Ilkogretim Online - Elementary Education Online, 2021; Vol 20 (Issue 5): pp. 6349-6353
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.05.716

EFFECT OF WEIGHT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG COLLEGE LEVEL HANDBALL PLAYERS

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ABSTRACT- ***Study aim:***the aim of the study was examine weight training is a full-body workout that promotes physical fitness among college level men handball players. It provides with extraordinary balance, muscular endurance and flexibility. It improves physical fitness skills. It improves physical and social functioning and strengthens the overall body capacity. ***Materials and methods:*** Therefore the purpose of the study was to examine the effect of weight training exercises on selected fitness parameters of college level men handball players. To achieve the purpose of the study college level handball players participated were randomly selected from in and around Kerala, and their age was ranged between 17 to 23 years. The subjects were randomly assigned into two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent weight training exercises for a period of 6 weeks and group-II acted as control who did not participate in any special training other than the regular routine. The fitness variables such as Muscular endurance, Flexibility and Balance were selected as dependent variables. Muscular endurance was tested by Sit-ups test unit measurement in points, Flexibility was tested by Sit and reach test unit of measurement in centimetres and Balance was tested by balance backward test unit of measurement in seconds. The dependent 't' test was applied to determine the difference between the means of two groups. To find out whether there was any significant difference between the experimental and control groups. To test the level of significant of difference between the means 0.05 level of confidence was fixed. ***Results:*** The result of the study shows that, there was a significant improvement takes place on Muscular endurance, Flexibility and Balance of college level handball players. ***Conclusions:*** Improved of Muscular endurance, Flexibility and Balance after regular weight training exercises is beneficial for college level handball players. Therefore weight training exercises covered in this study are beneficial for the handball players.

Keywords: Weight Training, Physical Fitness, Handball Players.

I. INTRODUCTION:

Handball is distinguished by short bursts of high-intensity effort. Low-intensity phases alternate with high-activity phases [1,2]. Although the majority of a match is spent at a lower intensity, the most decisive actions, such as throwing, jumping, accelerating, sprinting, and tackling, necessitate high levels of explosiveness and strength [3-5]. As a result, resistance training should be included in pragmatic conditioning programs to promote these characteristics. The benefits of strength training are numerous (e.g., plyometrics, isomet-rics, dynamics, and isokinetic training). Other options include dynamic strength training combined with variable resistance, such as weight training (upper body weight training and lower body weight training) and weight lift chains [6-10].There is a lot of scientific evidence that dynamic strength training combined with elastic resistance can help athletes improve their limb strength performance [6-14]. SSC is intuitively logical to include in handball training because handball players frequently throw, push, jump, sprint, and change direction. Furthermore, several studies have shown that loaded weight training with other types of resistance improves athletic performance. In fact, Lyttle et al [15]. In adult male athletes, 8 weeks of biweekly loaded plyometric training (weighed bench press throw at 30% 1RM) resulted in an increase in one-repetition maximum (1RM) bench press and medicine ball throw performance.Furthermore, Khalifa et al [16].Described improved jump performance in elite male basketball players after 10 weeks of loaded weight training (weight vest).However, the equipment used in these studies for loaded weight training was more expensive, heavy, and sophisticated than elastic resistance, such as the elastic band, which is prohibitively expensive for some athletes. To the best of our knowledge, no previous research has investigated the effects of weight training on selected physical fitness variables among college level handball players.

II. METHODS:

The purpose of the study was to find out the effects of weight training on selected physical fitness variables among college level men handball players. To achieve the purpose of the study, thirty college level handball playerswere selected from in and around Kerala. The subjects were randomly assigned in to two equal groups namely, Weight training group (WTG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The respective training was given to the experimental group the 5 days per weeks (alternate days) for the training period of six weeks. The control group was not given any sort of training except their routine.Design:The fitness variables such as Muscular endurance, Flexibility and Balance were selected as dependent variables. Muscular endurance was tested by Sit-ups test unit measurement in points, Flexibility was tested by Sit and reach test unit of measurement in centimetres and Balance was tested by balance backward test unit of measurement in seconds.

Training Program:

The training program was conducted for 45 minutes for session in a day, 5 days in a week for a period of 6 weeks duration. These 45 minutes included 10 minutes warm up, barbell squat, the deadlift and the bench press. The resistance was individualized in such a manner that each athlete could perform 3 to 6 repetitions of the exercise in 3-4 sets. The training protocol directed at the development of power included the following exercises: barbell jump squats, the clean and jerk, a dynamic bench press. The number of repetitions in particular sets ranged from 3 to 6 performed within 3-4 sets. In both groups the training loads increased progressively throughout the experiment, changing the intensity as well as the number of sets and in for 25 minutes and 10 minutes warm down. Every two weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of Weight training prescribed based on the number of sets and repetitions. The equivalent training is the length of the time each action in total 5 day per weeks.

Statistical Analysis:

The collected data before and after training period of 6 weeks on the above said variables due to the effect of Weight training was statistically analyzed with dependent 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P<0.05$)

Table I

Computation of 't' Ratio on Selected Physical Fitness Variables of College Men Handball Players on Experimental Group and Control Group

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	t ratio
Experimental Group	Muscular Endurance	Pre	22.26	15	3.86	0.430	14.55*
		Post	28.23		3.13		
	Flexibility	Pre	20.80	15	3.58	0.153	25.66*
		Post	24.73		3.53		
	Balance	Pre	16.54	15	5.70	0.930	13.50*
		Post	19.78		5.49		
Control Group	Muscular Endurance	Pre	22.46	15	3.48	0.350	1.524
		Post	23.00		3.18		
	Flexibility	Pre	19.93	15	3.75	0.320	1.247
		Post	20.33		3.55		
	Balance	Pre	16.00	15	2.80	0.169	1.847
		Post	16.48		2.62		

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected fitness parameters namely muscular endurance, flexibility and balance experimental group. The obtained 't' ratio muscular endurance, flexibility and balance were 14.55, 25.66 and 13.50 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant. Further the computation of mean, standard deviation and 't' ratio on selected physical parameters namely muscular endurance, flexibility and balance control group. The obtained 't' ratio on muscular endurance, flexibility and balance were 1.524, 1.247 and 1.847 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

Figure 1

Bar diagram showing the pre, post means values of Weight Training exercisetraining group (WTG) on Physical Fitness Parameters.

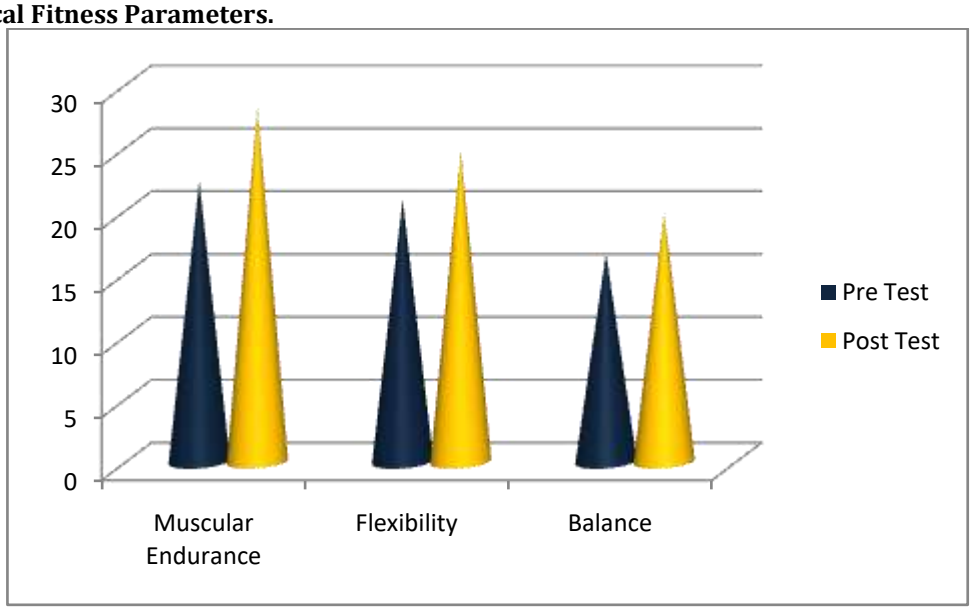
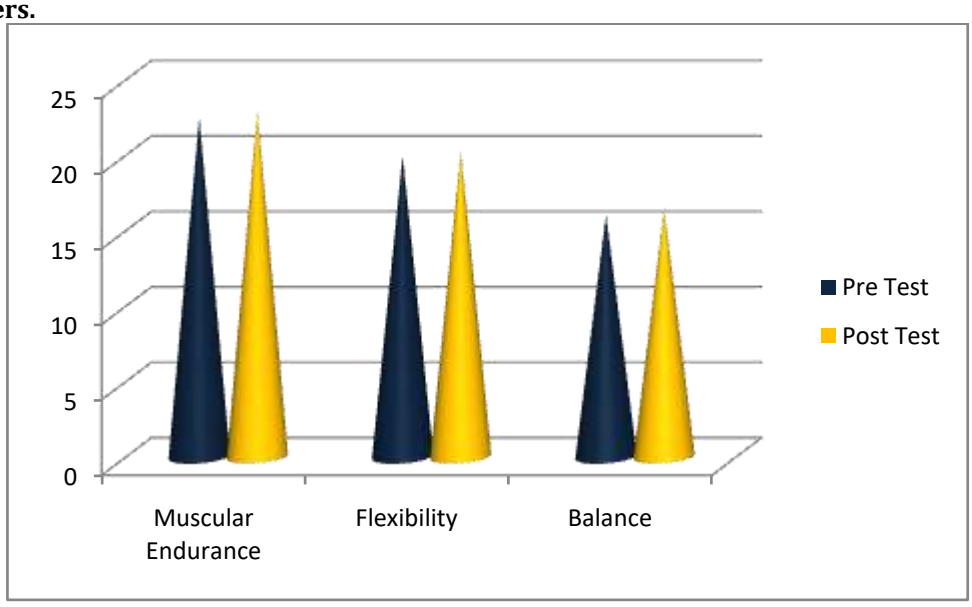


Figure 2

Bar diagram showing the pre, post means values of Control group (CG) on Physical Fitness Parameters.



III. DISCUSSION FINDINGS:

The present study experiment the effect of weight training on physical fitness parameters of college level men handball players. The result of the study indicated that the weight training improved the physical fitness parameters such as muscular endurance, flexibility and balance.

The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the muscular endurance, flexibility and balance was significantly improved of subject in the group may be due to the in weight training [17]. Reported that six weeks impact of Plyometric training, the group improved significantly on all functional fitness components [18]. Showed that significant improvement in all the selected physical variables namely agility, explosive power, muscular strength endurance and flexibility among handball players [19]. Evaluated that aerobic exercise has positive effect on improvement of cardiovascular endurance, muscular strength, muscular strength and flexibility.

IV. CONCLUSIONS:

1. There was a significant improvement takes place on selected physical fitness parameters due to the effect of six weeks weight training of college level men handball players.

2. There was a significant difference exists between experimental and control groups on selected fitness parameters such as muscular endurance, flexibility and balance of college level men handball players.

Author Contributions:SJAC and DT designed the concept and conducted the study comple the raw data, does statistical analysis, generate the results and drafted the manuscripts. All authors have read and agreed to the published version of the manuscript.

Funding: The research received no funding or support from any of the agencies

Conflicts of Interest: The authors declare no conflict of interest.

Ethical approval: Not applicable

Availability of data: All available data has been presented in the study.

Acknowledgments: Authors wish to thank Dr.R.Mohanakrishnan, Associate Director of Sports, HOD, Department of Physical Education and Sports Sciences, College of Science and Humanities, Kattankulathur, Chengalpattu, Tamilnadu, India for his support towards research.

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