



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2018; 3(1): 241-243

© 2018 Yoga

www.theyogicjournal.com

Received: 12-11-2017

Accepted: 13-12-2017

**Sunita Rani**

Assistant Professor,

Department of Physical

Education, Hindu Girls College,

Sonepat, Haryana, India

## A study on the relation of muscular strength and endurance of arms and shoulders of baseball players through circuit weight training

**Sunita Rani**

### Abstract

The purpose of the present study was to see the effects of Circuit Weight Training on Muscular Strength and Endurance of Baseball players. To achieve this purpose 24 Baseball Female Players of Hindu Girls College, Sonapat, were selected. The selected players were having at least District Level participation in Baseball. The age ranged between 18 to 25 years. The selected subjects were divided into two equal experimental groups:- CWT (Circuit Weight Training) group and CG (Control Group). The CWT group underwent special circuit weight training and control group didn't participate in any special training apart from their regular activities. The data was collected prior to and after the training programme of 8 weeks. Muscular strength and endurance of arms and shoulders were chosen as criterion variable and paired t test was computed to find out the significance difference, if any, between means of pre and post-test score.

**Keywords:** Yoga, pranayama, aged women, breath holding capacity, vital capacity

### Introduction

Baseball is strength dominating game especially hitting demands more strength. Strength training has been proved effective for youth of all ages (Faigenbaum *et al* 1993) <sup>[3]</sup>. He observed positive effects on 10 years old boys after two months resistance training. At present, competitions are challenging and competitive in nature, thus greater strength is required to meet the demand of competition. But it is possible only through scientific, organized and planned training. Training load with sufficient Intensity, Frequency and duration is necessary to bring measurable effects. So it is necessary to provide workload larger than regularly encountered during everyday life. Muscular strength is used in creation or prevention of movement in one maximal effort of a muscle group, Devender K. Kansal (1996) <sup>[2]</sup>. The duration for which an individual can apply muscular strength until exhaustion is called muscular strength.

**Circuit Training**, this method was invented by Adamson and Morgan in 1957, is a form of body conditioning or resistance training with or without apparatus. In this training, an attempt is made to find out the effects of Circuit Weight training on muscular strength and endurance of Baseball players.

### Methodology

During the training period, the CWT group underwent special training programme for 3 days a week for eight weeks. Training programme was scheduled in morning session for approx sixty minutes. Prior to every training session subjects were given fifteen minutes warm up including Jogging, Stretching and mobility exercise. After training session one fifteen minutes relaxation was given to subjects. Muscular strength and endurance of arms and shoulders was measured using flexed arm hang test and the total time (in seconds) for holding the position was counted as score of the subjects. The detailed Circuit Weight training programme was:

**Correspondence**

**Sunita Rani**

Assistant Professor,

Department of Physical

Education, Hindu Girls College,

Sonepat, Haryana, India

Sr. No.	Exercise	Intensity	Duration	Repetition (1-3 week)	Set	Recovery period in between sets
1.	Lat Pull Down	50%	30 Sec	10	2	3 Min
2.	Bench Press	50%	30 Sec	10	2	3 Min
3.	Back Extension	50%	30 Sec	10	2	3 Min
4.	Skipping	50%	30 Sec	10	2	3 Min
5.	Barbell Curl	50%	30 Sec	25-30	2	3 Min
6.	Push Ups	50%	30 Sec	5	2	3 Min
7.	Burpees	50%	30 Sec	10	2	3 Min
8.	Shoulders Press	50%	30 Sec	10	2	3 Min

Sr. No.	Exercise	Intensity	Duration	Repetition (4-6 week)	Set	Recovery period in between sets
1.	Lat Pull Down	60%	40 Sec	10	2	3 Min
2.	Bench Press	60%	40 Sec	10	2	3 Min
3.	Back Extension	60%	40 Sec	10	2	3 Min
4.	Skipping	60%	40 Sec	10	2	3 Min
5.	Barbell Curl	60%	40 Sec	25-30	2	3 Min
6.	Push Ups	60%	40 Sec	5	2	3 Min
7.	Burpees	60%	40 Sec	10	2	3 Min
8.	Shoulders Press	60%	40 Sec	10	2	3 Min

Sr. No.	Exercise	Intensity	Duration	Repetition (7-8 week)	Set	Recovery period in between sets
1.	Lat Pull Down	60%	40 Sec	10	3	3 Min
2.	Bench Press	60%	40 Sec	10	3	3 Min
3.	Back Extension	60%	40 Sec	10	3	3 Min
4.	Skipping	60%	40 Sec	10	3	3 Min
5.	Barbell Curl	60%	40 Sec	25-30	3	3 Min
6.	Push Ups	60%	40 Sec	5	3	3 Min
7.	Burpees	60%	40 Sec	10	3	3 Min
8.	Shoulders Press	60%	40 Sec	10	3	3 Min

**Flexed armed Hang Test Results of CWT and CG Groups**

**Table 1.1**

	N	Mean		SD		t Value
		Pre	Post	Pre	Post	
CWT Group	12	8.83	12.08	0.27	0.23	18.112
CG Group	12	8.67	9.08	0.31	0.38	-2.158

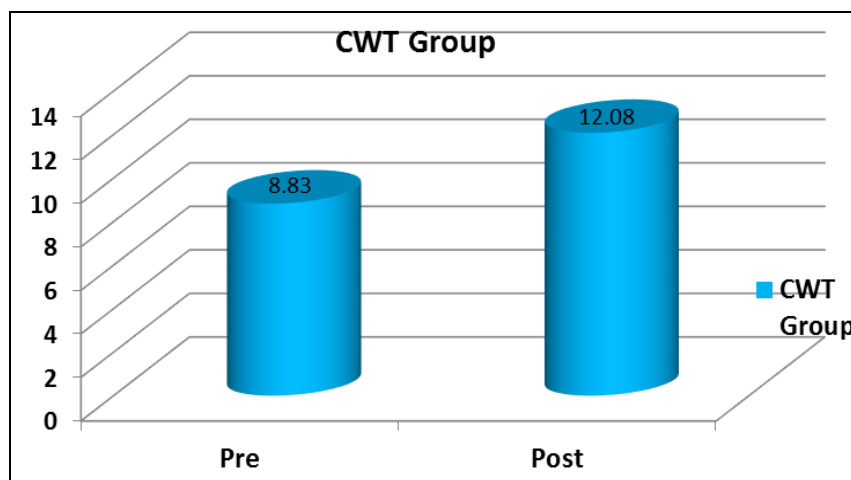
df =11(2.201)

Level of Significance 0.05

Table 1.1 Indicates that the mean scores of CWT Group for pre and post-test for flexed arm hang are 8.83 and 12.08 respectively. SD scores of CWT Group for pre and post-test for flexed arm hang are 0.27 and 0.23. Calculated t value for CWT group is 18.11, which is larger than the Critical value (2.201) at df 11. So there is significant difference between pre

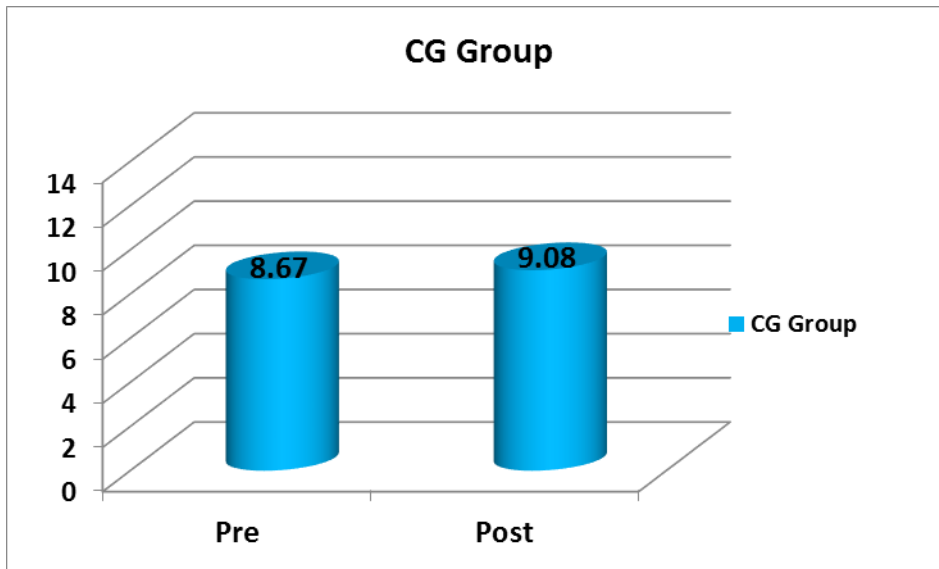
and post-test mean scores of CWT group which shows significant improvement in muscular strength and endurance of arms and shoulders of Baseball Female Player. The mean scores of CG Group for pre and post-test for flexed arm hang are 8.67 and 9.08 respectively. SD scores of CG Group for pre and post-test for flexed arm hang are 0.31 and 0.38. Calculated t value for CG group is -2.158, which is lesser than the Critical value (2.201) at df 11. So no significant difference exists between pre and post-test mean scores of CG group which shows No significant improvement in muscular strength and endurance of arms and shoulders of Baseball Female Player.

**Graph 1.1: Comparison of Pre and Post test scores of CWT Group**



**Graph 1.1** Pre and Post test scores clearly shows the increased muscular strength and endurance of arms and shoulders of Baseball Female Players of CWT Group.

**Graph 1.2: Comparison of Pre and Post test scores of CG Group**



**Graph 1.2:** Pre and Post test scores clearly shows that muscular strength and endurance of arms and shoulders of Baseball Female Players of CWT Group was not significantly increased.

It was hypothesized that there will be no significant difference between pre and post test scores of CWT and CG group. But results shows that highly significant difference exists between post-test score CWT group and no significant difference exists between CG Group for flexed arm hang performance. Muscular strength and endurance of arms and shoulders was significantly increased after 8 weeks of circuit weight training in CWT Group.

### **Conclusion**

Significant difference exists between pre and post test scores CWT group. So it is clear that Circuit Weight Training is beneficial to improve muscular strength and endurance of arms and shoulder, which plays vital role in Baseball game including hitting and throwing of Baseball. No significance differ exist between pre and post-test score of CG group.

### **References**

1. Uppal AK. Principles of sports Training. Friends Publication. 2001, 60-61.
2. Dr. Devender K Kansal. Book on Test and Measurement in Sports and Physical Education. D.V.S Publication, New Delhi. 1996, 122-123.
3. Faigenbaun A, Zaichkowsky L, Westcott W, Micheli Z, Fehlandt A. Effects of a twice a week strength training programme on children, *Pediatric Exercise Science*, 1993; 5:339-346.
4. Hardy Singh. Science of sports training. D.V.S Publication, New Delhi. 1991, 3.
5. Morgan and Adamson, *Circuit training* (London: Bells and sons) as cited by Maxwell I. Howell James, Thimas Sokson, effect of Circuit training on the modified Harvard step test, *Research Quarterly*, 1963; 34,154.
6. Schmidt D, Anderson K, Graff M, Strutz V. The effects of high intensity Circuit training on physical fitness. *Journal of sports Medicine and Physical Fitness*. Epub. 2016, 56(5).