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Effect of Specific Fitness Training Programme on Selected Skills Performances of Footballers

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Abstract

The purpose of the study is to find the Effect of specific training program on selected skills performance of footballers (N=20), aged ranged 13-16 years). The fitness training program was administered for 12 weeks. The fitness program consisted for development of various variables such as speed, agility, endurance and explosive strength of arm, abdomen, and leg. Pre and post training data were collected by Warner Soccer Test for dribbling and lofted kick left and right and for throw in standing squared throw-in was used. Statistically analysed by employing paired T test at the significance level of 0.05. The obtained result indicated that the subjects have improved in the performance on dribbling, throw-in, and lofted kick by both left and right legs. As the $P<0.05$ for all selected skills variables such as right foot lofted kick, left foot lofted kick, dribbling and throw-in therefore can conclude that the structured 12 weeks fitness training program may help to improve in the performance of dribbling throw-in, lofted kick by both left and right.

Keywords: Football, Speed, Agility, Endurance,Explosive strength, Lofted kick, throw-in, Dribbling

I.Introduction

Football is one of the most popular game in the world. It is body contact game in which players constantly fight to get possession of the ball. When they get possession, they try to attack when they loss they defend their goal. The total duration of a match is 90 mins. The success is defined by the highest goals scored in 90 mins. To keep the ball in possession the players use a lots of football skills such as dribbling, lofted kick, throw in etc.

Dribbling- This is an endeavour by a player to beat a rival while keeping up control of the ball on his feet. A successful dribbling is called when an individual could past his opponent while being able to keep the ball under his control. To make this happen he might use a lot of skills of dribbling such as step over, body feint, turning etc. After beating the opponent, the individual must accelerate to stay as far as from the opponent.

Lofted kick- The one of the most used skill of soccer players, this skill helps players to pass a ball up in the air, clear off from the penalty area. Apart from chip and instep kick, this skill helps players to lift the ball up in the air, this skill is mostly used by the left wing and right wings to cross the ball from the extreme corners in the attacking third area.

Throw-in- One of the skills used to restart the game. A team gets throw-in if the ball goes out the touch line after deflecting form an opponent's player. Any player can throw-in, they must consider their position and situation. A well taken throw-in could lead to high chances of scoring a goal.

A few writers have underlined that kicking is one of the most significant abilities in soccer (Barfield, 2002)(Masuda, 44-52) (Vucetic, 2007) Its adequacy relies upon different elements,

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for example, maximal strength of the muscles involved, pace of power improvement, neuromuscular coordination, linear and angular velocities of ankle in the kicking leg, and the degree of coordination among agonist and antagonists(Kalapotharakos, 2006). Albeit a few writers recognized a connection between the quality of the lower appendages and ball speed in both male and female players (Manolopoulos E. P., 102-110), there is an absence of data concerning the impacts of a quality preparing program on the attributes of an undertaking, for example, kicking. This is particularly the situation in female players, for whom there are, as far as anyone is concerned, no related investigations accessible in writing. In male players, the impacts of solidarity preparing on kicking execution are dubious (Campo, et al., Effects of Lower-Limb Plyometric Training on Body Composition, Explosive Strength, and Kicking Speed in Female Soccer Players, 2009). Although some literatures found that training programs involving explosive strength (Jelusic, 231-238), maximal strength (Taïana, 1993), isokinetic strength (Dutta, 2002), or mixed technical and strength training (Manolopoulos E. P., 2006), leads to an increase in performance after the application of others found the opposite (Trolle M, 1993).

During competitive football games, players should perform various twisting and turning with the ball to increase a position practical to game strategies (Stølen T, 2005). Physical match investigation demonstrated that during first class level soccer matches, players play out a significant measure of twisting and turning with the ball at high force utilizing a wide scope of turning angles and distance(Bloomfield J, 2007). Moreover, bearing changes in the match were accounted for to influence game result in proficient soccer(Faude O, 2012).As a result of that, the capacity to perform unexpected and erratic twisting and turning with the ball might be viewed as a legitimately substantial presentation segment in soccer across ages, competitive levels, and gender (Reilly T, 2000). During a football game, players generally give twisting and turning with the ball in light of an outer improvement requiring perceptual and dynamic components (Sheppard JM, 2006).

Throw-in in soccer has started to know as one of the important key skill in soccer game byChang, 1979; kollath and Schwitz, 1988 cited in (Lees, 2008). In Maxico 1986, the total goals scored from free kicks were equivalent with the goals scored led by throw-in skill byLaux, 1986 cited in (Lees, 2008). The literatures say that when the throw-in, well performed and with best technique could cover 30 metre distance horizontally. And it also found out that throw-in skill has more accuracy than that of corner kick by Chang 1979 cited in (Lees, 2008), by this high level of accuracy, the thrower can choose the specific person to target thus increases high chances of scoring or getting possession as the ball in play. Some types of throw in are standing throw-in, running throw in, squared leg position throw and squared leg position throw.

II.Methodology

For this examination, the analyst has deliberately picked 40 football players at that point out of those 20 players were randomly chosen for the analysis. Age running from 13 to 16 years of age have been decided for this examination and were given explicit workout schedule for 12 weeks. The independent variable is the 12 weeks training program and the dependent variables for this study were standing squared throw-in, dribbling with ball, and kicking performance for left and right legs. For the collection of the data,Warner Soccer Test wasused fordribbling and lofted kick left and right and for throw in standing squared throw-in was used .The purpose of study was well explained to the subjects priory and the researcher had also instructed them to give their best during each trail.

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III. Pilot Study

After randomly partitioning the exploratory, the analyst had picked randomly 5 subjects from the experimental group for pilot study. The motivation behind the pilot study was to get comparative with the preparation plan, discovering their average target heart rate and their recovery rates at different sorts of activity.

IV.Target Heart Rate

The Karvonen Formula

Target Heart rate= {(Maximum Heart rate - Resting Heart rate) *Training %} +Resting Heart Rate

For marking out the Maximum heart rate, the analyst had taken the average heart rate of the 5 subjects then subtracted from 220 i.e. (MHR= 200- average age)

For marking the resting heart rate, the analyst has taken the average of resting heart rate from the 5 subjects.

To mark the recovery/rest timing of the participants for Interval training, the analystdirected the 5 subjects to run 100 metre at their full capabilities. At the stop line the analyst with the help of 4 other Physical educators measure the pulse rates of the subjects for 6 sec then the score was multiplied by 10 to get the pulse rate of 1 min. The educators waited for few sec/mins to slow down the pulse rate to 120-130 beats per min as per interval training method (Dr. Hardayal, 1993) to check their recovery time and between 23 sec to 26 sec were found out. Repeated 100 metre runs were conducted as to find the participants best capabilities. After 7 rounds the subjects were fully tired, hence 7 repetitions were fixed for the 4^{th} to 6^{th} weeks.
Comparable Method were utilized for choosing the quantity of recovery time and number of repetitions for speed and agility. The analyst had taken the normal pulse rate of the subjects and found between 70 to 80 beats per min. It took 2 to 3 mins to come to under 80 beats for every min. Each subject took 3 repetitions to arrive at 90% to 100% intensity (Dr.Hardayal, 1993). In this way, 3 repetitions of each drill followed by 2 to 3 mins rest in the middle of the drill was fixed during the 1stto 3^{rd} weeks

V.Experimental design and procedure

Table. 1

Week 1 to 3			
Day	Warm up	Training	Cooling down
Monday	Normal warm up	Endurance (Slow continues)	Normal cooling down
Tuesday	Normal warm up	speed and flexibility	Normal cooling down
Wednesday	Normal warm up	endurance (Fartlek)	Normal cooling down
Thursday	Normal warm up	Agility and flexibility	Normal cooling down
Friday	Normal warm up	Circuit training	Normal cooling down

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Table. 2

Week 4 to 12			
Day	Warm up	Training	Cooling down
Monday	Normal cooling down	Explosive strength for arm, abdomen, and leg	Normal cooling down
Tuesday	Normal cooling down	Agility and speed	Normal cooling down
Wednesday	Normal cooling down	Explosive strength for arm, abdomen, and leg	Normal cooling down
Thursday	Normal cooling down	Agility and speed	Normal cooling down
Friday	Normal cooling down	Endurance	Normal cooling down

To accomplish the motivation behind the investigation the specialist randomly separated the 40 subjects into half as exploratory group and control group. The experimental were given training for 12 weeks. The subjects were given 5 days of seven days for training and 2 days were given for appropriate rest. Toward the finish of the 12 weeks post-test were taken on chosen selected variables. The preparation of speed and agility was just two times per week (Tuesday and Thursday).

VI.Training intervention for Endurance.

Slow continuous, Fartlek, and Interevent method are the methods of giving training for the development of Endurance. The 200-metre track was used to perform slow continues method training. For the training of Fartlek method wide rages of conditioned was placed, the surfaced/condition used by the players were sand, concrete surface, grass surface stairs and synthetic ground. The intensity of 65-70% or heartbeat of 140-180 per min were used for training slow continuous and Fartlek methods. (Dr. Hardayal, 1993)
The training was done on Monday (slow continues), Wednesday (Fartlek), Friday (circuit training). The circuit training included all the calisthenic exercises such as step up, knee push up (12 rep), lean back squat (12 rep), sit up (bent knee)(12 rep) Triceps extension of arm (12 rep), Hyperextension of back (12 rep) and burpee(12 rep). The repetition was set at 1 for all circuit training exercise and number of sets was set at 4.

Table. 3

Training components	**1st to 3rd weeks**				**4th to 6th weeks**			
slow continues/ Fartlek	**intensity**	**rep**	**Set**	**duration**	**intensity**	**rep**	**set**	**rest**
	%	Times	N	min	%	Times	N	min
	60-70	1	1	30	60-70	1	1	40

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Table. 4

Training components	**7th to 9th weeks**				**10th to 12th weeks**			
slow continues/Fartlek	**intensity**	**rep**	**Set**	**rest**	**intensity**	**rep**	**set**	**rest**
	%	Times	N	min	%	Times	N	min
	60-70	1	1	50	60-70	1	1	60

Table. 5

Interval training					
week	Distance	repetition	set	load	rest between rep
1st to 3rd weeks					
4th to 6th weeks	100m	7	1	700m	23 sec to 26 sec
7th to 8th weeks	100m	8	1	800m	22 sec to 25 sec
9th to 12 weeks	100m	9	1	900m	21 sec to 24 sec

VII. Training intervention for Strength

During the 1st to 3rd weeks the subject did not do any exercise to develop explosive strength for arms, legs, and abdomen,
During the 4th to 6th weeks, 7th to 9th and 10th to 12th weeks the subject performed Explosive strength for arm, abdomen, and leg. The training was done on each Monday and Wednesday of each week. For each variable, the researcher had taken 12 exercises for 4th to 6th weeks, 14 exercises for 7th to 9th weeks and 16 exercises for 10th to 12 weeks had chosen. Each exercise lasted for 30 sec/ 12 repetitions and 10 to 15 secs recovery were given between each exercise and 2 to 3 mins breaks were given between each variables of Exercise. The exercises are given in the Table Nos.6, 7 and 8.

Table. 6

Description of Explosive strength for arm and leg, abdomen training 4th to 6th weeks		
1. Burpees 8-12	1. Side hop 20-30 sec	1. jumping jacks 8-12 rep
2. Floor Triceps Dips 8-12 rep	2. sumo squats 8-12 reps	2. Abdominal Crunches 8-12 rep
3. Triceps dip 8-10 rep	3.side lying leg circle left 8-12 reps	3. Russian Twist 8-12 rep
4. Arm circles clockwise 20-30 sec	4.side lying leg circle right 8-12 reps	4. bicycle crunches 8-12 rep

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5. Arm circles anti-clockwise 20-30 sec	5. Backward lunge 8-12 reps	5. Side bridge left 8-12 rep
6. Alternate hooks 30 sec	6. single leg calf hop left 8-12 rep	6. side bridge right 8-12 rep
7. Leg barbell curl left 8-12 rep	7. single leg calf hop right 8-12 rep	7. leg Raises 8-12 rep
8.Leg barbell curl right 8-12 rep	8.Wall calf raise 8-12 rep	8. Plank 20-30 sec
9. wall push up 8-12 rep	9. sumo Squat calf raise with wall 8-12 rep	9. left side Plank 20-30 sec
10. inch worms	10.jump for height 8-12 rep	10. right side plank 20-30 sec
11.push up and rotation	11. Fire Hydrant left 8-12 rep	11. Heel touch 8-12 rep
12.Incline push up 8-12 rep	12.Fire Hydrant left 8-12 rep	12. Crossover Crunch 8-12 rep

Table. 7

754 Description754on of Explosive strength for arm, leg, and abdomen training 7th to 9th weeks		
1. Burpees 8-12	1. front back hop 20-30 sec	1. jumping jacks 8-12 rep
2. Floor Triceps Dips one leg up 8-12 rep	2. sumo squats 8-12 reps	2. Abdominal Crunches hand at chest 8-12 rep
3. Triceps dip one leg up 8-10 rep	3.glute kick back left 8-12 reps	3. Russian Twist 8-12 rep
4. Arm circles clockwise 20-30 sec	4.glute kick back right 8-12 reps	4. bicycle crunches 8-12 rep
5. Arm circles anti-clockwise 20-30 sec	5. Backward lunge 8-12 reps	5. Side bridge left 8-12 rep
6. Alternate hooks 30 sec	6. single leg calf hop left 8-12 rep	6. side bridge right 8-12 rep
7. Leg barbell curl left 8-12 rep	7. single leg calf hop right 8-12 rep	7. leg Raises and kick 8-12 rep
8.Leg barbell curl right 8-12 rep	8.Wall calf raise 8-12 rep	8. Plank 20-30 sec
9. diagonal push up 8-12 rep	9. sumo Squat calf raise with wall 8-12 rep	9. left side Plank 20-30 sec
10. inch worms panther walk	10.jump for height then squats 8-12 rep	10. right side plank 20-30 sec
11.push up and rotation	11. Fire Hydrant left 8-12 rep	11. Heel touch one leg up 8-12 rep
12.Incline push up one leg up 8-12 rep	12.Fire Hydrant left 8-12 rep	12. Crossover Crunch 8-12 rep
13. Shoulder Gators 8-12 reps	13. curtsy lunges 8-12 reps	13. V up 8-12 reps
14. push upholding 20-30 sec	14. jumping squats 8-12 reps	14. sit up 8-12 reps

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Table. 8

Description of Explosive strength for arm, leg and abdomen training 10th to 12th weeks		
1. Burpees 8-12	1. Standing Broad jump 8-12 reps	1. jumping jacks 8-12 rep
2. Floor Triceps Dips one leg up 8-12 rep	2. sumo squats 8-12 reps	2. Abdominal Crunches hand at chest 8-12 rep
3. Triceps dip one leg up 8-10 rep	3.glute kick back left 8-12 reps	3. Russian Twist 8-12 rep
4. Arm circles clockwise 20-30 sec	4.glute kick back right 8-12 reps	4. bicycle crunches 8-12 rep
5. Arm circles anti-clockwise 20-30 sec	5. Backward lunge 8-12 reps	5. Side bridge left 8-12 rep
6. Box Push up 8-12 reps	6. single leg calf hop left 8-12 rep	6. side bridge right 8-12 rep
7. Leg barbell curl left 8-12 rep	7. single leg calf hop right 8-12 rep	7. leg Raises and kick 8-12 rep
8.Leg barbell curl right 8-12 rep	8.Wall calf raise 8-12 rep	8. Plank 20-30 sec
9. diagonal push up 8-12 rep	9. sumo Squat calf raise with wall 8-12 rep	9. left side Plank 20-30 sec
10. inch worms panther walk	10.jump for height then squats 8-12 rep	10. right side plank 20-30 sec
11.Diamond push up 8-12 reps	11. Fire Hydrant left 8-12 rep	11. Heel touch one leg up 8-12 rep
12.Incline push up one leg up 8-12 rep	12.Fire Hydrant left 8-12 rep	12. Crossover Crunch 8-12 rep
13. skipping without rope 20-30 mins	13. curtsy lunges 8-12 reps	13. V up 8-12 reps
14. push upholding 20-30 sec	14. Split jump 8-12 reps	14. sit up 8-12 reps
15. Arm curls crunch right 8-12 reps	15. combo finisher 8-12 reps	15. leg up and push by partner 8-12 reps
16. Arm curls crunch left 8-12 reps	16. kneeling tuck jump 8-12 reps	16. crunches with ball throw 8-12 reps

VIII.Training intervention for speed and agility.

The chosen exercises for speed and agility were the 5 cones snake run, pro agility run, hopscotch fast foot ladder and icy shuffle. Speed and agility trainingwere performed only twice a week. The description of are given on Table No. 9 and Table no. 10

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Table. 9

Training components	1st to 3rd weeks				4th to 6th weeks			
	intensity	Rep	set	rest	intensity	rep	set	rest
	%	Time	N	min	%	Time	N	min
1. 5-cone snake run	100	3	1	3	100	4	1	3
2. Pro Agility run	100	3	1	3	100	4	1	3
3. hopscotch	100	3	1	3	100	4	1	3
4. Fast Foot Ladder	100	3	1	3	100	4	1	3
5.Icy Shuffle	100	3	1	3	100	4	1	3

Table 10

Training components	7th to 9th weeks				10th to 12th weeks			
	intensity	rep	set	rest	intensity	rep	set	rest
	%	Time	N	Min	%	Time	N	Min
1. 5-cone snake run	100	5	1	2	100	6	1	2
2. Pro Agility run	100	5	1	2	100	6	1	2
3. hopscotch	100	5	1	2	100	6	1	2
4. Fast Foot Ladder	100	5	1	2	100	6	1	2
5.Icy Shuffle	100	5	1	2	100	6	1	2

IX.Collection of Data

All the required procedures for collecting pre data and post data were followed. For the collection of the data the test batteries used were Warner soccer test for lofted kick and dribbling and throw in.Three qualified physical education teachers helped during the whole data collection process.

X.Statistical analysis

To find the result of the study, Pair T test was used to see the effectspecific Fitnesstraining programme on selected skills of footballers. Thelevelof significancewas set at 0.05

XI.Results

Table 11: Descriptive statistics of paired Physical Fitness variables

Variables	N	Mean	Standard Deviation	Std. mean error
Pre Warner test lofted kick right foot	**20**	**35.2055**	**7.73520**	**1.72964**
Post Warner test lofted kick right foot	**20**	**36.0165**	**7.59236**	**1.69770**
Pre Warner test lofted kick left foot	**20**	**25.3430**	**6.65094**	**1.48720**
Post Warner test lofted kick left foot	**20**	**25.8970**	**6.6554**	**1.48845**
Pre Warner test Dribbling	**20**	**15.3190**	**2.80145**	**0.62642**
Post Warner test Dribbling	**20**	**13.9700**	**2.83683**	**0.63433**
Pre Throw-in	**20**	**14.34**	**1.37703**	**0.3091**
Post Throw-in	**20**	**14.87**	**1.31793**	**0.29470**

The above table shows the descriptive analysis of the football skills score of pre and post training program. It shows the right foot lofted kick pre-test mean is 35.2055 (SD 7.73520), the right foot lofted kick post-test mean is36.0165 (SD 7.59236),the left foot lofted kick pre-test mean is 25.3430 (SD 6.65094), the left foot lofted kick post-test mean is 25.8970 (SD 6.6554), mean for pre-test for dribbling is 15.3190 (SD 2.80145, mean for post-test for dribbling is 13.9700 (SD 2.83683), Mean and SD for pre data Throw-in are 14.34 and 1.37703 respectively, Mean and SD for post data throw-in are 14.87 and 1.31793 respectively.The paired t-test analysis was computed on IBM SPSS Statistics 22.0 to check whether there was any statistically significant difference between pre, and post fitness variables score. Result is shown below in table 12.

Fitness Variables	PairedDifferences					t	Df	Sig. (2-tailed)
	Mean	Std.Deviation	Std.ErrorMean	95%ConfidenceIntervaloftheDifference				
				Lower	Upper			
Warner test lofted kick right	**-81100**	**.33807**	**.07560**	**-.96922**	**-.65278**	**-10.728**	**19**	**0.000***
Warner test lofted kick left	**-55400**	**.25863**	**.05783**	**-.67504**	**-43296**	**-9.580**	**19**	**0.000***
Warner test	**1.349**	**.36802**	**.08228**	**1.17676**	**1.52124**	**16.393**	**19**	**0.000***
Throw-inPre-	**-.53000**	**.20287**	**.04536**	**-.62495**	**-.43505**	**-11.683**	**19**	**0.000***

Table 12: Analysis of paired t-test of fitness variables within pre and post scores

*P<0.05

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Table 2 shows that the obtained paired value of selected fitness variables scores in pre and post training.As the P<0.05 for all selected skills variables such as right foot lofted kick, left foot lofted kick, dribbling and throw-in are therefore significant.The pre-test and post-test show statistically significant differences at 0.05 level of significance.

XII.Discussion and Conclusion

Right leg lofted kick

Table 12: Analysis of paired t-test of fitness variables within pre and post scores shows that there is significance difference between pre training test and post training test of right leg lofted kick and left leg lofted kick. The mean difference of right leg lofted kick and left leg lofted kick between the post-test and pre-test are0.81 and 0.55 metre respectively, this tells us that there is increase in the length at post-test as compare to pre-test. The change may be due to the 12 weeks specificFitness training programme on selected Physical Fitness variable. Result clearly shows that training for 12 weeks of specific fitness significantly improves in right leglofted kick and left leg lofted kickperformance.Similar study has been conducted by**(Campo, et al., ffects of Lower-Limb Plyometric Training on Body Composition, Explosive Strength, and Kicking Speed in Female Soccer Players, 2009)**in his study Effects of Lower-Limb Plyometric Training on Body Composition, Explosive Strength, and Kicking Speed in Female Soccer Players. He has also found out that 2-week plyometric program can improve explosive strength in female soccer players and that these improvements can be transferred to soccer kick performance in terms of ball speed.

Table 12: Analysis of paired t-test of fitness variables within pre and post scores shows that there is significance difference between pre training test and post training test of dribbling skill of football. The mean difference between the post-test and pre-test i.e. -1.35 sec tells us that there is increase in the speed at post-test as compare to pre-test. The change may be due to the 12 weeks specific Fitness training programme on selected Physical Fitness variable. Result clearly shows that training for 12 weeks of specific fitness significantly improves in dribbling performance of footballers. Similar study has been done by **(Stølen T, 2005)** in his study Multidirectional Sprints and Small-Sided Games Training Effect on Agility and Change of Direction Abilities in Youth Soccer and found out that young male soccer players, agility can be improved either using purpose-built SSG or pre planned COD (change of direction) sprints.

Table 12: Analysis of paired t-test of fitness variables within pre and post scores shows that there is significance difference between pre training test and post training test of throw-in in football. The mean difference between the post-test and pre-test i.e. 0.53 metre tells us that there is increase in the length at post-test as compare to pre-test. The change may be due to the 12 weeks specific Fitness training programme on selected Physical Fitness variable. Result clearly shows that training for 12 weeks of specific fitness significantly improves in throw-in performance. Similar study has been done by (Lees, 2008) in his study The effect of strength training and practice in soccer throw in performance. He also found out that a six week throw specific strength training programme increased the MHR (Maximum Horizonal Range) of the running throw-in with a 5-metre run up.

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