International Journal of Physical Education and Sports Sciences
Vol. 14, Issue No. 3, June-2019, ISSN 2231-3745

Resultant of Ball Feeling Exercises on Foot Reaction Ability of Soccer Players

Dr. Laishram Thambal Singh[1]* L. Minlun Singson[2]

[1] Assistant Professor, Department of Physical Education and Sports Science, Manipur University, Imphal

[2] Research Scholar, Department of Physical Education and Sports Science, Manipur University, Imphal

Abstract –

Background: Soccer players require efficient reflexes to adapt and overcome different situations during the course of play. Players must possess effective reaction ability for tackling various motor tasks as well as to achieve precise technical skills on demand.

Objective: The objective of the study was to investigate the resultant effect of six weeks (42days) ball feeling exercise program on foot reaction ability of soccer players.

Methods: For this study 30 (N=30) male soccer players between 18-25 years of age, those participated at least inter-collegiate and varsity level from Manipur University were selected randomly as the subjects of this study. The experimental design of study was prepared that consists of 15 players each in experimental and control groups. The experimental group only was assigned to perform different prescribed ball feeling exercises. To determine the foot reaction ability, Nelson's Reaction Timer was used. The descriptive, t- test and ANCOVA statistical tools were employed.

Results: The t-test analysis revealed the significant difference between the pre and post-test means of foot reaction ability of the experimental group as the obtained value of 't'=10.54 was greater than tabled value of t=2.145. No significant difference between the pre and post-test means of foot reaction ability was found as the obtained value of 't'= (-)1.53 was lesser than tabled value of t=2.145. ANCOVA also revealed that there was the significant difference between the means of experimental and control groups for foot reaction ability.

Conclusion: The six weeks (42 days) ball feeling exercises had produced a significant resultant effect on the foot reaction ability of soccer players. Reaction ability is one of the important performance-limiting factors, which determines the reflex of a player to overcome different situational demands with high technical skills.

Key words: Ball Feeling, Exercise, Foot Reaction and Soccer.

----------♦----------

1. INTRODUCTION

In soccer, reaction ability is considered as one of the most important factors that supports the performance of players. Those players with good reaction ability can respond and act in time in different game situations. It makes better performer during play. Various interpretations had been drawn about reaction ability. 'Reaction ability is the ability of an individual to react effectively to a given signal or stimulus as quickly as possible. These signals may experience in different form in various games and sports' (Sinku K. Singh, 2011).

Reaction and speed training is an important component in the development of performance of a soccer player. Reaction training should be done after a thorough warm-up and while the players are still fresh, such as at the beginning of the training session. It should focus on quality and not quantity in order to see heightened performance to take place. Ultimately, reaction speed is better in individuals, those who have a good basic level of anaerobic fitness and speedy movement quality. The final component of soccer speed is game action speed, which is the most complex form and relies on all the other components for its execution. It is the ability to make fast, effective decisions during the game in relation to technical, tactical and conditioning

possibilities. Game speed is concerned with doing the right thing at the right time. However, the game is influenced by motivational factors and emotions. In the game of soccer, very quick actions and reactions with or without ball are interpreted to execute and simplify the complicated situations. During the soccer training the high frequency of ball touching and feeling are very essential to improve quick responds in any game situations. Maximum ball touching can improve more ball sense and controlling ability in any ball situations. Players drill different ball sense exercises and make mastery in sensing the ball and corresponding situation demands. Therefore, it is emphasized to undertake the exercise programme of ball feeling to determine its effects on reaction ability of soccer players.

2. OBJECTIVE

The objective of the study was to investigate the resultant effect of ball feeling exercises on the reaction ability of soccer players.

3. HYPOTHESIS

It was hypothesized that there might be significant resultant effect of ball feeling exercises on foot reaction ability of soccer players.

4. METHODS AND TOOLS

For the purpose of the study 30 (N=30) male soccer players between 18-25 years of age were randomly selected from Manipur University as the subjects of this study and their participation was at least inter-collegiate or varsity level. To determine the foot reaction ability, Nelson's Reaction Timer was used, and the reading was recorded at the nearest of a centimeter. The subjects were divided into two groups consisting of 15 players each as experimental group and control group. The experimental group was assigned to perform different ball touching and feeling exercises- sole tapping and dragging back, forward & backward sole rolling, toe tapping and ball shuffling, V-dragging and pushing, alternate toe touching, instep & outstep touching, sole rolling, instep & outstep turning, ball juggling, etc. Each subject performed for about 2 minutes per exercise for the first two weeks and later increases to 3 minutes, and 4 minutes for the 3rd & 4th weeks, and 5th & 6th weeks respectively, shown in table 1. However, control group was kept without any specific types of training, but the subjects of both groups may take part in their routine training.

The data pertaining to this study were collected on the selected thirty (30) male soccer players in the Laboratory of Department of Physical Education and Sports Science, Manipur University, before and after six (6) weeks of exercise programme immediately by using Nelson Reaction Timer to determine the Foot Reaction Ability of the subjects. Descriptive analysis, dependent t-test and analysis of covariance (ANCOVA) statistical tools were employed to find out characteristics of data and significant differences among the means, and the hypothesis would be tested at 0.05 level of significance.

Table-1

Ball Feeling Exercise Programme

Week	Exercises	Duration
I & II	Sole tapping and dragging back, forward & backward sole rolling, toe tapping and ball shuffling, V-dragging and pushing, alternate toe touching, instep & outstep touching, sole rolling, instep & outstep turning, ball juggling, etc.	20 min.
III & IV	Sole tapping and dragging back, forward & backward sole rolling, toe tapping and ball shuffling, V-dragging and pushing, alternate toe touching, instep & outstep touching, sole rolling, instep & outstep turning, ball juggling, etc.	30 min.
V & VI	Sole tapping and dragging back, forward & backward sole rolling, toe tapping and ball shuffling, V-dragging and pushing, alternate toe touching, instep & outstep touching, sole rolling, instep & outstep turning, ball juggling, etc.	40 min.

5. FINDINGS

The descriptive analysis of pre-test and post-test means of experimental group (A) and control group (B) for foot reaction ability is presented at table 2.

Table-2

Pre and Post-Test Means for Foot Reaction Ability of Experimental and Control Groups

Variables	N	M	SD	SE
Expt. Pre-test	15	14.38	2.08	0.54
Expt. Post-test	15	11.78	1.88	0.49
Contr. Pre-test	15	19.02	0.76	0.20
Contr. Post-test	15	19.56	1.74	0.45

Table-2 reveals that the mean (M) and standard deviation (SD) for pre-test and post-test of experimental group were 14.38±2.08 and 11.78±1.88 respectively (N=15). In addition, the standard error of pre-test and post-test were also found as 0.54 and 0.49 respectively. Further, table-2 reveals that the means (M) and standard deviations (SD) for pre-test and post-test of control group were 19.02±0.76 and 19.56±1.75 respectively (N=15), and the standard error of pre-test and post-test were found to be 0.20 and 0.45 respectively.

The graphical representation of pre-test and post-test means comparison for foot reaction ability of experimental and control groups are shown at figure 1 and 2 respectively.

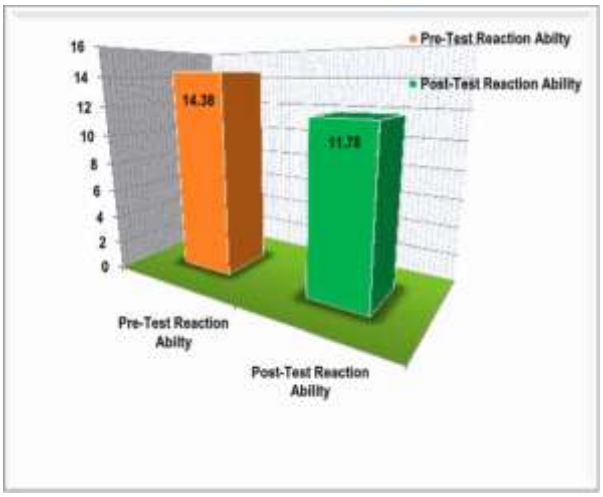

Fig.1. Pre and Post Test Means Comparison of Experimental Group

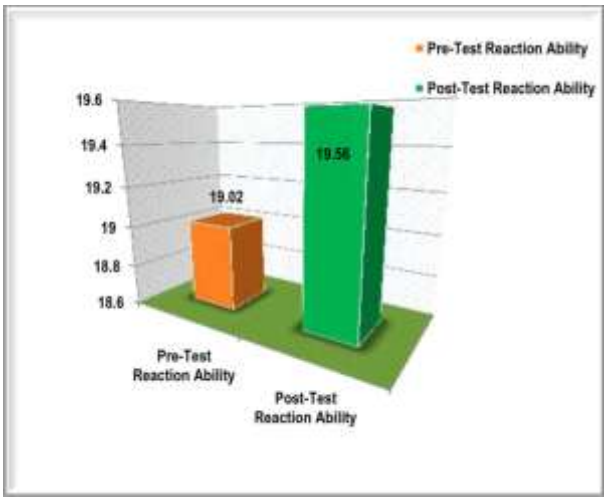

Fig.2. Pre and Post Test Means Comparison of Control Group

The t-test analyses of pre-test and post-test means of experimental and control groups for foot reaction ability are presented in table 3.

Table-3

Analysis of Foot Reaction Ability for Experimental and Control Groups

Variable	MD	SD	SE	95% Confidence Interval of the Difference		t	df	Sig.(2-tailed)
				Lower	Upper			
Expt. Pre- Post	2.60	0.95	0.25	2.07	3.13	10.54*	14	0.00
Contr. Pre- Post	-0.54	1.36	0.35	-1.29	0.22	-1.53@	14	0.15

*Significant at 0.05 level of confidence, where tabulated $t_{0.05}$ (14) =2.145
@Insignificant at 0.05 level of confidence, where tabulated $t_{0.05}$ (14) =2.145

From the Table 3, it is cleared that there was significant difference between the pre-test and post-test means of experimental group as the obtained value of t=10.54 is greater than the tabulated value of t=2.145. However, in case of control group no significant difference was found as the obtained value of t=(-)1.53 is lesser than the tabulated value of t=2.145 at 0.05 level of confidence. Further, the analysis of covariance (ANCOVA) among the pre-test and post-test means of Experimental and Control Groups for Foot Reaction Ability of soccer players is presented at table 4.

Table-4

Analysis of Covariance on Foot Reaction Ability

Source	Type III Sum of Squares	df	M Sq.	F	Sig.
Group	29.79	1	29.79	21.16*	0.000
Error	38.01	27	1.41		
Total	7912.25	30			

*Significant at 0.05 level of confidence ($F_{0.05}$ = 4.21)

Table 4 reveals that there was the significant difference among the pre-test and post-test means comparison between the experimental and control group for foot reaction ability by applying the ANCOVA as the obtained critical value of F=21.16 is greater than the tabulated value of F=4.21 at 0.05 level of confidence.

Through the Analysis of Covariance (ANCOVA), there was the evidence of significant result of the selected ball feeling exercise programme on the foot reaction ability of soccer players. This result highlights the overall changes throughout exercise programme and impact on the improvement of quick sense of acting, the reflex and kinaesthetic ability to adapt in different soccer game situations. Therefore, the ball feeling exercises may be recommended to adopt as the suitable training means for the improvement of ball sense, to act quickly and precisely in different situations during the course of soccer play.

6. DISCUSSION

The objective of the study was to find out the effect of six weeks (42days) ball feeling exercise program on foot reaction ability of soccer players. The t-test analysis revealed that in case of the experimental group, there was significant difference between the pre and post-test means of foot reaction ability as the obtained values of t=10.54 was greater than tabled value of t=2.145. However, in case of the control group, there was insignificant difference between the pre and post-test means of foot reaction ability as the obtained value of t=(-)1.53 lesser than tabled value of t=2.145. The analysis of covariance (ANCOVA) also revealed that there was the significant difference among the means of experimental and control groups for foot reaction ability as obtained critical value of F=21.164 was greater than the tabulated value of F=4.21.

The analysis of data showed that there was significant improvement of the six (6) weeks ball feeling exercise program on foot reaction ability of soccer players. The significant improvement on the foot reaction ability of the soccer players might be due to the nature of training program, quick physical or motor ability adaptation and players' interest (motivation) under the schedule-training program. It was also might be due to the strict implementation of exercise components on the players within the stipulated training period. Therefore, the six weeks (42 days) ball feeling training program significantly effect on foot reaction ability and the training program was quite efficient. Hence, the hypothesis was accepted. Therefore, the six weeks (42 days) ball feeling exercise program significantly reproduce the resultant effect on foot reaction ability and the exercise program was quite efficient.

7. CONCLUSIONS

The six weeks (42 days) ball feeling exercise program had produced a significant effect on foot reaction ability of the soccer players and the exercise programme was quite efficient. Reaction ability is one of the important performance-limiting factors, which determines the reflex of a player to overcome different situational demands with high technical skills. More exercise programs might be recommended to improve the whole body reaction ability too to achieve the high soccer performance quality.

8. ACKNOWLEDGEMENT

An acknowledgement was drawn to all the soccer players, experts, scholars and assistants who helped for the administration training programme, data collection and analysis for the completion of this research work.

9. REFERENCES

1. Burke, T.R. (1972).“Effect of Stimulus Condition and Direction on Reaction Time Movement Time of Closed and Open Skill Athletes.” Dissertation Abstract International, 42.

2. Burley, L.R.(1944).“A Study of the Reaction Time of Physically Trained Men.” Research Quarterly, 15.

3. Dixit, P. (1982). “Inter-relationship of Reaction Time, Speed of Movement and Agility and Their Comparison among the Players from Selected Sports.” Unpublished Master Thesis, Jiwaji University, Gwalior.

4. Harre, D. (2012). Principles of Sports Training. U.A.T. Pub., Michigan.

5. Hick, W.E.(1952).“On the rate of gain of information.” Quarterly Journal of Experimental Psychology, 4.

6. Kacevich, J.B. (1978). “A Relationship of Response Time to Collegiate Football Playing Ability.” Completed Research in Health, Physical Education and Recreation, 19.

7. Keller, L.B. (1942). “The Relationship of Quickness of Body Movement to Success in Athletes.” Research Quarterly, 13.

8. Lal, D.C. (1999). “A study of Reaction Time, Depth Perception and Anticipation among High and Low Level Sports person from various Games and Sports.” Unpublished M.Phil. Thesis, L.N.I.P.E., Gwalior.

9. Lotter, W.S. (1960).“Interrelationship among Reaction Time and Speed of Movement in Different Limbs.” Research Quarterly 31.

10. Mackenzie, B. “Reaction time.” www.brianmac.co.uk/reaction.htm

11. Singh, H.(1991). Science of Sports Training. D. V. S. Pub., New Delhi.

12. Singh, S.K. (2011). Sports Training and Biomechanics in Physical Education. K.S.K. Pub., New Delhi.

13. Slater, A.T. and Hammel. (1995), “Comparison of Reaction Time Measures to a Visual Stimulus and Arm Movement.” Research Quarterly 26.

14. Wilkinson, J.J. (1959). “A Study of Reaction Time Measures to Kinesthetic and a Visual Stimulus for Selected Groups of Athletes and Non-Athletes.” Completed Research in Health, Physical Education and Recreation, Vol.1.

Corresponding Author

Dr. Laishram Thambal Singh*

Assistant Professor, Department of Physical Education and Sports Science, Manipur University, Imphal

thambalsingh@gmail.com