

## ORIGINAL ARTICLE

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## THE EFFECTIVENESS OF BALANCE TRAINING PROGRAM TOWARDS THE FOOT MOVEMENT ERROR AMONG NETBALL PLAYERS

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## ABSTRACT

**Background:** Physical Balance is vital in netball because it impacts the foot movements, which consider as a fault play in this game. This study aims to evaluate the Balance Training Program's effectiveness on the level of balance and foot movement errors among netball players in Rompin District.

**Methods:** This true Experimental study using the pre-and post-test method was conducted among 42 netball players below 12 years old from two primary schools. Researchers selected 42 players and randomly divided them into two groups, the control group (n = 21) and the treatment group (n = 21). The data collected using a dynamic balance test instrument to assess the level of body balancing. Foot movement fault measured through friendly games.

**Results:** The results showed a significant difference in the balance between the control group and the treatment group after the intervention. The independent t-test analysis showed that the treatment group reached a high balance level and could reduce errors in foot movements (M = 93.29, SP = 4.256). The t value (32.514) = 20, p = .000, p < 0.5 compared to the control group. The balance training program has a significant impact on reducing netball players' foot movement errors.

**Conclusion:** Balance Training Program will enhance basic fitness such as agility, quick reaction, and especially the balance component among netball players. The stability while playing netball will reduce foot movement errors among netball players to perform well and enhance their game performance.

**Keywords:** Netball, balance, training, foot movement, effectiveness, landing & stability.

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## INTRODUCTION

The Ministry of Education Malaysia (MOE) is a parent body responsible for planning and managing various sports at the primary and secondary schools, including netball [5]. Students' success in academic, co-curricular activities and personal development is a testament to schools' success in producing holistic insane. According to reference [1], sport is an activity that brings peace of mind and contentment to an athlete's heart. Sports create a sense of warmth in a person whenever gets involved individually or with team members in any games [3] & [7].

Netball is a fast-paced team sport that requires players to perform fast movements and to have a sudden change of direction. Netball is a game for all primary and secondary students, the entire community, and university students [6]. Various competitions are organized at the school level for early exposure. Competition levels have been divided into sections based on age range such as under 12 years for primary school, while under 15 and 18 for secondary school. Team sports is a sport that involves players working together to achieve common goals in a game. The game of netball has several different positions and roles when playing a match. One team consists of seven leading players and three reserve players. The list of positions available in netball is GK goalkeeper, goal defender GD (GD goal defense), wing defender (wing defense WD), midfielder (center C), (wing attack WA), goal attacker (GA), and goals (goal shooter GS). Foot movement is one of the basic rules that should be emphasized when playing this game. Usually, a player makes a mistake on foot movement while sending or landing while receiving a ball. In this situation, body balance becomes a significant contributor to foot movements. Players should be skilled at controlling good body posture during netball games because the key to stability without foot movement while landing is proper body balance [4].

Posture stability is a dynamic process that requires sensation, body movement, integration of sensorimotor information in the central nervous system, and good implementation of musculoskeletal responses to maintain players' balance and stability as described by [4]. A static and dynamic balance between women and men is essential for daily activities such as team sports. To identify a good landing pattern, a player must master fast movement and direction in a netball game. According to reference [9], good landing affects accurate movement and body balance. The perfect landing also depends on the strength of the leg muscles. An effective jump and landing training program can improve foot movement and good body balance [9] & [2]. According to reference [9] & [10], dynamic activities is better than static activities to enhance stability because netball games involve a lot of fast movement throughout the game. The player should gain better body control to avoid errors in foot movement during the game. The selection of an orderly exercise enables good control of body balance. Mastering balance is the key to good foot movements. Specific and systematic balance training can stabilize the landing of a netball player. Exercises such as high jumps, bipedal stance on 5cm boxes, and double leg jumps using

springboard will improve the player's performance. Core stability training has been adopted by [8] to train body balance and player stability in netball. Determining the dominant foot is fundamental to the movement in a netball game to help players make a solid landing. An approach has been introduced by [4] to stabilize and balance the body during landing using a single-leg jump. Therefore, regular exercise can have a good impact on a player's body balance and movement control.

This study was conducted to look at the effectiveness of the eight-week balance training program on stability and foot movement errors among netball players. Most of the literature showed balance training to enhance body stability and reduce injuries while landing in sports. This study will determine how good netball coaches best apply for the Balance Training Program in netball games to reduce foot movement errors among netball players.

## METHODS

This study is a true experimental study involving 42 under 12 years' old Rompin district netball players. They were divided into a control group ( $n = 21$ ) and a treatment group ( $n = 21$ ). Researchers use the foot movement score to see the number of foot movement errors while landing in-game situations and dynamic balance test scores to identify the players' balance level. Researchers conducted an eight-week balance training program to enhance the players' balance and stability. The manual has 40 types of training activities based on past studies and scholarly articles. This training manual has high content validity after evaluated by three experts. The validity process showed this training program was designed by researchers suitable for the focus of this study. The training program for the treatment group is scheduled three times per week and 60 minutes per session. The control group also has the same schedule but just trained by practicing normal netball game skills. This study used a quantitative method to analyze the player's foot-movement error scores and balance level among the control and treatment groups before and after the training. The data were analyzed using Statistical Package for the Social Sciences (SPSS V.21) software. The data obtained were analyzed using descriptive tests consisting of mean and standard deviation. Meanwhile, an independent t-test was conducted to compare the post-test scores between the control and treatment groups.

## RESULT

The findings based on the independent sample t-test showed significant differences in foot movement post-test scores between the treatment and control groups. The mean score for control group post-test was ( $M = 8.00$ ,  $SD = 2.588$ ), treatment group was ( $M = 3.71$ ,  $SD = 4.137$ );  $t$ -value ( $4.025$ ) = 40,  $p = .000$ ,  $p < 0.5$ . The results showed that the treatment group's foot movement errors were reduced because they were exposed to a specific balance training program (Table1 & 2).

**Table 1:** Descriptive Analysis for foot movement post-test scores

	Respondents	N	Mean	Standard deviation
Foot movement score	Treatment Group	21	3.71	4.137
	Control Group	21	8.00	2.588

**Table 2:** Independent sample t-test analysis for foot movement post-test scores

		Levene's Equal Variance Test		Equal Mean For T-test		
		F	Sig.	t	df	Sig. (2-t)
Foot movement score	Equal Variant Assumption	9.39	.004	4.025	40	.000
	Equal Variant B/Assumption			4.025	33.58	.000

Significant level=0.05

The independent sample t-test for balance level after eight weeks showed significant differences between the treatment and control groups. The mean for the control group post-test was (M = 51.62, SD = 4.599), treatment group (M = 93.29, SD = 4.256). The value of t (30.5) = 40, p = .000, p < 0.5. The result shows that the balance level among Rompin district netball players has increased after they have been exposed to a specific balance training program (Table 3 & 4).

**Table 3:** Descriptive Analysis of balance level post-test scores

	Respondents	N	Mean	Standard deviation
Post Stability Test	Treatment Group	21	93.29	4.256
	Control Group	21	51.62	4.599

**Table 4:** Independent sample t-test analysis of balance level post-test scores

		Levene's Equal Variance Test		Equal Mean For T-test		
		F	Sig.	t	df	Sig. (2-t)
Dynamic Balance Test score	Equal Variant Assumption	.314	.578	30.473	40	.000
	Equal Variant B/ Assumption			30.473	39.763	.000

Significant level=0.05

## DISCUSSION

The findings of foot movement errors among the Rompin District netball players in the early stage revealed that there were frequent foot movement errors due to lack of balance and stability. The study results have shown that the level of balance affects foot movement errors among Rompin District netball players. When a detailed analysis was done based on previous studies and theories, it was discovered

that a player's stability and body balance influence proper foot movement in any sports [4],[6] & [8]. Netball Coaches should identify players who regularly make foot movement errors in the game and design training to control stability while landing [6]. Based on the findings after eight weeks of training, the treatment group showed significant foot movement and balance levels. Simultaneously, the control group did not show any significant differences due to the lack of specific and focused training programs. Training schedule with modification by setting different intensities, type, and frequency will increase the players' motivation and involvement in training sessions with confidence [8]. After conducting a specific training program, the researchers could see the training's impact. The players realize that the dominant leg plays a significant role while landing after receiving the ball. This training program helps to control footsteps by increasing body balance. A set of exercises has been associated with a constructivist theory for students to obtain new knowledge and maintain it constantly. The Constructivism Theory Approach also helps researchers produce an efficient eight weeks balance training manual [12].

Based on the findings, footsteps are a fundamental skill in the netball game, but players still have weaknesses to master it. Foot movement errors are caused by the player's weakness in controlling the body's posture while receiving the ball and landing [4]. Landing patterns play an essential role in improving foot movement mistakes. To master the skill, principals of training have to be given priority in training sessions. Repeated training with adaptable intensity, frequency, and duration will strengthen the landing method properly among netball players. The results of this research align with the views of [11], that to obtain the correct landing pattern in netball, a player must have proper movement skills and good body balance while playing a fast game.

## CONCLUSION

An eight-week balance training program showed an impact on balance level and the reduction of foot movement while landing in the netball game. This means that all the netball players should have the optimum balance level to reduce foot movement errors. This study's results can be a guide and applied by netball coaches to reduce foot movement errors among netball players, which contributes to their achievement. Body balance is vital in landing and enhances body movement, agility to turn around, and quick reaction in most sports, especially fast games. Overall, this study also helps coaches develop sports skills, be creative and innovative, and diversify their methods and strategies while training netball players at higher levels. Sporting activities are essential to produce quality and talented players and promote the development of the sports industry and the country's achievements.

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