



EFFECT OF CORE STRENGTH TRAINING ON SELECTED MOTOR ABILITY VARIABLES OF COLLEGE MEN HANDBALL PLAYERS

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Abstract:- The purpose of this study was to find out the effect of core strength training on selected motor ability variables of college men handball players. To achieve the purpose of the study, (n=30) college level men handball players were randomly selected as subjects. The age ranged from 18 to 25 years. They were assigned into two equal groups of fifteen subjects (each group), namely, Experimented Group and Control Group. Experimental Group was experimented with core strength training, whereas the Control Group was not exposed to any experiment. The selected motor ability variables selected for the study are speed, leg explosive power and upper body strength. Before the experimental period, pre test was conducted for all 30 subjects on selected motor ability variables. After the experimental period of eight weeks, post test was conducted and the scores were recorded. The 't' Test was used to analyze the mean differences. The level of significance for the study was 0.05. It was concluded that eight weeks of core strength training programme produced significant improved in speed, explosive power and upper body strength of men handball players.

Keywords:Handball, core strength training, speed, leg explosive power and upper body strength.

INTRODUCTION

Sports training, based on scientific knowledge, are a pedagogical process of sports perfection which through systematic effect on psycho-physical performance ability and performance readiness aims at leading the sportsman to high and the highest performance. Through active and conscious interaction with the given demands in sports training, the sportsman's personality develops according to the norms and standards of socialist society". (Singh,1984). Core strength training is one of the key components of getting a stronger body. Your core musculature is the source of your strength, power and balance. It is also where energy gets transferred from your lower body to the upper body, such as in a golf swing or lifting a heavy box from the ground. Strengthening your core will help you minimize back and hip injuries as well as allowing you to lift more, throw farther and jump higher. Therefore, core training is a vital part of any exercise program for all levels of fitness. Handball is a team sport played by two male or female teams. The players are allowed to handle and throw the ball using their hands, but they must not touch the ball with their feet. The objective of the game is to score and avoid getting goals. A standard match consists of 2 quarters of 30 minutes, and the team with the most points wins. (Barbara Schrodt ,2011). Modern handball is usually played indoors, but outdoor variants exist in the forms of field handball. The game is played at a very high speed and body contact is permitted as precisely laid down in the "Rules of the game". Team handball provides you with a great workout .Playing team handball teach you about team work .Team handball is good for your leg muscles. Team handball is good for your hand-eye coordination .Team handball is a fun, fast-paced sport that is full of running, jumping, throwing, and catching.

METHODOLOGY

To achieve the purpose of the study, (n=30) male handball players were randomly selected from Sri Ramakrishna engineering College Coimbatore. Their age ranged from 18 to 25 years. They were divided into two equals groups. The group I was considered as control group and group II was considered as experimental group. The investigator did not made any attempt to equate the group. The control group was not given any treatment and the experimental group was given core strength training for three days per week of eight weeks.

SELECTION OF VARIABLES

S.NO	VARIABLES	TEST ITEMS	UNIT OF MEASUREMENTS
1	Speed	60 yard dash	In Seconds
2	Upper body strength	6- pound medicine ball put	In meters
3	Leg explosive power	Standing broad jump	In meters

Experimental Design

The random group design was employed in this study. The selected subjects were divided into two groups, namely experimental group and control group, each group consist of 15 subjects. Then the control was not given any treatment. The experimental group underwent the core strength training to improve speed, agility, leg explosive power and upper body strength of college men handball players.

RESULTS AND DISCUSSION

TABLE-I showing the computation of t'-ratio between pre and post test means of control group on speed

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Pre test	8.09	0.35	0.003	0.006	0.45
Post test	8.08	0.36			

*Significant at 0.05 level of confidence (2.14)

Table I reveals that the computation of 't' ratio between mean of pre and post test on speed of college men handball players. The mean values of pre and post test of control group were 8.09 and 8.08 respectively. Since, the obtained 't' ratio 0.45 was less than the required table value 2.14, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the speed of the control group had not been improved.

TABLE-II computation of 't'-ratio between pre and post test means of experimental group on speed

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Pre test	8.09	0.35	0.039	0.008	4.88*
Post test	8.05	0.36			

*Significant at 0.05 level of confidence (2.14)

Table IV reveals that the computation of ‘t’ ratio between mean of pre and post test on speed of college men handball players .The mean values of pre and post test of experimental group were 8.09 and 8.05 respectively. Since, the obtained ‘t’ ratio 4.88 was higher than the required table value 2.14, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the speed of the experimental group improved due to the influence of core strength training.

Figure-I shows the mean values of pre and post test on speed of control and experimental groups

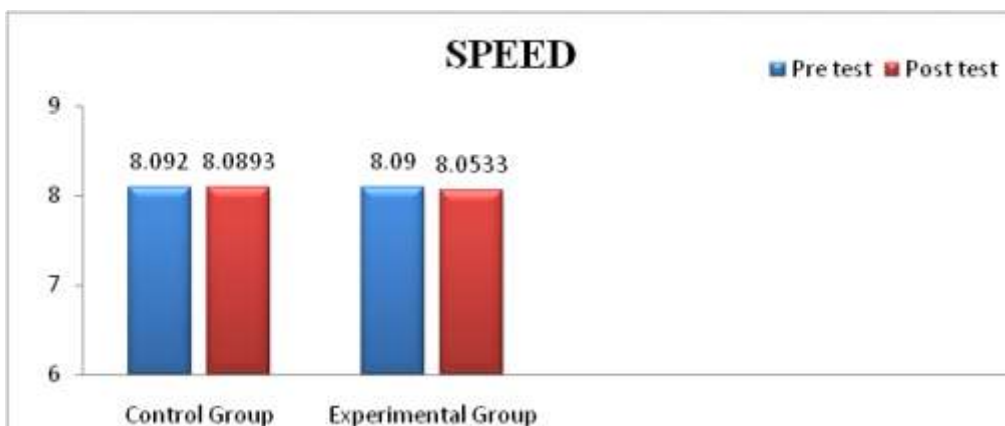


TABLE-III computation of ‘t’-ratio between pre and post test means of control group on leg explosive power

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Pre test	1.96	0.15	0.006	0.005	1.11
Post test	1.97	0.15			

*Significant at 0.05 level of confidence (2.14)

Table III reveals that the computation of ‘t’ ratio between mean of pre and post test on leg explosive power of college men handball players .The mean values of pre and post test of control group were 1.96 and 1.97 respectively. Since, the obtained ‘t’ ratio 1.11 was less than the required table value 2.14, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the leg explosive power of the control group had not been improved.

TABLE-IV computation of ‘t’-ratio between pre and post test means of experimental group on leg explosive power

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Pre test	1.96	0.15	0.09	0.03	2.67*
Post test	2.05	0.19			

*significant at 0.05 level of confidence (2.14)

Table IV reveals that the computation of 't' ratio between mean of pre and post test on leg explosive power of college men handball players .The mean values of pre and post test of experimental group were 1.96 and 2.05 respectively. Since, the obtained 't' ratio 2.67 was higher than the required table value 2.14, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the leg explosive power of the experimental group improved due to the influence of core strength training.

FIGURE-II shows the mean values of pre and post test on leg explosive power of control and experimental groups

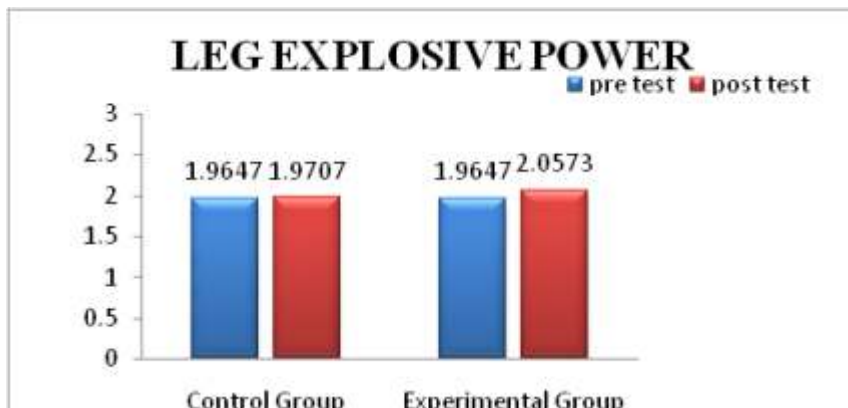


TABLE-V computation of 't'-ratio between pre and post test means of control group on upper body strength

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Pre test	5.21	0.56	0.20	0.20	1.01
Post test	5	1.04			

*Significant at 0.05 level of confidence (2.14)

Table V reveals that the computation of 't' ratio between mean of pre and post test on upper body strength of college men handball players .The mean values of pre and post test of control group were 5.21 and 5 respectively. Since, the obtained't' ratio 1.01 was less than the required table value 2.14, it was found to be statistically not significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the upper body strength of the control group had not been improved.

TABLE-VI computation of't'-ratio between pre and post test means of experimental group on upper body strength

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-ratio
Pre test	5.21	0.56	0.25	0.08	3.10*
Post test	5.46	0.60			

*Significant at 0.05 level of confidence (2.14)

Table VI reveals that the computation of 't' ratio between mean of pre and post test on upper body strength of college men handball players. The mean values of pre and post test of experimental group were 5.21 and 5.46 respectively. Since, the obtained 't' ratio 3.10 was higher than the required table value 2.14, it was found to be statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence. The results clearly indicated that the upper body strength of the experimental group improved due to the influence of core strength training.

FIGURE-III shows the mean values of pre and post test on leg upper body strength of control and experimental group



DISCUSSION ON FINDINGS

The present study experimented the effect of core strength training on selected motor ability variables of college men handball players. The result of this study indicated that the core strength training improved the motor variables such as speed, leg explosive power and upper body strength. The findings of the present study had similarity with the findings of the investigations referred in this study. Shinkle et al., (2012) indicated that core strength training improved the power in the extremities. Sharma et al., (2012) suggested that nine-week core strengthening exercise program improved vertical jump performances and static balance in volleyball players with trunk instability. Shinkle et al., (2012) suggested that dynamic core strength influences upper and lower extremity power. Core stability and strength are frequently described to be important factors for developing maximal power in the extremities. Escamilla et al., (2010) indicated that core muscle activated during swiss ball and traditional abdominal exercises. Reed et al., (2011) reported that isolated and integrated 'core stability' training enhanced athletic performance measures. The results of the present study indicate that the core strength training programme is effective method to improve speed, agility and upper body strength of college men handball players. The discrepancy between the results and the results 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.

CONCLUSION

Based on the results, the following conclusions have been arrived.

1. It was concluded that eight weeks of core strength training programme produced significant improved in speed, explosive power and upper body strength of men handball players.
2. Core strength training is appropriate training protocol to bring out desirable changes over motor ability components for handball players

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