ psychological approach to address players' needs as well as seeking parents' support

[4]. In addition, motor skills affects training as well. For this reason, Brace developed many tests including agility, balance, and strength tests. Nevertheless, the motor educability test is the most suitable technique of measuring one's ability to embrace new skills [5].

Furthermore, the drill and tactics training methods are among training approaches that help in creating a successful football skills. The method focuses on continuous review and repetition of trainings with a view of mastering the movements being adopted [6]. From training time management perspective, drilling is a good method that can help athletes build solid teams during trainings and matches [7]. On the other hand, the tactics play approach aims at understanding the models while emphasizing on types of play skills [8]. It is designed to influence athletes' tactics in various situations depending on the sports being trained [9].

This research is based on a previous study that established drill training using full pitch results in better replication of movement characteristics in a competitive football match [10]. Another research found that tactical skills are needed for ones' football career. In general, tactical skill development is better and more applicable for the competitive events even as well as for highly qualified talent development programs.

## II. METHODOLOGY

### A. Participants

A total of 32 football school athletes from Jambi, Indonesia, were selected as study population. Sample selection was done using random sampling and ordinal pairing techniques to group the participants into 4 treatment sets. The athletes participated in this research aged 14-15 years. Before pretest, motor educability test was conducted to group the subjects. Based on the tests, two groups, the one with high motor educability (n=16) and the one with low motor educability (n=16) were created.

### B. Training Procedure

Treatments using drill and tactics training approaches were given 3 times a week with 90 minutes for every session. The training program was designed using training, intensity, volume, and recovery principles suitable with the athletes' characteristics in a given age.

**C. Football Skill Test**

To determine the athletes' football skills, David Lee's skill development test developed by Subagyo Irianto was adopted [12]. This test has been found valid and reliable in measuring ones' football skills. It consists of juggling, ball stopping in the box, dribbling, passing and long pass skills as well as changing ball direction and rolling ball skills. Each athlete was given two opportunities to test and was evaluated based on the best time on the test.

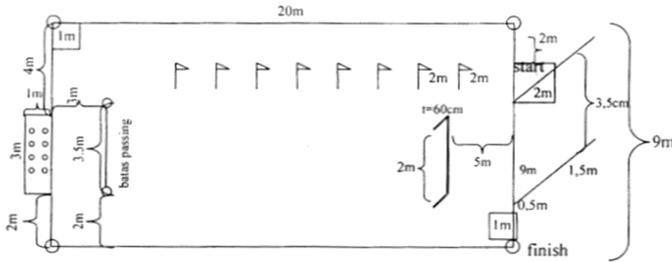


Fig. 1. Instrument Football Skills Test

**D. Motor Educability Test**

The IOWA-Brace Test for Motor Educability Test was utilized in measuring one's ability to adopt new movements. This test consists of 21 test items. However, only 10 items that match the athletes' characteristics including Hop Backward, One Knee Balance, Half Turn Jump, Forward Hand Kick, Full Left Turn, Side Leaning Rest, Grapevine, Cross Leg Squad, Knee Jump to Feet, and Russian Dance were selected. Each athlete was given two opportunities during the test and was evaluated on merit.

**III. RESULT AND DISCUSSION**

**A. Result**

TABLE I. INDICATING SIGNIFICANT DIFFERENCE BETWEEN PRETEST AND POST-TEST RESULTS IN RELATION TO INFLUENCES ON FOOTBALL SKILLS.

No	High Motor Educability Group					
	Drill			Tactical		
	Pretest	Posttest	Difference	Pretest	Posttest	Difference
1	36.21	32.85	3.36	41.82	40.14	1.68
2	38.60	35.11	3.49	44.33	42.30	2.03
3	38.53	36.12	2.41	46.65	43.50	3.15
4	40.81	38.04	2.77	50.05	46.04	4.01
5	33.15	30.04	3.11	41.40	40.38	1.02
6	46.94	40.67	6.27	43.90	41.02	2.88
7	41.42	39.44	1.98	52.61	50.80	1.81
8	46.26	44.05	2.21	52.98	50.12	2.86
<b>Total</b>	<b>321.92</b>	<b>296.32</b>	<b>25.60</b>	<b>373.74</b>	<b>354.30</b>	<b>19.44</b>

No	Low Motor Educability Group					
	Drill			Tactical		
	Pretest	posttest	Difference	Pretest	Posttest	Difference
1	48.10	45.72	2.38	56.36	53.42	2.96
2	56.53	53.30	3.23	55.30	52.22	3.08
3	41.07	40.50	0.57	43.22	41.12	2.10
4	50.41	49.33	1.08	40.99	40.40	0.59
5	46.10	44.22	1.88	42.75	42.43	0.32
6	42.64	39.21	3.43	49.91	48.31	1.60
7	52.42	50.40	2.02	52.26	49.82	2.44
8	57.04	54.20	2.84	51.06	48.48	2.58
<b>Total</b>	<b>394.31</b>	<b>376.88</b>	<b>17.43</b>	<b>391.85</b>	<b>376.20</b>	<b>15.67</b>

TABLE II. THE ANOVA RESULTS OF EXPERIMENT GROUP USING DRILL AND TACTICAL TRAINING METHODS.

Source	Type III Sum of Square	df	Mean Square	F	Sig
Drill & Tactical	102,603	1	102,603	4,304	0,047

From the results in Table 2, the  $p$  significance level is  $0.047 < 0.05$ . Therefore, there are significant differences between drill and tactical training methods in with regard to influences on football skills. The analysis results indicate that drill training method yields better results with an average pretest score of 25.60 and an average post-test score of 17.43 compared to the average pretest score of 19.44 and average post-test score of 15.67 in tactical training method. Based on this results, the research hypothesis stating that: a significant difference exists between drill and tactical training methods with regards to influence on football skills of school athletes aged 14-15 is accepted.

TABLE III. THE ANOVA RESULTS INDICATING DIFFERENCES BETWEEN HIGH AND LOW MOTOR EDUCABILITY.

Source	Type III Sum of Square	df	Mean Square	F	Sig
Motor Educability	328,064	1	328,064	13,762	0,001

From the results in Table 3,  $p$  significance level is  $0.001 < 0.05$ , implying that there are significant differences between athletes with high motor educability and those with low motor educability in terms of influences on football skill. Based on the analysis results, athletes with high motor educability (average scores of 25.60 and 19.44) perform better than those whose motor educability is low (average scores of 17.43 and 15.67). Therefore, the research hypothesis stating that: a significant difference exists between the athletes with high motor educability and those with low motor educability in relation to influence on football skill among school athletes aged 14-15 is accepted.

TABLE IV. RESULTS OF INTERACTION BETWEEN DRILL AND TACTICAL TRAINING METHODS WITH HIGH AND LOW MOTOR EDUCABILITY.

Source	Type III Sum of Square	df	Mean Square	F	Sig
Drill & Tactical* Motor Educability	107,531	1	107,531	4,511	0,043

Table 4 shows a  $p$  significance level of  $0.043 < 0.05$ . From this figures, a research hypothesis stating that: a significant interaction exists between training methods (drill and tactical) and motor educability (high and low) in relation to influence on football skill among football school athletes aged 14-15 is accepted.

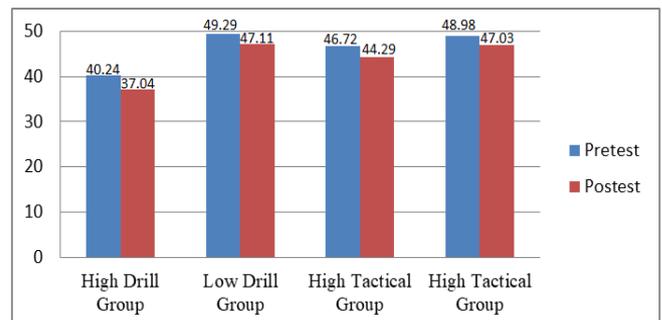


Fig. 2. Pretest and Posttest Football Skills Bar Chart

### *a. Discussion*

During the study, all the four groups were given treatment in two months period. As a result, football skills of the athletes aged 14-15 who participated improved significantly. According to Table. 4, the skills of groups with high motor educability and drill training method improved significantly compared to the those of groups with low motor educability and tactical training method ( $p$  significance level of  $0.043 < 0.05$ ). For that reason, drill and tactical training methods influence football skills of athletes aged 14-15 differently. Basically, drill training method focuses on the intended training through repetition of movement based on practical and relevant program with players' skills development [13]. On the other hand, tactical training method focuses on training with patterns. However, if one's goal is to improve football skill, tactical training method should be adopted only on certain occasions to keep focusing on the improvement of football skills. As a support, motor educability plays fundamental roles in measuring one's motor and intelligence level. People whose motor educability is high will master a new movement faster than those with low motor educability. This is because the later ones encounter difficulties practicing new movements during training [14]. Motor educability is needed in both training processes as well as in matches. It influences how an athlete understands and follow coach's instructions in a match.

### IV. CONCLUSION

This research establishes that the implementation of drill and tactics training methods have different influences on football skill among school athletes aged 14-15. The findings indicate that drill training method is more appropriate in improving football skills. It has been proved that drill training method, supported by strong motor educability skill, significantly influences football skills among school athletes aged 14-15. The aforementioned

components are successful and the right formula for improving football skills.

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