



EFFECT OF STRENGTH TRAINING EXERCISE ON INSTEP KICK PERFORMANCE OF SOCCER PLAYERS

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DOI: 10.26524/1419

ABSTRACT

The aim of this study was to examine the effect of lower extremity strength training exercise for twelve-week on instep kick performance of soccer players. To achieve my purpose eighty (80) amateur soccer players volunteered to participate in this study after signing informed consent forms, forty players [aged 18.0 ± 1.5 years] constituted the experimental group [EG] while the remaining forty [aged 18.0 ± 1.5 years] were the control group [CG]. The independent variable for the study is strength training exercise for twelve weeks and dependent variable is soccer instep kick ability. The strength training was administered to experimental group three days (Monday, Wednesday & Friday) per week for twelve weeks. The data were collected from control and experimental groups before and after training intervention. During pre test the data is arranged in descending order and then with the help of ABBA method the players are divided into two different groups. The groups are equated with the help of equal mean. Therefore, the data was analysed with dependent t test to elicit the difference from pre to post in each groups separately. The mean and standard deviation of the experimental and control group are presented. The result of the study showed that pre and post test difference between the groups are not significant as the obtained t value is 0.349 and 1.7111 respectively. However, in experimental group before and after twelve weeks of strength training has significantly improved the kicking ability of soccer players ($t = 2.95$, $p = 0.0052$) and control group remained unaltered ($t = 0.24$, $p = 0.8058$). It is concluded that this training programme can be administered as part of the pre-season training of soccer players. It is approximately changes in physical fitness components particularly lower extremities have been transferred to soccer kick performance in terms of ball speed as well as technique. Therefore, the application of soccer-specific strength training programs for twelve weeks as part of pre-season training programme for young soccer players is recommended

Keywords: Strength training, Instep kick, Soccer, Players, Warner's skill test of soccer

Introduction

Soccer is the popular sport in India and around the world. Today soccer requires a high level of strength, power and endurance which players to perform better

during competition. Therefore, one of the most important aims of training programmes in the preparation period is to improve soccer specific-strength. Soccer specific -strength is a concept which is extensively used in



training practice and can be defined as the ability of a soccer player to use muscle strength and power effectively and consistently within a game and a whole season [1].

During a soccer game, each player performs several dynamic movements (headers, cutting, tackling, sprints, kicks) which require a very good level of muscle strength, power and endurance [1,2] strength in its various forms (maximum and explosive strength, rate of force development) plays a critical role on performance of such skills. Soccer practices suggest that a soccer player needs to develop a level of maximum strength and power, which is utilized effectively within the game [3].

The instep kick constitutes a basic element of a soccer game. It is a multi joint activity which depends on various factors,

Method

Subjects and Variables

Eighty (80) amateur soccer players volunteered to participate in this study after signing informed consent forms, forty players [aged 18.0 ± 1.5 years] constituted the experimental group [EG] while the remaining forty [aged 18.0 ± 1.5 years] were the control group [CG]. The independent variable for the study is strength training exercise for twelve weeks and dependent variable is soccer instep kick ability.

Warner's skill test of soccer: Instep kick

Two parallel lines with a distance of 50 meters and width 25 meters were drawn. In between 50 meters at every 5 meters a line is drawn, one side of the 50 meters line is considered as the starting line and the player is asked to kick the soccer ball with his right leg as far as possible and the distance is

such as the maximum strength and power of the muscles activated during the kick, the timing and appropriate transfer of energy between segments that participate in the kick, the speed and power of the player to the ball and the utilization of the strength characteristics by the muscles of the kicking leg [3]. Strength training to lower extremities has resulted in improvement in strength and power. Several studies have been carried out in male players and assessed the effects of strength training on kicking performance are vague. To the best of my knowledge, modifications in instep kicking performance as a result of strength training regimen have not been investigated simultaneously as part of a study involving a large number of young competitive soccer players. Therefore, the aim of this study was to examine the effect of lower extremity strength training exercise for twelve-week on instep kick performance of soccer players.

recorded. The Player is allowed to run and kick the soccer ball, maximum three chances are given and the longest distance of the kick is recorded. The Players are instructed to participate in Warner's skill test of soccer. By measuring the distance of soccer kicks the data is collected.

Training

The strength training was administered to experimental group three days (Monday, Wednesday & Friday) per week for twelve weeks. The strength training exercise are given to experimental group along with their regular soccer practice with warming up whereas control group did not receive such training during the period except regular soccer practice which is held in the morning. After regular practices the players supplemented with suitable warm-down exercise. During the experimental



period (training period) the players of both groups are allowed to participate in their

regular theory classes. The strength training exercises are presented in Table 1.

Table 1
Strength training exercise for twelve weeks

Week	Alternate days	Session	Strength training exercise	Set/Rep	Rest
1 & 2	3	1	Squats	3/10	2 min
			Leg Extension	3/10	2 min
3 & 4	3	1	Lateral Squat	3/10	2 min
			Leg curl	3/10	2 min
5 & 6	3	1	Squats	3/10	2 min
			Seated heel raise with barbell	3/10	2 min
7 & 8	3	1	Lateral Squats	3/10	2 min
			Leg Curl	3/10	2 min
9 & 10	3	1	Leg Extension	3/10	2 min
			Seated heel raise with barbell	3/10	2 min
11 & 12	3	1	Lateral Squats	3/10	2 min
			Leg extension	3/10	2 min

Statistical technique

The data were collected from control and experimental groups before and after training intervention. During pre test the data is arranged in descending order and then with the help of ABBA method the players are divided into two different groups. The groups are equated with the help of equal mean. Therefore, the data was analysed with dependent and independent *t* test to elicit the difference from pre to post in each groups separately and between the groups at pre and post. The mean and standard deviation of the

experimental and control group are presented.

Results

The result of the study showed that pre and post test difference between the groups are not significant as the obtained *t* value is 0.349 and 1.7111 respectively. However, in experimental group before and after twelve weeks of strength training has significantly improved the kicking ability of soccer players ($t = 2.95$, $p = 0.0052$) and control group remained unaltered ($t = 0.24$, $p = 0.8058$).

Groups	Pre test	Post test	<i>t</i>	Sig.
Experimental (Mean $\pm$ SD)	22.06 $\pm$ 5.2	24.95 $\pm$ 6.18	2.95 *	$p = 0.0052$
Control (Mean $\pm$ SD)	22.47 $\pm$ 5.29	22.69 $\pm$ 5.62	0.24	$p = 0.8058$

<i>t</i>	0.349	1.7111	-	-
Sig.	$p = 0.7276$	0.091	-	-

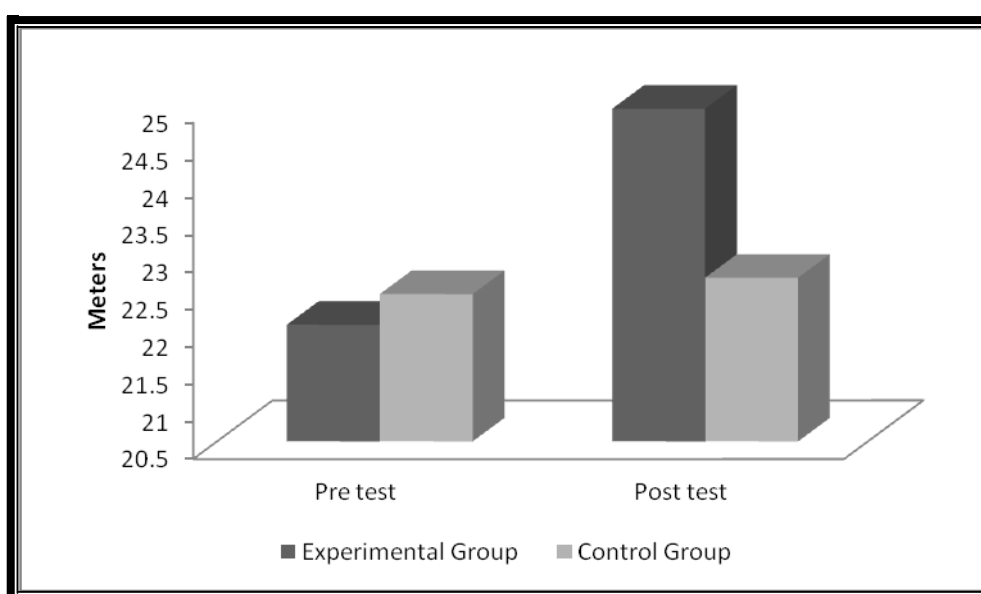
*Significant

Discussion

In the present study instep kicking ability of the soccer players improves as a result of strength training for twelve weeks. The result of this study is in line with the findings of Manolopoulos *et al.* (2004) [4], Perez-Gomez *et al.* (2008) [5] and Sedano Campo *et al.* (2009) [6]. In the experimental group instep kicking ability improved by 2.89 meters (Figure 1). This shows that increase in maximum strength and an altered

soccer kick movement pattern, characterized by a more explosive backward-forward swinging movement and higher muscle activation during the final kicking phase [3]. Other factors which may also have contributed to the increased ball speed of the soccer kick, may be a better and quicker movement and transfer of energy between segments [7].

Figure 1
Experimental and control groups instep kicking ability



Conclusion

The present study clearly shows the impact of strength training on kicking ability of soccer players. It is concluded that this training programme can be administered as part of the pre-season training of soccer players. It is approximately changes in physical fitness components particularly

lower extremities have been transferred to soccer kick performance in terms of ball speed as well as technique. Therefore, the application of soccer-specific strength training programs for twelve weeks as part of pre-season training programme for young soccer players is recommended



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