International Journal of Physiology, Exercise and Physical Education
www.physicaleducationjournals.com
Online ISSN: 2664-7257, Print ISSN: 2664-7249
Received: 26-07-2021; Accepted: 12-08-2021; Published: 28-08-2021
Volume 3, Issue 1, 2021, Page No. 24-28

Impact of varied frequency training on selected physical fitness and skill performance of male handball players in sayint handball project, Amhara regional state, south Wollo, Ethiopia

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Abstract
The present study was conducted to assess the impact of varied frequency training in selected physical fitness and skill performance of male handball players in case of Sayint Adijibar town. The subjects of the study include 46 project players which were selected by purposive sampling method from two handball projects namely Nisir and Arenguade. These were divided in to two groups randomly to have control and experimental group. The performance level of players was evaluated at the beginning of intervention(pretest) and after twelve week training for both experimental and control group (posttest)quantitatively. In this study you look two tables for each variables, the first table tells us descriptive statistics and the second table about independent sample t test and also there is graph to summarize. The major finding of this study showed that there was significant difference between the twogroup performance level in those variables (cardiovascular endurance, muscular strength,jumping shoot, accuracy and dribbling).There was insignificant difference in speed and agilityperformance level of players. Moreover, the result indicated that varied frequency training hasimpact on the performance of male handball players at $p<0.05$ prior level,so as to that the resultswas interpreted as p value.

Keywords: cardiovascular endurance, strength, speed, agility, Speed dribbling and Jump shoot

Introduction

Handball game that we know today was developed in northern Europe at the end of the1880s. Accordingly, it was popular in Sweden, Norway, Denmark and German. It believed that,Denmark was recognizes as the birth place of modern handball. As a result the rules for modern handball was drawn up by Danish Gym teacher (*Holger Nielson in 1898)*, The historical background of handball as it‟s spoken by sport philosophers; man has been done all activities using his hand, rather than his foot. Because of this handball is one of the oldest games in the world like athletics, box and wrestling. (Freeze & Peter, 1990*)* The origins of Handball is a subject of great debate. One view is that it was invented inGermany, back in the late 19th century, as an outdoor sport to keep soccer players fit during thesummer months. Outdoor Handball involved 7 players on each side and was played on a virtuallyfull-size turf handball court with handball goals. It was mainly played with handball rules, exceptit was played with the hands and kicking the ball was illegal rather than the other way round.However, there are records of handball-style games going back to antiquity. The sport wasdepicted on a tombstone carving in Athens dated 600BC. The first match of the modern era wasofficially recorded on 29 October 1917 in Berlin, Germany. Outdoor Handball had its onlyOlympic Games appearance in the 6th Olympiad (1936 Berlin Games).

Research Material and Methods

In this study data were analyzed quantitatively particularly important for the study since it is intended to make detail description and analysis to the comparison of selected variables of under-17 handball players at Sayint town. The research design in this study was employ experimental method. In this study. The subjects of the study were all of the 46 players of under 17 male hand ball players at Sayint town.

1. **Study design**: The study was designed to mirror an actual improvement in selected fitness and skill performance for male handball players, where two extra days training sessions per a week areallowed. To address this objective, experimental study design is implemented.

2. **Study location:** The study was conduct in Sayint Adijibar, Sayint *Woreda*, South Wollo *Zone* of the Amhara *Region*, Ethiopia.

a. **Study Duration:** July 6, 2019 to August 10, 2020

3. **Sample size**: 46 project payers

4. **Subject and selection method:** the study populations was drawn as purposive sampling method, that means all 46 project players are took as a sample during this study and randomly divided in to two control and experimental group
   Group one 23 project players (Arenguade)
   Group two 23 project players (Nisr)

5. **Statstical analysis**

Data was analysed by using SPSS version 20 (SPSS Inc., Chicago, Il). independent sample t test was used to asess the significance difference between control and experimental group of players. The data collected on the selected physical fitness and skill performance variables in pre and posttest were analyzed, interpreted and tabulated in to meaning full way by using table (central tendency like mean and measure of dispersion like standard deviation,) and graph, p value, degree of freedom (df) mean difference and t value were used, for statistical significance 0.05 level of confidence ($p<0.05$) was used

Result

Table 1: Descriptive Statistics for the pre -test Endurance Measures of the groups

Test	Group of player	N	Mean	Sta. deviation	Sta. error mean
Pre test	Control	23	2061.83	130.573	27226
	experimental	23	2051.96	99.564	20.761

From this data we can see that the scores in the pretest for both groups were very close. One can see that there was still a difference. However, we cannot determine here if this difference was statistically significant or not. Thus, an independent samples t-test was computed to examine whether the two groups had a statistically significant difference at the pretest. The following table shows this test of significance

Table 2: Independent Samples t-test for the pretests for cardiovascular endurance

Cooper Vo2 max test		Levine's test for equality of variance		T test for equality of mean						
		F	Sig.	T	Df	Sig 2 tailed	Mean difference	Sta. error difference	95% confidence interval of the difference	
									Lower	Upper
Pretest	Equal variance assumed	.233	.632	.557	44	.016	19.43	34.901	-50.9	87.772
	Equal variance not assumed			.557	42.0	.581	19.43	34.901	-50.9	89.866

There was insignificant difference in score between the two groups of players, t (44) = 0.557, p <. 05, experimental group of players (M = 2051.96, SD = 99.564) scoring at approximately the same with control group players at the beginning (M = 2061.83, SD =130.573).

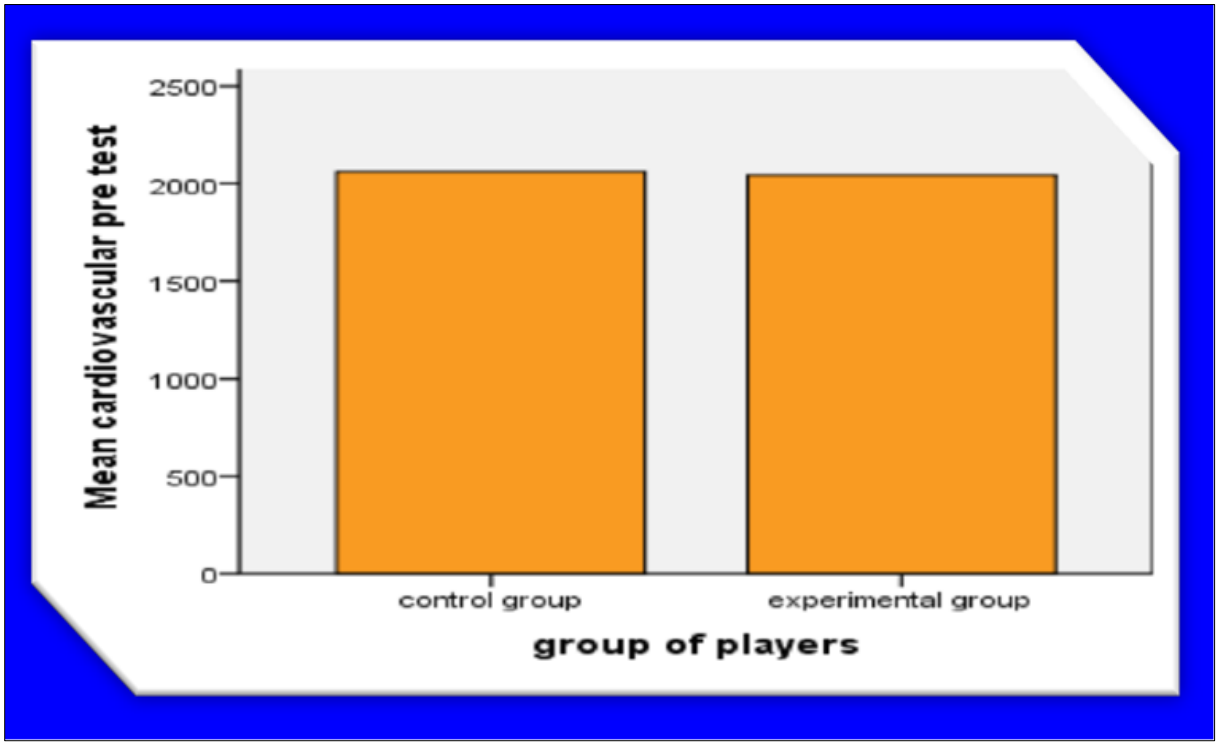

Fig 1: Graphical presentation for the mean difference of the group during pretest cardiovascular endurance performance level**.**

Table 3: Descriptive Statistics for the Posttest Endurance Measures of the groups

Test	Group of player	N	Mean	Sta. deviation	Sta. error mean
Post test	Control	23	2057.48	121.097	22.250
	experimental	23	2143.30	111.517	23.253

After a 12 week training scheme, they were compared for their level of cardiovascular endurance performance. Accordingly, it was found out that the mean score of Control group (N=23) was 2057.48, SD=121.097 on the contrary, the mean score of experimental group (N=23) players were found to be 2147.30 with an SD of 111.517.

One can pick up that these numbers are different, yet it is impossible to tell here if the differences are statistically significant or not. Hence, an independent samples t-test comparing the posttest scores of thegroups was computed to examine whether these numbers show statistical difference between the cardiovascular endurance performance levels of the two groups. The t-test results are presented in the table that follows.

Table 4: Independent Samples t-Test for the Posttest of cardiovascular endurance

Cooper Vo2 max test		Levine's test for equality of variance		T test for equality of mean						
		F	Sig.	T	Df	Sig 2 tailed	Mean difference	Sta. error difference	95% confidence interval of the difference	
									Lower	Upper
Posttest	Equal variance assumed	.004	.951	-2.500	44	.016	-85.826	34.326	-155.00	16.646
	Equal variance notassumed			-2.500	43.70	-85.826	-85.826	34.326	-155.01	-16.63

Using an alpha level of. 05, an independent-samples *t* test was conducted to evaluate whether control group and experimental group differed significantly on a test of cardiovascular endurance after twelve week intervention. The test was significant, *t* (44) = 2.550, *p* <. 05. The 95% confidence interval for the cooper Vo_2 max test mean ranged from -155.00 to -16.646. A performance level of the group means indicate that experimental group (*M* =2143.30, *SD* =111.517) performed significantly higher on the cooper vo_2 max test than did control group (*M*=2057.48, *SD* = 121.097)

Table 5: Effects of training on control and experimental group of players in case of cardiovascular endurance performance

Group	Test	N	Mean	SD	T	Df	P-value
Control	Pre-test	23	2061.83	130.573	0.177	44	0.907
	Post-test	23	2057.48	121.097			
Experimental	Pre-test	23	2051.96	104.716	3.164	44	0.003
	Post-test	23	2143.304	111.517			

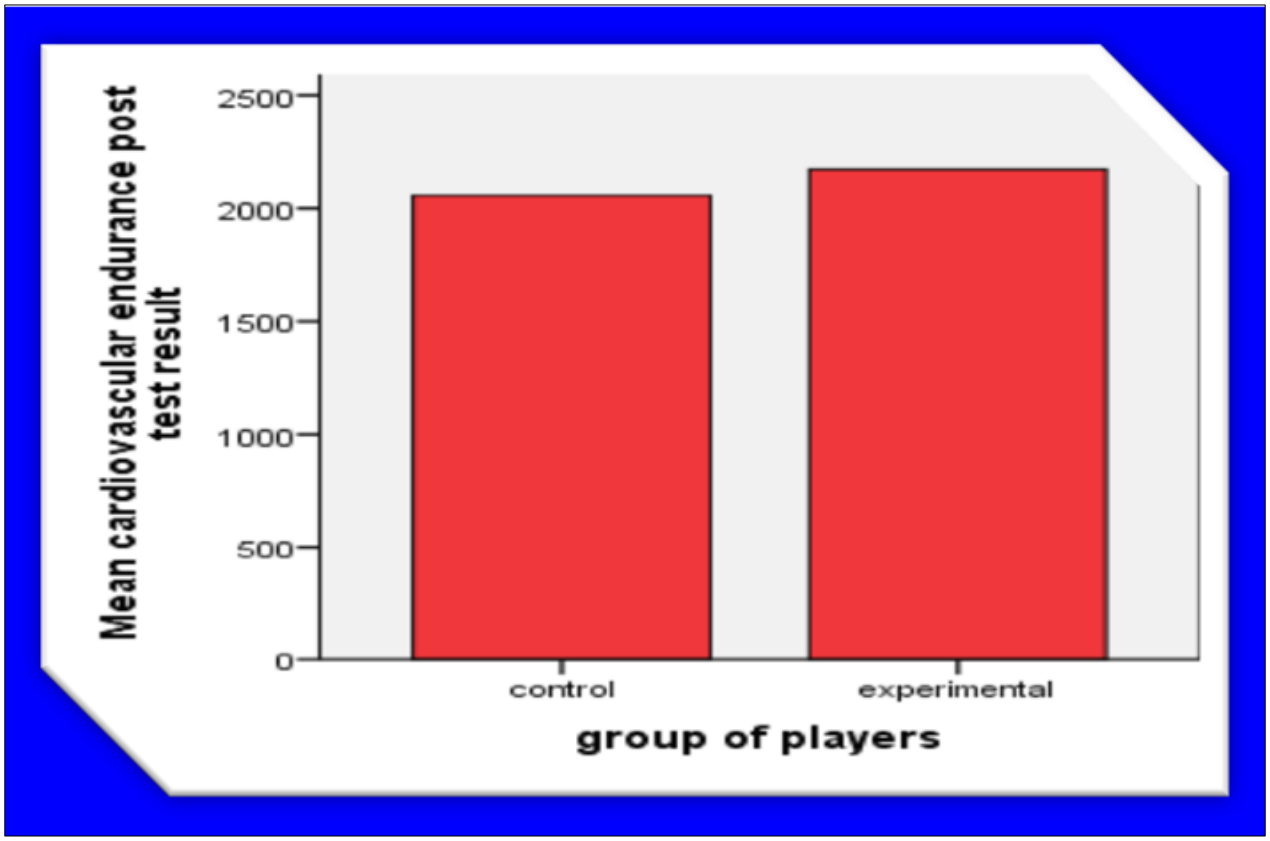

Fig 2: Graphical presentation for the mean difference of the group in posttest of cardiovascular endurance performance level of the group

Table 6: Descriptive Statistics for the pre- test strength Measures of the groups

Test	Group of player	N	Mean	Sta. deviation	Sta. error mean
Pre test	Control	23	24.78	3.204	.688
	experimental	23	24.39	2.463	.514

The descriptive statistics in the table 6 above shows that in the pretest score of control group players (N=23) was found to be 24.28 with a standard deviation of 3.204. In the same vein, the average pretest score of experimental group players (N=23) was

found to be 24.39 with an SD of 2.463. From this data we can see that the scores in the pretest for both groups were very close. One can see that there was still a difference. However, we cannot determine here if this difference was statistically significant.

Table 7: Independent Samples t-Test for the Pretest

Cooper Vo2 max test		Levine's test for equality of variance		T test for equality of mean						
		F	Sig.	T	Df	Sig 2 tailed	Mean difference	Sta. error difference	95% confidence interval of the difference	
									Lower	Upper
Pretest	Equal variance assumed	1.233	.273	.464	44	.645	.391	.843	-1.307	2.090
	Equal variance not assumed			.464	41.27	.645	.391	.843	-1.310	2.093

There was no significant difference in strength pretest scores of control group and experimental group of players ($M_{control}$= 24.78, $SD_{control}$ = 3.204, $M_{experimental}$= 24.39, $SD_{experimental}$= 2.463; $t(44) = 0.273$, p=. 645)

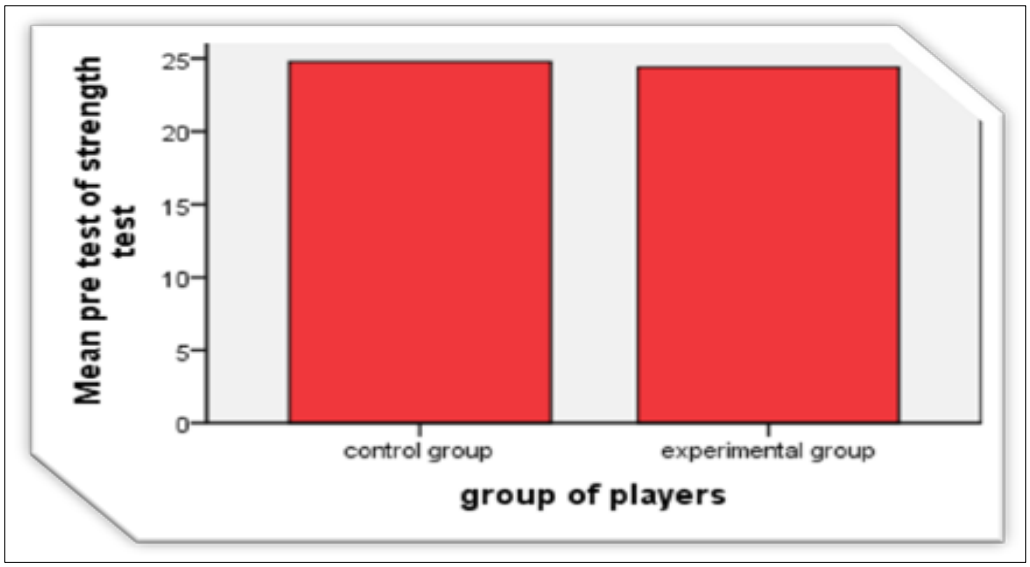

Fig 3: Graphical presentation for mean difference in pretest strength performance level of the group

Table 8: Descriptive Statistics for the Posttest strength Measures of the groups

Test	Group of player	N	Mean	Sta. deviation	Sta. error mean
Post test	Control	23	25.87	2.989	.623
	experimental	23	27.96	1.870	.390

Table 8 shows the descriptive statistics results of the two groups under comparison. After a 12 week training scheme, were compared for their level of strength performance. Accordingly, it was found out that the mean score of control group was 25.87, SD=2.989. On the contrary, the mean score of experimental group players was found to be 27.96 with an SD of 1.870.

Table 9: Independena sample t test of strength post test

Cooper Vo2 max test		Levine's test for equality of variance		T test for equality of mean						
		F	Sig.	T	Df	Sig 2 tailed	Mean difference	Sta. error difference	95% confidence interval of the difference	
									Lower	Upper
Posttest	Equal variance assumed	3.853	.56	-2.8	44	.007	-2.087	7.35	-3.569	-.605
	Equal variance not assumed			-2.8	36.93	.007	-2.087	7.35	-3.577	-.597

The Sig. (2-Tailed) value in the table 9 above is 0.007, t (44) =2.83, p<0.05 this value is less than 0.05. Because of this, we can conclude that there is a statistically significant difference between the mean numbers of groups. Since our Group Statistics table 8 revealed that the Mean for the experimental group (M =27.96) was greater than the Mean for the control group (M =25.87), we can conclude that participants in the experimental group were ableto perform significantly more strength performance than participants in the control group.

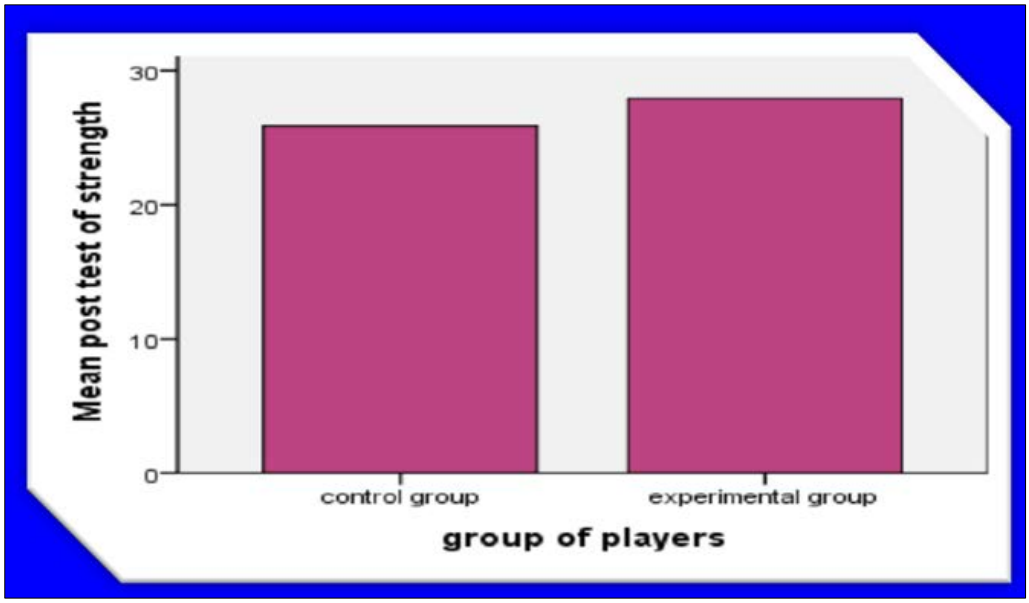

Fig 4: Graphical presentation for equality of mean difference in posttest of strength performance level of the group

Result

The result of the study shows that there was a significant difference exists among control
and experimental group of players after 12 week intervention given for exmerimental group of players at $p<0.05$.The present

Conclusion

Based on the results obtained from this study, with in limitation and delimitations, the researcher draws the following conclusion:

- There was significant difference after given varied frequency training among control group and experimental group of players in selected physical fitness variables such as, cardiovascular endurance and muscular strength.
- There was effect of training in experimental group players in case of cardiovascular endurance, strength, variables
- Designing five day of physical fitness and skill performance training per week is bestway to achieve the desired goals in developing physical fitness and skill performance qualities than three days of training sessions.

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