THE IMPACT OF SPECIFIC EXERCISE INTERVENTIONS ON KICKING ACCURACY IN FOOTBALL

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Abstract
This study investigates the impact of selected exercise interventions on kicking accuracy in football among college-level male players from Yavatmal. A total of 30 participants aged 18 to 27 were randomly divided into an experimental group and a control group. The experimental group underwent a six-week training program consisting of rope skipping, half squats with weight, one-leg hopping, and step-ups with weight, performed six days a week for 45 minutes daily. Kicking accuracy was assessed pre- and post-intervention using the Heath and Rodger Soccer Test for both place kicks and rolling kicks. The results, analyzed using the't' test at a 0.05 level of significance, revealed significant improvements in the experimental group compared to the control group. This suggests that specific exercises targeting lower limb strength and coordination can enhance kicking accuracy. The findings provide valuable insights for coaches, players, and physical education professionals aiming to improve football performance through targeted training.
***Keywords**: Kicking accuracy, football, exercise, training, performance.*

Introduction

Kicking accuracy is a critical skill in football (soccer), directly influencing a player's ability to pass, shoot, and score goals. It plays a decisive role in competitive matches, where the margin for error is minimal and precision can determine the outcome of the game. While technical proficiency and tactical awareness are essential components of a successful football performance, physical conditioning and specific training interventions have emerged as key factors in enhancing motor skills such as kicking. Over the past decade, there has been increasing interest among coaches, sports scientists, and athletes in understanding how targeted exercise interventions can improve technical outcomes, particularly in relation to kicking accuracy. Kicking involves a complex interaction of biomechanical, neuromuscular, and cognitive elements. The execution of an accurate kick requires optimal body alignment, force generation, and precise coordination of the lower limbs. Therefore, interventions that enhance muscle strength, flexibility, neuromuscular control, and proprioception may have a significant impact on a player's kicking performance. Various exercise modalities—including resistance training, plyometric, balance training, and sport-specific drills—have been proposed to improve these underlying components. However, the direct relationship between these interventions and improvements in kicking accuracy remains an area that warrants further investigation.

Previous studies have primarily focused on general performance outcomes such as sprint speed, endurance, and maximal kicking power, often overlooking the specific attribute of accuracy. Moreover, while some research has explored the benefits of technical drills and biomechanical feedback in refining kicking technique, the integration of physical training programs designed explicitly to target accuracy is less well-documented. This gap in the literature highlights the need for a systematic exploration of how structured exercise interventions can be tailored to improve the precision of football kicks in both training and match scenarios. In youth and professional football development systems, a growing emphasis is placed on individualized training programs. Understanding which exercise interventions yield the most significant improvements in kicking accuracy can aid coaches in designing more effective and scientifically grounded training regimes. Additionally, improving kicking accuracy through exercise not only enhances technical performance but may also contribute to injury prevention by promoting balanced muscle development and joint stability. Ultimately, the goal is to bridge the gap between physical conditioning and technical performance by providing evidence-based recommendations that can be implemented in training programs. By doing so, this research aspires to contribute to a more holistic approach to football performance enhancement, where physical fitness and technical skill development are seamlessly integrated to produce more accurate and efficient players on the field.

Sources Of Data

This experiment was an attempt to find out effect of selected exercises on the performance of kicking accuracy in soccer player. For this study the researcher has selected the male students from College level players in , Yavatmal.

Selection Of Subject

For these study 30 male subjects was selected randomly from , Yavatmal. All the subjects belong

to different socio economic backgrounds and the environmental conditions, daily routine work of the subjects were same. There ages varies from 18-27 years.

Criteria Measures

To measure kicking accuracy of all the selected subjects of Heath and Rodger Soccer test was used and score is recorded in points from ten trials.

Administration Of Test

For the administration of test 30 male subject are randomly chosen as subjects. All the subjects are divided into two groups of 15 subjects in each group. One is treated as Experimental group and second one is control group. The experimental group is instructed to practice selected exercises (hopping, rope skipping, squat with weight, steps up with weight) six days in a week for duration of six weeks.

Before involving their training program pre test and after the training post test were administered to measure kicking accuracy of both the group with the help of Heath and Rodger's soccer Test.

Heath And Rodger Soccer Test

a) Equipments:
   i) Goal post & net
   ii) Soccer ball
   iii) Marking powder & Marking tape.

b) Test Description:

After the selection of subjects the researcher administered Heath and Rodger's soccer test before and after involving their training program. Before conduct the test football field marking area was prepared to conduct the test.

i) Place Kick:

Eighteen feet (18 feet) line marked in front of the goal post and its divided in three parts 5,8,5 feet, a kick point is marked 12 yards apart from the 18 feet line. The subject has ten trials from a distance of 12 yards with the use of instep kick.

Scoring:

Two (2) points are awarded when ball passed through the 5 feet mark area, and one (1) point is awarded when ball passed through the 8 feet area. If the ball goes outside of the 18 feet goal area 0 point given. Total points of ten trials are the score of the subject.

ii) Kicking a rolling ball:

For the administration of this test goal area and penalty area are used. The subject stands on point A and B, and examiner stand on C and D point. Examiner roll the ball from point C and subject run from point B and kick the ball towards the goal, in this way from opposite corner also. The subject has kicks five trials from each corner. (Shown in fig. - A)

Administration Of Treatment Program

After the selection of subjects the treatment programmed consisting of the following selected exercises were administered progressively and carried over until the end of treatment period of six weeks.

Selected exercises as under:

1. Rope skipping
2. Half squat with weight
3. One leg hopping
4. Steps up with weight.

Practice were given to the experimental group, the prescribed selected exercises for 6 (six) days in a week for 45 minutes each day for the period of 6 (six) weeks under direct supervision of the experimenter. A common weekly off day i.e. sandy was allowed them for rest. The selected exercises were demonstrated to the students before they undertook their own practices. The intensity and repletion of exercises were given according to their physical efficiency.

Experimental Design

The experimental study was made on thirty (30) male subjects. All the subjects were divided into equal groups of 15 (fifteen) subjects in each. One was experimental group; the second one was control group. The investigator was prepared a suitable training programmed for the experimental group the prescribed selected exercises. Duration of the training programmed was 6 days in a week for a period of 6(six) weeks with 45 minutes each day. The intensity of the exercises was given according to their physical efficiency. The control group did not practice any selected exercise during training period of six weeks.

Training programmed:

The investigator prepared a suitable training programmed for the experimental group the prescribed selected exercises (rope skipping, half squat with weight, one leg hopping exercise and step up with weight). Duration of the training programmed was 6 days in a week for the duration of 6 weeks 45 minutes each day. The intensity of the exercises was given according to their physical efficiency.

General Warming Up:

Before starting the training programmed researcher had taken general warming up exercises including jogging, stretching, running, and rotation of different body parts.

The researcher conducted six weeks training programmed which was consisting of four exercises and the subject had to perform for six weeks. The training was also consisting of six days a week in which Sunday was selected as rest day. There was proper recovery time of seconds after each exercise.

The subject had to perform all the exercises for six weeks but there is difference in number of times and repetitive. Training schedule shown in table-A
Cooling down: jogging, stretching and shabasan.
In the first two weeks(1-2) training schedule consisted of four exercises namely, rope skipping, squat weight, one leg hopping and step-up with weight all these exercises had 3 set repetition but difference in only the number of times which the subject had to perform as clearly shown in above table. The researcher conducted training programmed in the evening. There was recovery time of 10 seconds after each set of exercise.
In the 3rd and 4th week training schedule also conducted of four exercises. The exercise had done four set of exercise one after another. The researcher increases the intensity of exercises by increasing the number of set in each exercise. There was also same recovery time for relaxation of 10 seconds after each repetition.
In the 5th and 6th week the researcher also increases the intensity of exercise by increasing the number of set in each exercise and also increases the number of repetitions. There was also same recovery time for relaxation of 10 seconds after each exercise.

Collection Of Data

For this study data was collected through administration of Heath and Rodger's test on kicking accuracy of football players before and after the training program. The collected data were analyzed by using't' test statistical technique at 0.05 level of significance.

Overview

To find out the effect of selected exercises on kicking accuracy of football players the data were collected through administration of Heath and Rodger's test before and after the six weeks training programmed. The collected data were analyzed by applying 't' test statistical technique.

Interpretation Of Data

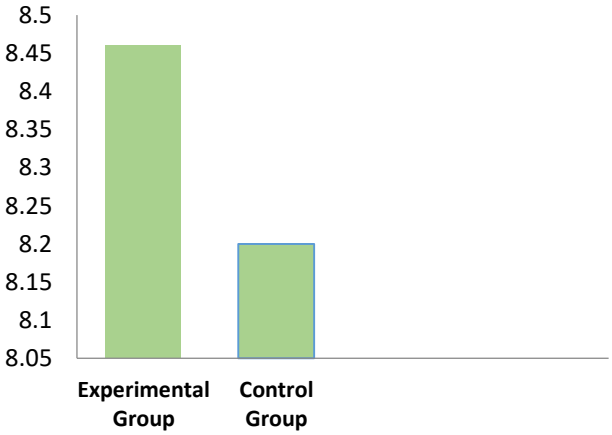
All the data pertaining to the present study were examined by applying 't' test to find out whether any significance difference between the means of pre and post test score of the both groups after the period of six weeks training programmed.
The following notations were used for the subsequent tables for elaborations.
E.G.- Experimental group, C.G.-Control group, N-Number of subjects in group, M_1- Sample mean for pre test score, M_2- Sample mean for post test score, MD- Mean difference between pre and post score, SD_1- Standard deviation of pre test score, SD_2- Standard deviation of post test score, C.T.- Calculate 't' value, T.T- Tabulated 't' value, DF- Degree of freedom, H_0 – Null hypothesis,'t' follows t distribution with $(N_1 + N_2 - 2)$ in 0.05 level of significance.

Table-1
Mean differences between the pre test score of experimental and control group of place kick

Group	Test	M_1	SD_1	MD	DF	C.T.	T.T.
E.G	Pre test	8.46	1.30	0.26	28	1.08	2.048
C.G	Pre test	8.20	1.34				

*Insignificant at 0.05 level of confidence, Table value 0.05 (28) =2.048

Table-1 reveals that the significance of difference between the pre means of experimental group and control group calculated 't' value was 1.08, which was much below than the require value at 0.05 level of confidence (t=2.048). It showed that both the groups were having similar performance in soccer kicking accuracy in case of place kick before the training programmed. Therefore it indicates that there was no significance difference between the pre test means of experimental and control groups. Hence the null hypothesis is rejected.
The pre test mean values of experimental and control group on kicking accuracy in case of place kick have been graphically presented in the
Mean differences between the pre test score of experimental and control group of place kick



Pre test mean

Table-2
Mean differences between the post test score of experimental and control group of place kick

Group	Test	M_2	SD_2	MD	DF	C.T.	T.T.
E.G	Post test	10.13	1.54	2.07	28	3.45	2.048
C.G	Post test	8.06	1.58				

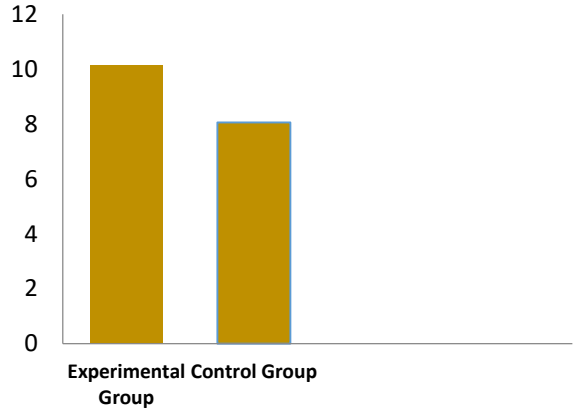
*Insignificant at 0.05 level of confidence, Table value 0.05 (28) =2.048

Table-2 also reveals that the significance of difference between the post means of experimental

group and control group calculated 't' value was 3.45, which was much greater than the require value at 0.05 level of confidence (t=2.048). It showed significant improvement in kicking accuracy in case of place kick in football for experimental group. Therefore it indicates that there was no significance difference between the post test means of experimental and control groups. Hence the null hypothesis is rejected. The finding of the study indicates that there is significant improvement in experimental group due to that specific exercises may be improved the strength of the leg muscle and body co-ordination of the subjects which may helped them to increase kicking accuracy in football in case of place kick.

The pre test mean values of experimental and control group on kicking accuracy in case of place kick have been graphically presented in the fig-2.

Mean differences between the post test score of experimental and control group of place kick



Pre test mean

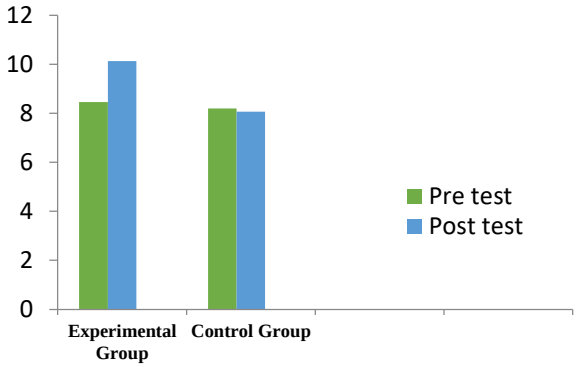
Table-3

Mean differences between the pre and post test score of experimental and control group of place kick

Group	Test	M_1 & M_2	SD_1 & SD_2	MD	DF	C.T.	T.T.
E.G	Pre test	8.46	1.30	1.67	28	3.21	2.048
	Post test	10.13	1.54				
C.G	Pre test	8.20	1.34	0.14	28	0.26	2.048
	Post test	8.06	1.58				

Table-3 also reveals that the significance of difference between the pre and post means of experimental group was 3.21, which was much greater than the require value at 0.05 level of confidence (t= 2.048). It showed that significant improvement in kicking accuracy in case of right place kick in football of experimental group. But in case of control group no significance difference found between the pre and post regarding the kicking accuracy (place kick) in football. Therefore, it indicated that specific exercises are significant changes on kicking accuracy in football for the experimental group in case of place kick. Hence the null hypothesis is accepted. The finding of the study shows that there is no significant improvement in control group due to lack of training, strength of the leg muscle and endurance and co-ordination may not be developed in the subject. The pre and post test mean values of experimental and control group on kick accuracy in case of place kick have been graphically presented in the fig-3.

Mean differences between the pre and post test score of experimental and control group of place kick



Pre & Post mean

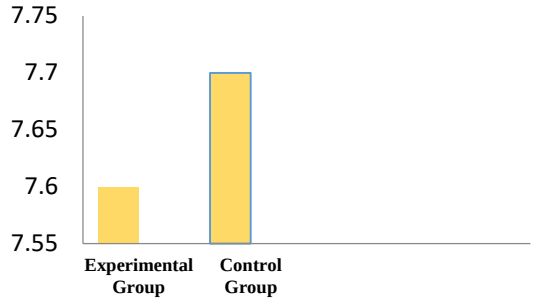
Table-4

Mean differences between the pre test score of experimental and control group of rolling kick

Group	Test	M_1	SD_1	MD	DF	C.T.	T.T.
E.G	Pre test	7.6	1.01	0.1	28	0.26	2.048
C.G	Pre test	7.7	1.12				

Table-4 reveals that the significance of difference between the pre test means of experimental group and control group calculated 't' value was 0.26, which was much below than the require value at 0.05 level of confidence (t=2.048). It showed that both the groups were having similar performance in soccer kicking accuracy in case of rolling kick before the training programmed. Therefore it indicates that there was no significance difference between the pre test means of experimental and control groups. Hence the null hypothesis is rejected.

The pre test mean values of experimental and control group on kicking accuracy in case of rolling kick have been graphically presented in the fig-4.Mean differences between the pre test score of experimental and control group of rolling kick



Pre test mean

Table-5

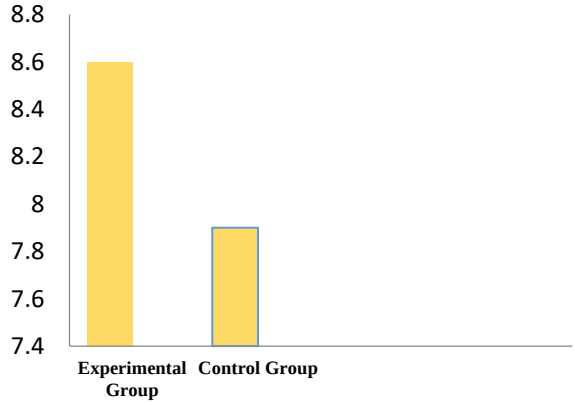
Mean differences between the post test score of experimental and control group of rolling kick

Group	Test	M_2	SD_2	MD	DF	C.T.	T.T.
E.G	Post test	8.6	1.57	0.7	28	2.26	2.048
C.G	Post test	7.9	1.43				

Table-4 reveals that the significance of difference between the pre test means of experimental group and control group calculated 't' value was 2.26, which was much below than the require value at 0.05 level of confidence (t=2.048). It showed that significant improvement of kicking accuracy in football in case of rolling kick of experimental group. Therefore it indicates that there was significance difference between the post test means of experimental and control groups. Hence the null hypothesis is rejected. The finding of the study indicates that there is significant improvement in experimental group due to specific exercises may be improved the strength of the leg muscle and body co-ordination of the subjects which may be helped them to increase kicking accuracy in football in case of rolling kick.

The post test mean values of experimental and control group on kicking accuracy in case of rolling kick have been graphically presented in the fig-5.

Mean differences between the post test score of experimental and control group of rolling kick



Post test mean

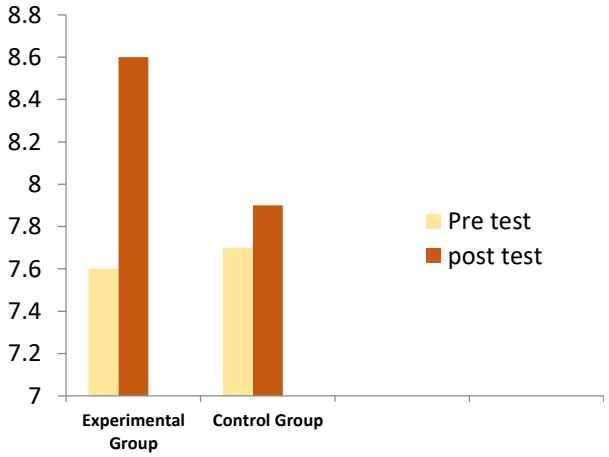
Table-6

Mean differences between the pre and post test score of experimental and control group of rolling kick

Group	Test	M_1 & M_2	SD_1 & SD_2	MD	DF	C.T.	T.T.
E.G	Pre test	7.6	1.01	1.0	28	2.08	2.048
	Post test	8.6	1.57				
C.G	Pre test	7.7	1.12	0.2	28	0.43	2.048
	Post test	7.9	1.43				

Table-6 also reveals that the significance of difference between the pre and post means of experimental group was 2.08, which was greater than the require value at 0.05 level of confidence (t= 2.048). It showed that significant improvement in kicking accuracy in case of rolling kick in football of experimental group. But in case of control group no significance difference found between the pre and post regarding the kicking accuracy of rolling kick in football. Therefore, it indicated that specific exercises are significant changes on kicking accuracy in football for the experimental group in case of place kick. Hence the null hypothesis is accepted. The finding of the study shows that there is no significant improvement in control group due to lack of training, strength of the leg muscle and endurance and co-ordination may not be developed in the subject. The pre and post test mean values of experimental and control group on kicking accuracy in case of rolling kick have been graphically presented in the fig-6.

Mean differences between the pre and post test score of experimental and control group of rolling kick



Pre & post mean

Conclusion

This study evaluated the impact of a six-week exercise program on kicking accuracy in college football players. The program, including rope

skipping, squats, hopping, and step-ups, led to significant improvements in the experimental group. Results highlight the role of lower limb strength, balance, and coordination in enhancing kicking skills. Coaches should incorporate such exercises into training routines to improve performance and overall effectiveness in football gameplay.

Recommendations

On the basis of findings and conclusions some recommendations are stated as under.

1. Integration into Training Programs Coaches and physical education instructors should incorporate the selected exercises—rope skipping, half squats with weight, one-leg hopping, and step-ups with weight—into regular football training sessions to improve kicking accuracy.

2.Customized Exercise Plans

Training intensity and repetitions should be tailored to individual players' fitness levels to maximize effectiveness and prevent injuries.

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