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An Impact of Circuit Training on Selected Physical Fitness Variables Among College Hockey Players

Dr.S.Dhanaraj Assistant Professor, Alagappa University College of Physical Education, Karaikudi.

ABSTRACT

The purpose of the study was to find out the effects of circuit training on selected physical fitness variables among twenty women hockey players from Alagappa University College of Physical Education, karaikudi were selected randomly as subjects. The age of the students ranged from 18 to 24 years. The selected subjects were divided into two groups. Group A underwent circuit training and group B acted as control group. The experimental group was subjected to the training for three days in a week for a period of 8 weeks circuit training programme. The dependent variables namely speed and agility was measured by 50 yards run and shuttle run test. The Datawere collectedfrom each subject before and after the training period and statistically analyzed by using dependent't' test and analysis of covariance (ANCOVA). It was found that there was a significant improvement in speed and agility due to the effects of circuit training programme.

KEYWORDS : Circuit training, Speed, Agility, 50 yards run and Shuttle run.

INTRODUCTION

Sports training are not a novelty or recent discovery. It existed both in ancient Egypt and later in Greece where people systematically trainedforboth military and Olympic endeavors. Today through training as in ancient times, the athletes prepare themselves for a definite goal. In order to elevate athletics performance, the main scope of training centre's on increasing the athletes working capacity and skill capabilities as well as developing strong psychological traits. Though many methods prevail to develop the performance in hockey, the role of circuit training is an undisputed one. "circuit training is the training programme in which an athlete moves from one exercise station another in a planned sequence in the shortest possible time"(Neal,1969).

A typical hockey players must train for many years to refine the technique and to develop the physical fitness factors especially strength ,speed, power, agility etc. ,.there are many types of training by which an athlete can improve the said physical fitness qualities. Circuit training has provide to be very effective method for improving the strength endurance (Toncashseaton et,al,1983)

Circuit training is an effective and quick way to fit your workout into your busy day. Circuit training provides a high intensity cardio workout, along with resistance training. This is designed to target fat loss and lean muscle building. A Circuit is designed with a series of exercises performed in succession of each other. When one Circuit is complete you start the sequence over again with little to no break. To start you want to perform each exercise for 10 reps and 3 times through each Circuit. Remember to perform reps quickly and keep breaks as short as possible. The purpose of Circuit training is to keep moving, which pushes your body aerobically, while still challenging your strength.

HYPOTHESIS

1. There would be a significance difference between circuit training group and control group on speed and agility among college women Hockey players.
2. There would be a significant improvement on speed and agility due to circuit training programme among college women Hockey players.

METHODOLOGY

This study was designed to find out the effect of circuit training on selected physical fitness variables especially speed and agility of women inter collegiate hockey players. For this purpose 20 women hockey players were selected at randomly as subjects. The age of the students ranged from 18 to 24 years. This circuit training package was designed specifically by investigated with the help experts and given to the subjects for period of only 8 weeks. The selected subjects were divided into two groups. Group A underwent circuit training and group B acted as control group. The experimental group was subjected to the training for three days in a week for a period of 8 weeks circuit training programme. The dependent variables namely speed and agility was measured by 50 yards run and shuttle run test. The Datawere collectedfrom each subject before and after the training period and statistically analyzed by using dependent't' test and analysis of covariance (ANCOVA). All the cases 0.05 level of confidence was fixed to test the hypotheses.

ANALYSIS OF THE DATA

The effects of independent variables on selected physical fitness variables were determined through the collected data by using appropriate statistical techniques and the results are presented below.

The analysis of dependent't' test on the data obtained for speed and agility of the pre and post-test means of circuit training group and control group have been analysed and presented in table I.

TABLE –I THE SUMMARY OF MEAN AND DEPENDENT 't' TEST FOR THE PRE AND POST TESTS ON SPEED AND AGILITY OF EXPERIMENTAL AND CONTROL GROUPS

Variables	Name of the test	Circuit Training Group	Control group
Speed	Pre test mean	7.97	7.98
	Post test mean	7.58	7.97
	't' test	8.70*	0.24
Agility	Pre test mean	17.60	17.61
	Post test mean	17.14	17.62
	't' test	17.25*	0.21

*** Significant at 0.05 level. (The table value required for .05 level of significance with df 9 is 2.26).**

The Table I show that the pre-test mean value of speed in circuit training and control groups are 7.97 and 7.98 respectively. The post test means are 7.58 and 7.97 respectively. The obtained dependent t-ratio values between the pre and post test means of circuit training and control groups are 8.70 and 0.24 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. Since, the obtained't' ratio value of experimental group is greater than the table value, it is understood that circuit training had significantly improved the speed performance. However, the control group has not improved significantly. The obtained't' value is less than the table value, as they were not subjected to any specific training.

The pre-test mean values of agility circuit training and control groups are 17.6 and 17.61 respectively. The post test means are 17.14 and 17.62 respectively. The obtained dependent t-ratio values between the pre and post test means of circuit training and control groups are 17.25 and 0.21 respectively. The table value required for significant difference with df 9 at 0.05 level is 2.26. Since, the obtained 't' ratio value of experimental group is greater than the table value, it is understood that circuit training group had significantly improved the agility performance. However, the control group has not improved significantly. The obtained't' value is less than the table value, as they were not subjected to any specific training.

The analysis of covariance on speed and agility of circuit training and control groups have been analysed and presented in Table II.

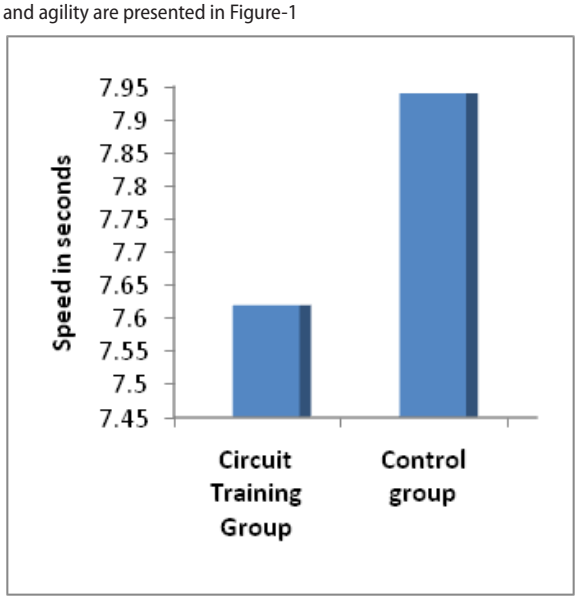
TABLE - II ANALYSIS OF COVARIANCE ON SPEEDAND AGILITY OF CIRCUIT TRAINING GROUP AND CONTROL GROUP

Variables	Adjusted post test means		Source of variance	Sum of squares	df	Mean squares	Obtained F-Ratio
	Circuit Training group	Control group					
Speed	7.62	7.94	Between	2.18	1	2.18	54.50*
			Within	0.71	17	0.04	
Agility	16.93	17.56	Between	2.48	1	2.48	62*
			Within	0.68	17	0.04	

*** Significant at .05 level of confidence (The table value required for Significance at .05 level with df 1 and 17 is 4.45)**

The table II shows that the adjusted post test means of speed and agility on circuit training and control groups are 7.62 and 7.94, and 16.93and 17.56 respectively. The obtained 'F' ratio value are 54.50 and 62, which is higher than the table value of 4.45 with df 1 and 17 required for significance at 0.05 level. Since the value of F- ratio is higher than the table value of 4.45 for df 1 and 17 required for significance at .05 level of confidence. It indicates that there is significant difference among the adjusted post test means of circuit training and control groups on speed and agility.

Adjusted means of circuit training group and control groups on speed- and agility are presented in Figure-1



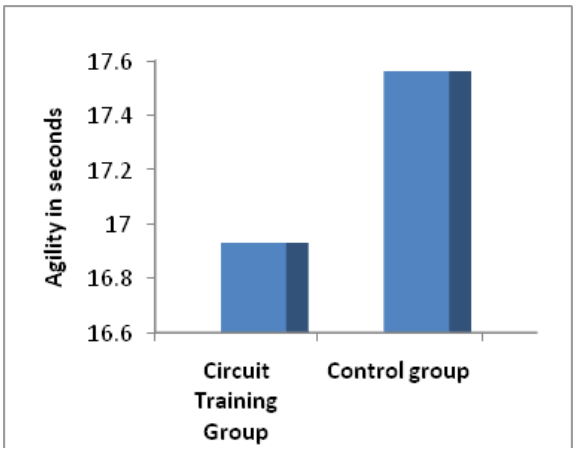


FIGURE-1: ADJUSTED MEANS OF CIRCUIT TRAINING AND CONTROL GROUPS ON SPEED AND AGILITY.

DISCUSSION AND FINDING

Speed is the rate which a body moves from one location to another (Charles B corbin and ruth Lindsey,1985) the circuit training programmed involved motor moements that had to be executed with high speed over a period of 8 weeks. This might be the reason for the significant improvement of speed.

Agility is the quality of muscle to contract forcefully in the quickest possible time. (HARDAYAL SING,1991). Circuit training schedule involved various agility oriented exercises that had to be excited in the circuit stations. This might be the reason for the significant improvement of agility.

CONCLUSIONS

1. It was found that there was a significance difference between circuit training group and control group on speed and agility among college women Hockey players.
2. There was a significant improvement on speed and agility due to circuit training programme among college women Hockey players.
3. Finally I concluded that circuit training group is better than control group for improving the performance of physical fitness variables.

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