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N. ChandraKumar
Ph.D., Research Scholar (Part time), Department of Physical Education, Madurai Kamaraj University, Madurai, Tamilnadu, India.

Dr. C Ramesh
Assistant Professor, Department of Physical Education, Madurai Kamaraj University, Madurai, Tamilnadu, India

Correspondence
N. ChandraKumar
Ph.D., Research Scholar (Part time), Department of Physical Education, Madurai Kamaraj University, Madurai, Tamilnadu, India.

Influence of core functional training on leg strength and flexibility among high school soccer players

N ChandraKumar, Dr. C Ramesh

Abstract

The purpose of the study was to find out the influence of core functional training on leg strength and flexibility among high school soccer players. In order to achieve the purpose of the study 24 high school male football players were randomly selected from Oddanchatram Town and they were equally divided in to two groups of 12 each as experimental and control group. The experimental group and control group undergone normal routine football practices and in addition the experimental group undergone core functional training for one hour in the morning before starting the football practices. The control group was not given any special training. The period of training was 8 weeks in a schedule of weekly 5 days. The data were collected on the selected variables before and after the training period. Analysis of Covariance (ANCOVA) was used to analyze the data. To test the significance 0.05 level of confidence was fixed. Based on the results the study it was concluded that the core functional training was significantly improved the leg strength and flexibility among high school soccer players.

Keywords: Core Functional Training, Leg strength, Flexibility

1. Introduction

Functional training is defined as movements or exercises that improve a person's ability to complete their daily activities or to achieve a specific goal. It is not a series of exercises deemed functional by some manual. Doing movements in the gym that strengthen the muscles involved in the movements you wish to improve outside the gym is a good start. This does not mean you can simply add weight to the exact movement you wish to enhance. (Brooks. G.A, 1996) [1].

There is research that has proven doing this can actually be detrimental to some athletic movements. When a baseball player adds weight to his bat that can actually slow his bat speed down because the added resistance changes the forces on the joint and disrupts mechanics. All exercises have some functional value when applied correctly this value is determined by the exercises transferable benefit outside the gym (Ralph Richards, 1999) [6].

Every exercise has a functional limitation and it is up to the trainer to understand what it is. A quality program focuses on weak areas and sets specific goals for the client. It is important to understand how to progress someone from simple smaller targeted movements to more complex multi joint movements. Training someone functionally can range from having a tennis player lunge to a chop or a body builder do a slow curl for bigger biceps; it's all about the goal. Keep in mind performing complex movements before the client is ready will do more harm than good. (Charles De Francesco and Dr Robert Inesta, 2010) [4].

Football is a strenuous game which requires all the physical fitness qualities. To improve the physical fitness qualities they involved in various training programme. The present study was also with the aim to improve the physical fitness qualities through functional training. With analyzing various important fitness qualities of the leg strength and flexibility were selected as criterion variables. In the present study Leg exercise tone and strengthen powerful muscle groups that you use every day. A well-considered Leg exercise programme will result in improved athletic performance, as well as overall fitness. (Uppal A.K, 1998) [8]

Flexibility refers to the absolute range of movement in a join or series of joints that is attainable in a momentary effort with the help of a partner or a piece of equipment flexibility in some joints can be increased to a certain degree by stretching. The qualities of leg strength and flexibility are essential for Football performance. (Burn, John W, 1964) [2].

2. Methodology

The purpose of this study was to investigate the influence of core functional training on leg strength and flexibility among high school soccer players. In order to achieve the purpose of the study 24 high school male football players were selected randomly and they were equally divided in to two groups of 12 each as experimental and control group. The experimental group and control group undergone normal routine football practices and in addition the experimental group (EG) undergone core functional training for one hour in the morning before starting the football practice. The control group (CG) was not given any special training. The period of training was 8 weeks in a schedule of weekly 5 days. The data were collected on the selected variables of leg strength and flexibility before and after the training period. Analysis of Covariance (ANCOVA) was used to analyze the data. To test the significance 0.05 level of confidence was fixed.

2.1 Criterion Measures

Table 1

Variables	Test	Measurers in Unit
Leg Strength	1 RM	Kilograms
Flexibility	Sit and Reach	Centimeters

2.2 Training Programme

The eight weeks Core Functional training included the following

- 1) Quadrupe arm raise

- 2) Quadrupe leg raise
- 3) Quadrupe arm and leg raise
- 4) Quadrupe arm raise with knees on a 1/2 foam roller
- 5) Quadrupe leg raise with knees on a 1/2 foam roller.
- 6) Quadrupe leg raise with knees on a 1/2 foam roller and hands on dyna disc.
- 7) Knee planks
- 8) Knee plank with foam roller
- 9) Full plank
- 10) Plank with leg raise
- 11) Plank on roller
- 12) Plank on ball with airex pad under feet
- 13) Upper back only cat camels
- 14) Low back only cat camel
- 15) Cat camel
- 16) Cat camel with eyes closed
- 17) Cat camel on half foam roller.
- 18) Static glute bridge
- 19) Two leg glute bridge
- 20) Two leg glute bridge with band around knees
- 21) Two leg glute bridges with feet on airex pad
- 22) 1 leg glute bridge
- 23) 1 leg glute bridge on dyna disc. (Kurt and Vreet, 2006) [5].

2.3 Results and Discussion

The analysis of covariance on the data obtained on Leg strength, Flexibility of Experimental and Control groups have been analyzed and tabulated in Table-II and Table-III.

Table 2: Analysis of covariance of Experimental and Control Groups on Leg strength

TEST	CG	EG	SV	SS	DF	MS	F
Pre test	125.00	130.83	Between	204.17	1	204.17	0.30
			Within	14991.67	22	681.44	
Post test	127.50	147.92	Between	2501.04	1	2501.04	4.12*
			Within	13347.92	22	606.72	
Adjusted mean	130.17	145.25	Between	1345.72	1	1345.72	35.76*
			Within	790.19	21	37.63	
Mean diff	2.50	17.08					

Significant at 0.05 level of confidence. df (1and22)=4.04 and df (1and22)=4.05

The table-II shows the F value of pretest, posttest and adjusted mean of experimental and control group. The F value of pretest was 0.30 (df 1and22 =4.04) and it was lower than the table value which indicates that there was no significant difference in pretest. The F value of posttest was 4.12 (df 1and22 =4.04) and adjusted mean was 35.76 (df 1and22 =4.05). Both the F value of posttest and adjusted posttest were

more than the table value the and it indicates that there was a significant difference in the post test as well as adjusted posttest.

The results of this study revealed the influence of core functional training in improving leg strength among high school soccer players.

Table 3: Analysis of covariance of Experimental and Control Groups on Flexibility

TEST	CG	EG	SV	SS	DF	MS	F
Pre test	31.08	32.50	Between	12.04	1	12.04	0.84
			Within	313.92	22	14.27	
Post test	32.33	36.25	Between	92.04	1	92.04	9.17*
			Within	13347.92	22	10.04	
Adjusted mean	32.89	35.69	Between	45.34	1	45.34	36.20*
			Within	26.31	21	1.25	
Mean diff	1.25	3.75					

Significant at 0.05 level of confidence. df (1and22)=4.04 and df (1and22)=4.05

The table- III shows the F value of pretest, posttest and adjusted mean of experimental and control group. The F value of pretest was 0.84 (df 1and22 =4.04) and it was lower than the table value which indicates that there was no significant difference in pretest. The F value of posttest was 9.17 (df 1and22 =4.04) and adjusted pot test mean was 36.20 (df

1and22 =4.05) and it indicates that there was a significant difference in the post test as well as adjusted posttest.

The results of this study revealed the influence of core functional training in improving flexibility among high school soccer players.

2.4 Discussion

In the recent times core functional training is offered as a better method for developing leg strength and flexibility. The results and discussion of the present study proved that the said training procedure was beneficial for improving the leg strength and flexibility.

3. Conclusion

On the basis of results and discussion of the study following conclusion were drawn.

1. The core functional training had significantly improved the leg strength and flexibility of high school soccer players.
2. There was significant difference among the adjusted post-test mean of experimental group and control group on leg strength and flexibility.

4. Recommendations

1. Similar study may be conducted for various age groups.
2. The same study may be extended to further time period.
3. The present study is mainly focused on males only. The same study may be done on females

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