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Effect Of Footwork Drills On Quickness And Balance Among Basketball Players

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Abstract: This investigation post exercise consumption should improve the quickness and balance among the young basketball players due to the effect of footwork drills programme. The main purpose of this study were to determine whether footwork drills programme was more efficacious for improving quickness and balance in young players and to examine the difference between changes in quickness and balance among intervention and control groups. Twenty four male basketball players were voluntarily participated from The MDT Hindu College, Pettai, Tirunelveli, Tamilnadu, India. A total of 24 active male basketball players aged 22.16 ± 1.52 years and having a BMI of 24.57 ± 1.01 were assigned to one of the two groups as footwork drills programme (Intervention group) and control (Control group). The training period continued for three alternative days a week for eight weeks period. The initial and the final quickness and balance was measured by 3-Cone Shuttle Drill Test (L-Drill) test and stork stand balance test and its unit of measurement in seconds. The intervention groups met three alternative days per week for eight weeks of training programme and control group maintained their usual day to day activity during the course of this study. The data was collected during the year of 2024-25. The collected data was analysed by using paired sample t-test and analysis of covariance at the level of significance 0.05. Footwork drills training seems to be an appropriate training tool to enhance the quickness and balance among the young basketball players. At the end of the training programme, there was a significant difference existed between intervention and control groups on quickness and balance due to the effect of footwork drill programme. However, there was significant improvement occurs on quickness and balance was found in intervention groups at level of significance ($p < 0.05$). The results suggest that our eight week of Footwork drills must improve both the quickness and balance among male basketball players.

Index Terms – Footwork Drills, Balance, Quickness, Basketball Players

1. INTRODUCTION

Today athletes prepare themselves for a goal through training physical training endeavours. The objectives of physical training are to increase the athlete`s physiological potential and to develop bio-motor abilities to the highest standards [1]. Football, or basketball, is a team game popular around the world with participants of all ages. The increasing competition between teams and search for new stars has lowered the age of discovering new footballers [2]. Training applied to individuals learning the sport at an early age significantly affects what type of star they will be in the future. Effective construction of sudden direction changes, jumps within the game of football determines a player's success. The success of these skills is affected by the strength, speed, balance and quickness traits of a players [3]. Basketball players must be able to effectively perform several complex dynamic movements with (i.e., passes, dribbling, shooting) and without the ball (i.e., modulating running speed and changes of direction, accelerations, decelerations, jumps) in response to unpredictable environments conditioned by the ball, teammates and opponents [4]. Performance of such complex dynamic movements is linked to coordination abilities, suggesting players with higher coordination levels have a higher ability to acquire sport-specific skills and quicker mastering of new movements [5]. Moreover, scientific literature indicates physical and

technical components in basketball players are related to biological maturation [6]. In this sense, during the adolescent maturation stage, the accelerated growth in the length of limbs contributes to a transitory decline in motor coordination and physical performance in youth basketball players [7].

The footwork provides information on the presence of fast-twitch muscle fibre in the muscles involved in sprinting and indicates your potential to execute quick movements. Hereditary factors such as limb length, muscle attachments, and proportion of fast-twitch fibres do place a limit on one's maximum potential. Still, they can improve their speed and quickness with proper training. For that, this study intends to execute footwork drills among young basketball players [8]. Exercise involving quickness, speed, agility and footwork drills is a training method aimed at developing motor skills and body motion control through the development of the neuromuscular system. It aims to improve the athlete's ability to perform multi directional explosive power movements by reprogramming the neuromuscular system, so it can work more efficiently [9].

2. METHODS

2.1 Subjects and Procedures

Twenty four male basketball players were voluntarily participated from participated from The MDT Hindu College, Pettai, Tirunelveli, Tamilnadu, India. A total of 24 active male basketball players aged 22.16 ± 1.52 years and having a BMI of 24.57 ± 1.01 were assigned to one of the two groups as footwork drills programme (Intervention group) and control (Control group). The training period continued for three alternative days a week for eight weeks period. The initial and the final quickness and balance was measured by 3-Cone Shuttle Drill Test (L-Drill) and stork stand balance test and its unit of measurement in seconds. The intervention groups met three alternative days per week for eight weeks of training programme and control group maintained their usual day to day activity during the course of this study. The data was collected during the year of 2024-25.

2.2 Training Protocol for Intervention Group

The intervention group underwent footwork drills programme under the strict supervision of the investigator, prior to every training session the intervention group done proper warming-up exercises, which included jogging and stretching. The intervention treatment namely footwork drills were administrated for duration of 8 weeks and the number of session per week was confined to three alternative days and each session lasted between 45-75 minutes includes warming up and cool down exercises. The footwork drills programme consist of two foot forwards, two foot sideways, icky shuffle, backwards icky shuffle, in & out, single leg in & out, lateral in & out, crossover, foot exchange, reverse crossover, hip twist, carioca, two footed hop and one footed hop. Training load was fixed between 3-6 repetition with 2-5 sets and intensity was done between 70-90% range and volume of work between 45-75 minutes in a session for eight weeks with three alternative days in a week and a session per day. The below table I shows training schedule for intervention group.

Table I. Training Schedule for Intervention Group

Week	Training Means	Method	Rep	Set	Rest between set	Intensity	Volume
1&2	Warming-up exercises Two Foot Forwards, Two Foot Sideways, Icky Shuffle, Backwards Icky Shuffle, In & Out, Single Leg In & Out, Lateral In & Out, Crossover, Foot Exchange, Reverse Crossover, Hip Twist, Carioca, Two Footed Hop And One Footed Hop. Cool down exercises	Repetition	6	2	30 sec	70-75%	45-75 mins
3&4			5	3	45 sec	75-80%	
5&6			4	4	60 sec	80-85%	
7&8			3	5	90 sec	85-90%	

2.3 Determination of Quickness and balance

To measure the quickness of the players, the 3-Cone Shuttle Drill Test (L-Drill) was used. This test requires the subject to touch a series of cones set out in “L” shape as fast as possible. The assistant places three cones (A, B, C) in the form an "L" shape where the distance from cone A to cone B is 5 metres and the

distance from cone B to cone C is 5 metres. Cone A is the start and finish of the test. The subject stands at the cone A facing cone B. The assistant gives the signal to 'Go', starts the stopwatch, and the subject commences the test. The subject runs to and touches cone B, turns and runs back to and touches cone A. The subject turns and runs to and around cone B, keeping it to the left side of the body, to cone C and touches it. Then the subject turns and runs to and around cone B, keeping it to the right side of the body, to cone A. when the researcher stops the stopwatch and records the time when the subject completes the course on passing cone A [11 & 12]. To measure the balance ability, the stork stand balance test was used. Its unit of measurement was seconds.

2.4 Statistical Tools

For analyzing the collected data, the researcher gone through paired sample-'t' test to find out the significant improvement of mean score between pre and post-test of the selected groups. And the researcher chose analysis of covariance (ANCOVA) to find out the significance difference between both groups at the 0.05 level of confidence was fixed to test the level of significance difference.

3. RESULT AND FINDINGS

The effect of footwork drills on quickness and balance were analyzed and presented in the below table,

Table II. Computation of 't' - ratio between Pre and Post-Test Means of Intervention and Control Groups on Quickness and balance (seconds)

Criterion Variables	Test	Intervention Group		Control Group	
		Mean	SD	Mean	SD
Quickness	Pre test	7.56	0.35	7.55	0.34
	Post test	7.42	0.26	7.53	0.37
	't'test	**14.07***		1.92	
Balance	Pre test	23.14	0.14	23.54	0.22
	Post test	29.44	0.19	24.06	0.21
	't'test	**9.83***		0.74	

***Significant at 0.05 level. (Table value required for significance at .05 level for 't'-test with df 11 is 2.20)

The table II shows that the pre-test mean values on quickness and balance among intervention and control groups were 7.56 & 7.55 and 23.14 & 23.54 respectively and post-test mean values are 7.42 & 7.53 and 29.44 & 24.06 respectively. The obtained dependent t-ratio values between pre and post-test means of intervention and control groups are 14.07 & 1.92 and 9.83 & 0.74 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained-'t' ratio value of intervention group was greater than the required table value, it was concluded that intervention group had significantly improved on quickness and balance due to the effect of footwork drill programme. However, the control group has not improved significantly. The obtained 't' value is less than the table value, as they were not subjected to any specific training.

Table III. Analysis of Covariance on Quickness and balance of Intervention and Control Groups

Test	Intervention Group	Control Group	SOV	SS	Df	MS	F-ratio
Adjusted Post-Test Mean							
Quickness	7.41	7.53	B.M	43.48	1	43.48	51.76*
			W.G	17.64	21	0.84	
Balance	30.05	24.13	B.M	70.24	1	70.24	16.45*
			W.G	89.67	21	4.27	

** Significant at 0.05 level. Table value for df 1, 21 was 4.32.*

From the table III shows that the adjusted post-test mean values on quickness and balance. The obtained f-ratio for selected dependent variables was 51.76 and 16.45 and the required table value of df 1 and 17 was 4.32. It shows that the obtained f ratio values were greater than the required table value at 0.05 level of

confidence. The result of the study indicated that there was significant mean difference existed between the intervention and control groups on quickness and balance.

4. DISCUSSION ON FINDINGS

The aim of the present study was to observe significant improvement on the selected variables such as quickness and balance performance of the young basketball players due to effect of footwork drills program. The result of study indicates that there were significant differences between intervention and control groups on quickness and balance among young basketball players. Regular exercises are improving over-all fitness. Footwork drills are the dynamic, compound movement that requires a great deal of strength. This increases your muscles strength, size, explosive power and endurance. The following studies are supported to the result of this investigation from Nirendan & Murugavel, (2019) conducted the study on effect of selected footwork drills on motor fitness variables of badminton players [13]. Lanuez & Jacob-Filho, (2008) evaluated the effect of two programs of physical exercise in the motor fitness of sedentary elderly subjects [14]. Arumugam & Suriya, (2018) determined the study on the effect of sprint training on speed and agility among basketball players [15]. Suriya & Arumugam, (2020) evaluated the study on effect of strength-based training on anaerobic power and fatigue index among basketball players [16]. Kumar & Arumugam, (2019) conducted the study on the change of direction with short quick sprint training on acceleration and agility among women basketball players [17]. Kumar, (2020) conducted the study on effect of sled training on acceleration and maximum running speed among athletes [18]. From above those supportive studies I intent to conduct this study, this study shows positive support for footwork drills training in young basketball players. This shows, the result of the my study indicates that there was a significant improvement on quickness and balance due to the effect of eight weeks of footwork drills among basketball players when compared to control group.

5. CONCLUSIONS

Footwork drills programme has positive effects on quickness and balance. After eight weeks of Footwork drills training, the quickness and balance of male basketball players has enhanced their performance at peak level. These data suggest that our Footwork drills programme has caused the positive changes in the sleeted variables among male basketball players. These observations may point to potential changes, so the coaches are encouraged to use more footwork drill training with male basketball players.

1. There was significant improvement on quickness due to the effect of eight weeks of footwork drills among basketball players.
2. There was significant improvement on balance due to the effect of eight weeks of footwork drills among basketball players.
3. There was a significant difference between intervention and control groups on quickness and balance due to the effect of eight weeks of footwork drills among basketball players.
4. However the control group had not shown any significant improvement on any of the selected variables.

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