

EFFECT OF HANDBALL COACHING PROGRAM ON SELECTED PHYSICAL FITNESS AND SKILL PERFORMANCE VARIABLES OF HAWASSA UNIVERSITY HANDBALL PLAYERS



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Abstract:

The purpose of the study was to find out the effect of handball coaching program on selected physical fitness and skill performance variables of hawassa university handball players. To achieve this purpose sixty students were selected as subjects from hawassa university sport science department, and their age were between twenty one to twenty five years. The subjects were selected by Simple random sampling technique. Primary source of data used for this study. The subjects were divided into two group's one experimental and one control group. Handball coaching programme was administered to group I consist of thirty students and group II consist of thirty students served as a control group. The selected criterion variables and instruments were used for this study such as speed was measured by 50 yard dash, agility was measured by (10 X 4) shuttle run, muscular strength endurance was measured by sit-ups, explosive power was measured by vertical jump, cardio-respiratory endurance was measured by 12 minutes run/walk, overhand passing was measured by number of correct pass to the target partner, dribbling was measured by time taking to the full court dribble, fast break was measured by number of primary fast break within the chance by points and shooting accuracy was measured by number of accurate shot in the corner within the chance by points. The data were collected through the standard tests and collected data were analyzed by paired T-test. Paired T-test was used to find out the significant difference between the experimental and control groups. The level of significant was fixed at 0.05. The finding shows that the handball coaching program had significant improvement than control group in selected Physical Fitness and Skills performance variables.

Keywords: Handball, Physical Fitness & Skill Performance.

Introduction:

Handball is an Olympic team sport that requires muscular strength, power, speed, and endurance (Gorostiaga et al., 2006; Marques and González-Badillo, 2006). Physical fitness alone cannot make a great team handball player, but without it player cannot achieve potential. Being physically fit for team handball includes endurance (aerobic and anaerobic). Strength, flexibility and the related skill factors of agility, balance, and coordination. Team handball is a 60-minute game of fast, continuous action. The player commitment to being physically fit improves the capacity of practice at a level closer to

game like conditions. Although the player may run more than 3 miles during a game, short bursts of exertion challenge the player anaerobic endurance. Training the player aerobic capacity through the long distance running prepares the player for the short distance speed work that will improve the player anaerobic endurance for practices and games. Whenever possible, include team handball in physical conditioning exercises. Combining skill training and fitness training in a single exercise maximizes the use of the players practice time (Reita E. Clanton and Marry Phyl Dwight, 1996). The game includes numerous repetitive actions like full speed running, changes in speed and direction, jumping, throwing, and collisions between players (Marques, Van Den Tillaar, Vescovi and González-Badillo, 2007). Handball players possess a wide range of physical skills that include throwing, diving, blocking and ball control (Wallace and Cardinale, 1997). Research in handball has focused on the seasonal changes in physical variables (Gorostiaga et al., 2006; Marques and González-Badillo, 2006), throwing velocity and strength training (Hoff and Almasbakk, 1995; Skoufas et al., 2003). It is worth indicating that some important and extremely common activities in handball include: jumping and shooting over the head of the opponent into the goal (Shahdadi, 1999), the player's shooting at a speed of more than 70 miles per hour (Amirtash, 2006), rapid redirecting (briskness), and passing the opponent around 6 and 9 meter lines of the handball court and 30 meter speed, which are effective features for elite handball players to execute counterattacks (Agha and Ghahremanloo, 2007). One of the single most important technical-tactical elements, the intrinsic purpose of a competitive game and the key to winning the game, is shots on goal (Anton, 1998). All of these abilities have a considerable impact on the final result of a match and they are proper predictors of successful performance in handball which will determine the winner and the loser.

Objective of the Study:

- The main objective of the study was to find out the effect of handball coaching program on selected physical fitness and skill performance variables of hawassa university handball players.

Hypothesis of the study:

- It is hypothesis that the effect of handball coaching program on selected physical fitness and skill performance variables would be significant changes when compare with the control group.

Methodology:

To achieve this purpose sixty students were selected as subjects from hawassa university sport science department, and their age were between twenty one to twenty five years. The subjects were selected by Simple random sampling technique. Primary source of data used for this study. The subjects were divided into two group's one experimental and one control group. Experimental group handball coaching programme was administered to group I consist of thirty students and group II consist of thirty students served as a control group. Control group did not given any training program rather than their routine work. The selected criterion variables and instruments were used for this study such as speed was measured by 50 yard dash (Johnson, Barry L. and Jack K. Nelson, 1988), agility was measured by (10 X 4) shuttle run

(Johnson,Barry L.and Jack K.Nelson, 1988), muscular strength endurance was measured by sit-ups (Johnson,Barry L.and Jack K.Nelson, 1988), explosive power was measured by vertical jump (Johnson,Barry L.and Jack K.Nelson, 1988), cardio-respiratory endurance was measured by 12 minutes run/walk (Johnson,Barry L.and Jack K.Nelson, 1988), overhand passing was measured by number of correct pass to the target partner(Reita E. Clanton and Marry Phyl Dwight, 1996)., dribbling was measured by time taking to the full court dribble(Reita E. Clanton and Marry Phyl Dwight, 1996)., fast break was measured by number of primary fast break within the chance by points (Reita E. Clanton and Marry Phyl Dwight, 1996), and shooting accuracy was measured by number of accurate shot in the corner within the chance by points (Reita E. Clanton and Marry Phyl Dwight, 1996). The data were collected through the standard tests and collected data were analyzed by paired T-test. Paired T-test was used to find out the significant difference between the experimental and control groups. The level of significant was fixed at 0.05.

Analysis and Interpretation of Data:

Table-I
Difference in mean of experimental and control group on speed (in seconds)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	Standard Deviation	Std. Error of Mean Difference	df	't' ratio
Experimental	30	7.89	7.05	0.844	0.116	0.022	29	39.86*
Control	30	7.94	7.80	0.142	0.499	0.091	29	1.56

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -1 showed that the pre test and the post test mean of speed for the experimental group were 7.89 and 7.05 and for the control group were 7.94 and 7.80 respectively. The calculated 't' value for the experimental group was 39.86 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.56. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on speed.

Figure-I

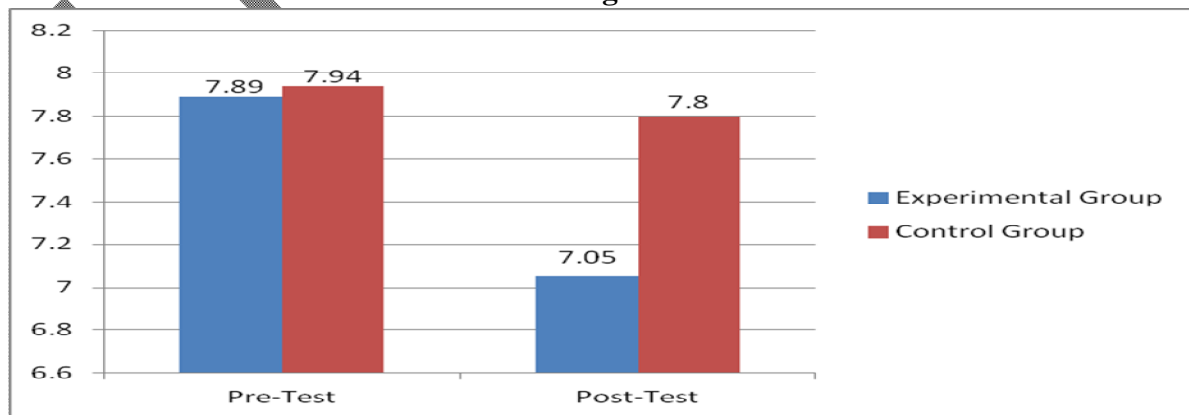


Table-II
Difference in mean of experimental and control group on agility (in seconds)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	Standard Deviation	Std. Error of Mean Difference	Df	't' ratio
Experimental	30	13.03	12.17	0.86	0.120	0.22	29	39.34*
Control	30	13.11	13.05	0.060	0.230	0.420	29	1.43

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table - 2 showed that the pre test and the post test mean of agility for the experimental group were 13.03 and 12.17 and for the control group were 13.11 and 13.05 respectively. The calculated 't' value for the experimental group was 39.34 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.43. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on agility.

Figure-II

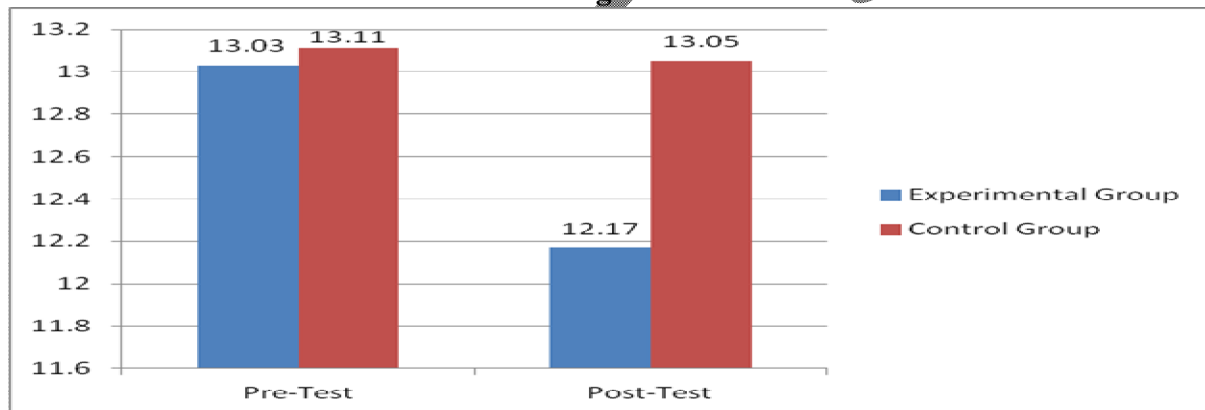


Table-III
Difference in mean of experimental and control group on Muscular strength endurance (in counts)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	Standard Deviation	Std. Error of Mean Difference	df	't' ratio
Experimental	30	25.67	31.30	5.63	1.56	0.286	29	19.72*
Control	30	24.60	25.03	0.43	1.36	0.248	29	1.75

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -3 showed that the pre test and the post test mean of strength endurance for the experimental group were 25.67 and 31.30 and for the control group were 24.60 and 25.03 respectively. The calculated 't' value for the experimental group was 19.72 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was

1.75. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on strength endurance.

Figure-III

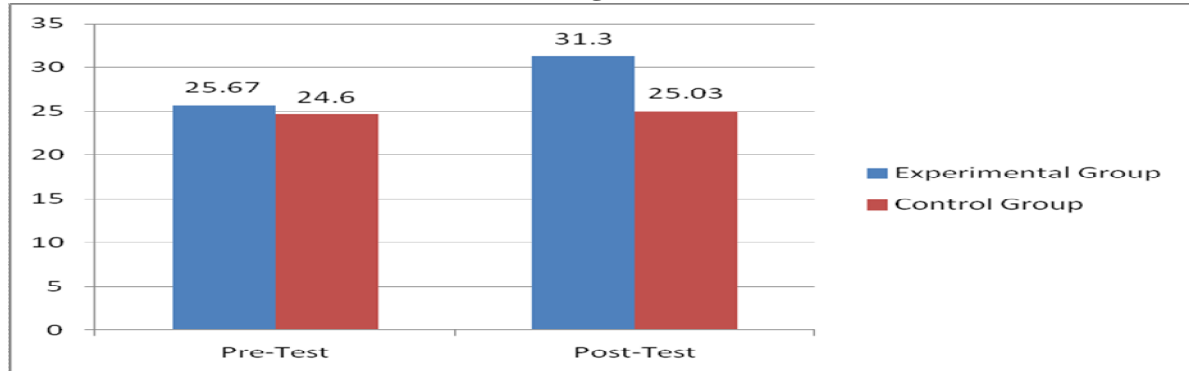


Table-IV
 Difference in mean of experimental and control group on explosive power
 (in centimeters)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	Standard Deviation	Std. Error of Mean Difference	df	't' ratio
Experimental	30	43.77	52.60	8.83	1.95	0.356	29	24.82*
Control	30	43.87	44.17	0.30	1.21	0.221	29	1.36

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table - 4 showed that the pre test and the post test mean of explosive power for the experimental group were 43.77 and 52.60 and for the control group were 43.87 and 44.17 respectively. The calculated 't' value for the experimental group was 24.82 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.36. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on explosive power.

Figure-IV

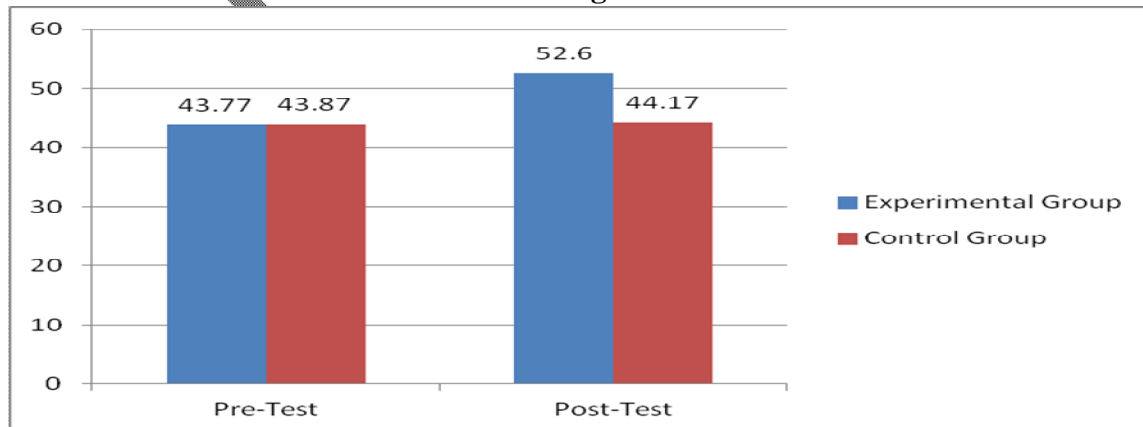


Table-V
Difference in mean of experimental and control group on Cardio respiratory endurance
(in meters)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	Standard Deviation	Std. Error of Mean Difference	df	't' ratio
Experimental	30	2655.7	2826.0	170.33	19.997	3.651	29	46.65*
Control	30	2671.7	2690.2	18.50	49.67	9.069	29	2.040

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -5 showed that the pre test and the post test mean of cardio respiratory endurance for the experimental group were 2655.7 and 2826.0 and for the control group were 2671.7 and 2690.2 respectively. The calculated 't' value for the experimental group was 46.65 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 2.040. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on cardio respiratory endurance.

Figure-V

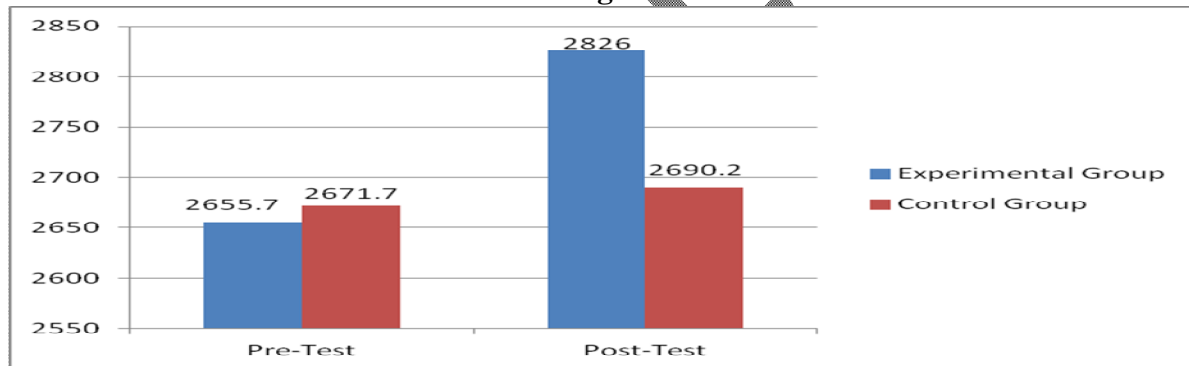


Table-VI
Difference in mean of experimental and control group on Overhead passing
(in numbers)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	St.Deviation	Std. Error mean	df	't' ratio
Experimental	30	13	21.10	8.10	1.92	.350	29	23.13
Control	30	14.47	14.80	.33	1.79	.326	29	1.02

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -6 showed that the pre test and the post test mean of overhead pass for the experimental group were 13 and 21.10 and for the control group were 14.47 and 14.80 respectively. The calculated 't' value for the experimental group was 23.13 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.02. This indicates

that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on overhead pass.

Figure-VI

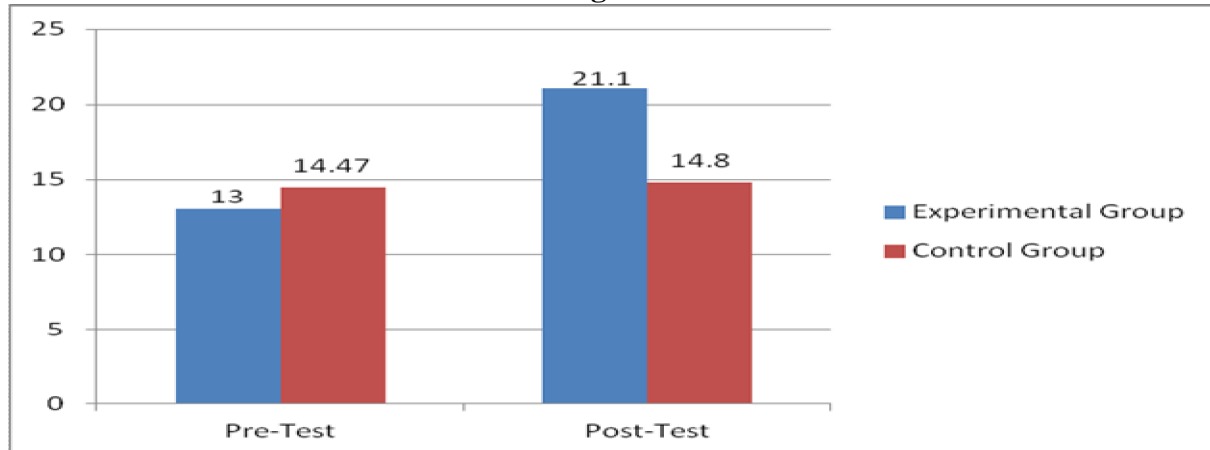


Table-VII

Difference in mean of experimental and control group on Dribbling (in seconds)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	St.Deviation	Std. Error mean	df	't' ratio
Experimental	30	51.28	44.57	6.71	1.74	.317	29	21.18*
Control	30	51.07	50.51	.561	2.27	.414	29	1.35

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -7 showed that the pre test and the post test mean of dribbling for the experimental group were 51.28 and 44.57 and for the control group were 51.07 and 50.51 respectively. The calculated 't' value for the experimental group was 21.18 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.35. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on dribbling.

Figure-VII

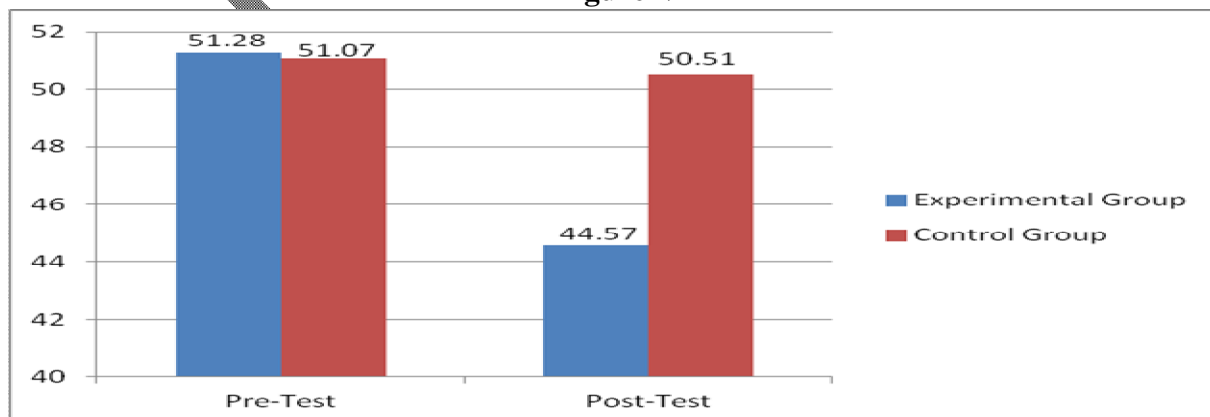


Table-VIII

Difference in mean of experimental and control group on Fast break (in points)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	St.Deviation	Std. Error mean	df	't' ratio
Experimental	30	2.07	3.73	1.67	.606	.111	29	15.05*
Control	30	1.83	1.93	.100	.305	.056	29	1.795

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -8 showed that the pre test and the post test mean of fast break for the experimental group were 2.07 and 3.73 and for the control group were 1.83 and 1.93 respectively. The calculated 't' value for the experimental group was 15.05 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.795. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on fast break.

Figure-VIII

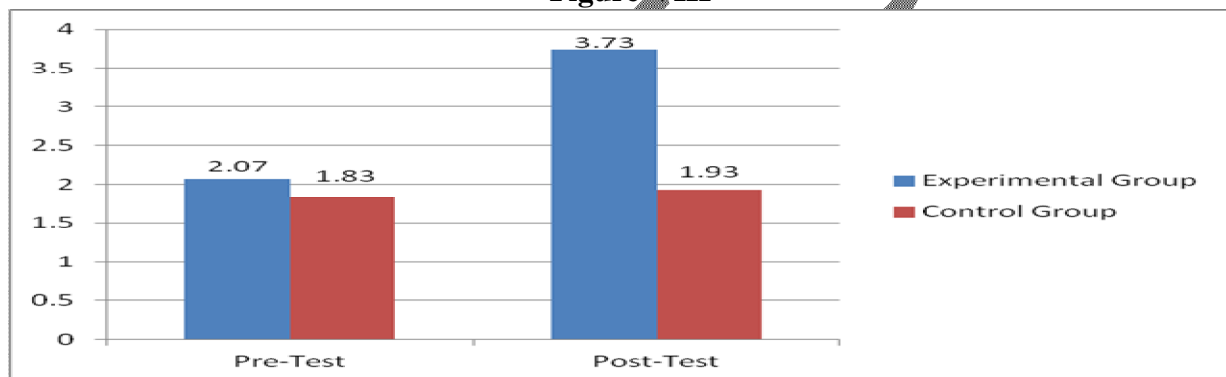


Table-IX

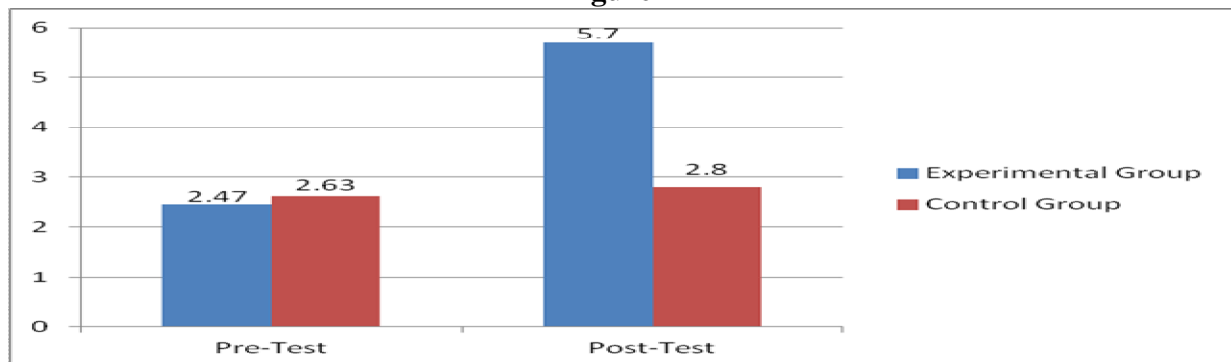
Difference in mean of experimental and control group on shooting accuracy (in points)

Groups	NoS	Pre test Mean	Post test Mean	Mean Difference	St.Deviation	Std. Error mean	df	't' ratio
Experimental	30	2.47	5.7	3.23	1.07	1.96	29	16.51*
Control	30	2.63	2.80	.167	.531	.097	29	1.72

(Table value required for significance at 0.05 level with degree of freedom is 2.045)

Table -9 showed that the pre test and the post test mean of shooting accuracy for the experimental group were 2.47 and 5.7 and for the control group were 2.63 and 2.80 respectively. The calculated 't' value for the experimental group was 16.51 which was higher than the table value at 0.05 level. In the case of control group the calculated value for 't' ratio was 1.72. This indicates that there was a significant difference in the experimental group following handball coaching program training for a period of twelve weeks on shooting accuracy.

Figure-IX



Discussion on Findings:

When the means of the pre test performance of both the control and experimental groups were computed and compared, it was found that the groups were equated. After treating the obtained scores of the post test performance of both the control and experimental groups statistically, it was found that the computed mean and standard deviation of experimental group had significant improvement than the control group.

From the t ratio obtained, it was found out that there was a significant difference at 0.05 level of confidence.

Hence it was evident that the effect of handball coaching program improved the selected physical fitness, and skill performance variables of hawassa university handball players.

Justification of Hypothesis:

- The hypothesis, says that the effect of handball coaching program on selected physical fitness and skill performance variables would be significant changes when compare with the control group. The result reveals that there were significant changes on selected physical fitness and skill performance variables due to the experimental treatments when compared to the control group. Therefore the hypothesis has been accepted. So the research hypothesis was accepted at 0.05 level of confidence.

Conclusion:

On the bases of research findings the following conclusions were drawn:

- Handball coaching program had significantly improved when compare to the control group on selected physical fitness variables namely speed, agility, muscular strength endurance, explosive power and Cardio respiratory Endurance.
- Handball coaching program had significantly improved when compare to the control group on selected skills performance variables namely overhand passing, dribbling, fast break and shooting accuracy.

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