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## **Impact of various mobile surfaces core strength training on physical fitness parameters of adolescent soccer boys**

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### **Abstract**

This study was investigated the impact of various mobile surfaces core strength training on physical fitness parameters of adolescent soccer boys. To achieve the purpose of the study 40 adolescent soccer boys were selected from Fc Kovai and Coimbatore city football club. The subjects was randomly assigned to two equal groups ( $n=20$ ). Group- I underwent mobile surfaces core strength training (MSCST) and group - II was acted as control group (CG). The mobile surfaces core strength training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The physical parameters of flexibility (sit and reach test) muscular strength endurance (sit-ups) and balance (stock balance test) before and after training period. The data collected from the subjects was statistically analysed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the present mobile surfaces core strength training significantly improved flexibility muscular strength endurance and balance of adolescent soccer boys.

**Keywords:** mobile surfaces core strength training, flexibility, muscular strength endurance and balance

### **Introduction**

Soccer is a physically demanding sport which requires players to perform high-intensity movements such as short and explosive sprints, jumps and repeatedly change of directions during a 90 min match and those actions require overall strength and power production, speed, agility, balance, flexibility, stability, and the adequate level of endurance. Often the high-intensity movements such as jumps, runs, and sudden change of directions executed by soccer players would affect the competition results Even though these high speed movements constitute only about 10-15% of the total distance covered by soccer players, these activities usually involve movements during crucial situations that result in better ball possessions and better scoring performance used time and motion analysis to prove that the ability to sprint and to change direction while moving were factors which decisively affected sport performance. Those physical attributes were associated with core stability training (CST). During a soccer game, players performed sprinting and changed direction swiftly according to situation. Soccer players have been reported to change direction during game 1,200-1,400 times every 2-4 seconds. In addition, it is essential for a player to change directions quickly while running. Consequently, in soccer, agility is of central importance for the optimal performance. Agility is important either to match or outclass other soccer opponents individually. Agile soccer players can move swiftly to take advantage of the space. In offensive mode, agile soccer players can lose their markers by changing direction quickly and in defensive mode, players can keep up with movement of the player they are tasked to mark. In a longitudinal study of young superior soccer players. Primarily and certainly, it can be stated that the strength training method is more convenient for soccer training, as it does not only depend on number of units per training done during soccer exercises.

The area named "core" includes the abdominals in the front side of the body, that is, hypochondrium and hypogastrium muscles; serratus's right next to hypochondrium muscles; oblique right next to hypogastrium muscles; and the muscle groups from the waist to neck that help the skeleton have a correct posture (External Oblique, Internal Oblique's, Transverses

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Abdominis, Mu Hindi Psoas). "Core training" refers to the training of the above abdominal and lumbar regions. Strengthening the core region is not only necessary for sportive endurance, but it also provides a correct posture.

### Methodology

In this study the selected 40 adolescent soccer boys selected from FC Kovai and Coimbatore city football club. The subjects were randomly assigned in to two equal groups namely, mobile surfaces core strength training (MSCST) ( $n=20$ ) and Control group (CG) ( $n=20$ ). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine. The evaluated physical parameters were flexibility was assessed by sit and reach test and the unit of measurement was in centimetre, muscular strength endurance was assessed by sit-ups the unit of measurements was in counts and balance was assessed by stock balance test the unit

of measurement in seconds.

### Training Programme

The training programme was lasted for 60 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. These 60minutes included 10 minutes warm up, 40 minutes for mobile surface strength training and 10 minutes and warm down. The equivalent in mobile surface strength training is the length of the time each action in total 3 day per weeks (Monday, Wednesday and Friday).

### Statistical Analysis

The collected data before and after training period of 12 weeks on the above said variables due to the effect of mobile surface core strength training was statistically analyzed with 't' test to find out the significant improvement between pre and posttest. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ( $P < 0.05$ )

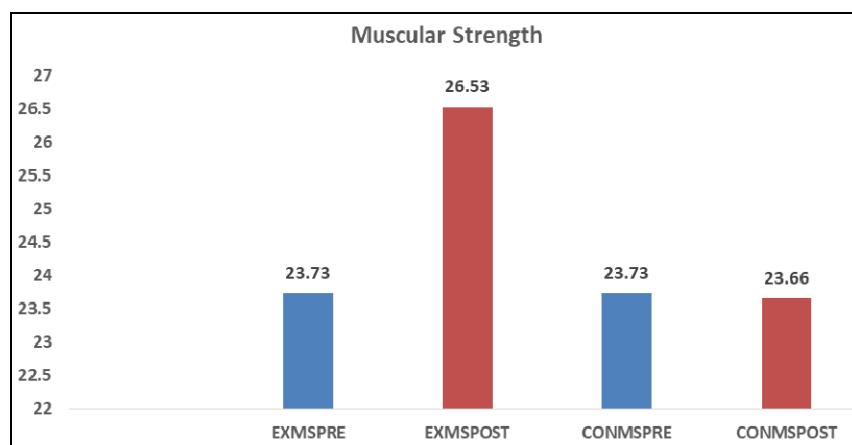
**Table 1:** Computation of 't' ratio on selected physical parameters on experimental group and control group (Scores in numbers)

| Group              | Variables         |           | Mean  | N  | Std. Deviation Pre | Std. Deviation Post | T ratio |
|--------------------|-------------------|-----------|-------|----|--------------------|---------------------|---------|
| Experimental Group | Flexibility       | Pre test  | 15.93 | 15 | .961               | .723                | 24.35*  |
|                    |                   | Post test | 19.66 | 15 |                    |                     |         |
|                    | Muscular strength | Pre test  | 23.73 | 15 | 1.27               | 1.18                | 12.58*  |
|                    |                   | Post test | 26.53 | 15 |                    |                     |         |
| Control group      | Flexibility       | Pre test  | 15.80 | 15 | .774               | .990                | 1.74    |
|                    |                   | Post test | 15.53 | 15 |                    |                     |         |
|                    | Muscular strength | Pre test  | 23.73 | 15 | 1.27               | 1.29                | 1.00    |
|                    |                   | Post test | 23.66 | 15 |                    |                     |         |

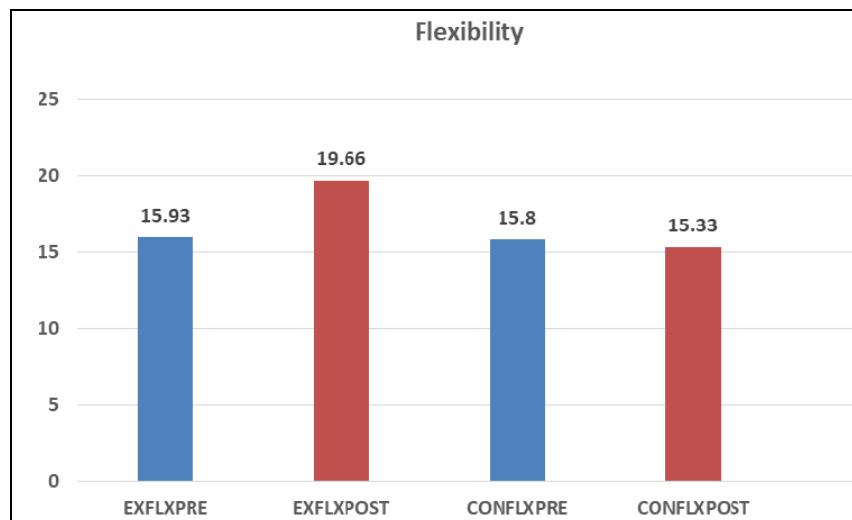
\*significant level 0.05 level degree of freedom (2.09, 1 and 19)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected physical parameters namely flexibility and muscular strength experimental group. The obtained 't' ratio on flexibility and muscular strength were 24.35 and 12.58 respectively. The required table value was 2.09 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on selected physical parameters namely flexibility and muscular strength control group. The obtained 't' ratio on flexibility and muscular strength were 1.74 and 1.00 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.



**Fig 1:** Bar diagram showing the mean value on muscular strength of School Girls on Experimental and Control group (Scores in numbers)



**Fig 2:** Bar diagram showing the mean value on Flexibility of School Girls on Experimental and Control group (Scores in numbers)

### Discussion and Findings

The present study experimented the effect of varied mobile surface core strength training on physical parameters of adolescent soccer boys. The result of the study shows that the mobile surface core strength training improved the flexibility muscular strength endurance and balance. The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the flexibility and muscular strength endurance was significantly improved of subject in the group may be due to the in mobile surface core strength training. Seied *et al.*, (2012) evaluate the effect of Strength and Core Stabilization Training on Physical Fitness Factors among Elderly People. Sekendiz *et al.*, (2012)<sup>[18]</sup> examined swiss- ball core strength training on strength, endurance, flexibility, and balance in sedentary women. Subramanian *et al.*, (2014)<sup>[21]</sup> reported that core strength training induced adaptations on selected physical and physiological parameters of cricket players.

The result of the present study indicates that the ins and outs core strength training programme is effective method to improve muscular strength endurance and flexibility of soccer players.

The discrepancy between the result and the result of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme, the intensity used and the duration of the training programme.

### Conclusions

- It was concluded that 12 weeks of mobile surface core strength training significantly improved the flexibility muscular strength of adolescent soccer boys.

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