

Effect of Circuit Training for development of Explosive Power among Female Volley Ball, Basket Ball and Hand Ball Players of Social Welfare Degree Colleges in Telangana State

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Abstract

The purpose of the study was to find out the effect of Effect of Circuit Training for development of Explosive Power among Female Volley Ball, Basket Ball and Hand Ball Players of Social Welfare Degree Colleges in Telangana State. The subjects (N=120) were divided into four groups of 120 female sports persons at random i.e. Volleyball Basketball and handball Players. The groups were designed as experimental Group I circuit training (volleyball players), GroupII circuit training group (basketball players), Group III circuit training group Handball players), and GroupIV acted as control group (CG). A pre-test was conducted for all the 120 subjects on selected physical fitness variable such as explosive power. The experimental group participated in Circuit Training for twelve weeks. The control group did not participate in any of the training programs. After twelve weeks, all four groups underwent the post-test on the dependent variables. The variations between the initial and final tests were considered as the effects of various treatments by using the Standing Broad Jump Test. To test the statistical significance of the differences, ANCOVA was employed. From the above clearly shows that standing broad jump is increased in Volleyball, Basketball, and Handball players whereas the control did not improve from pre-test to post-test. Key Words : Explosive Power, Circuit Training,

Introduction :

Circuit Training is developed by the Scientist Morgan R.E. and Adamson G.T. at University of Leeds in the year 1957. This is Resistance to develop the motor abilities such as strength, Speed and endurance. Circuit training is a exercise "circuit" which consists of prescribed exercises which includes for the upper body, lower back, abdomen and Lower body. It can be done with own body Weight and using the resistance exercises such as Barbells, Medicine Balls etc.

Circuit training has become increasingly popular with regular gym-goers; the reason being, that it provides a one-stop exercise session, combining cardiovascular activity, toning and resistance training. There have been several reports recently, about the many benefits an individual can derive from attending circuit training even just once or twice a week. Studies have concluded that, depending on the structure and balance of the session, one can dramatically improve the fitness level by taking part in circuit training exercises. The key to success lies in the formula of performing a set of exercises quickly and in rotation. The effectiveness of a circuit training session depends on several factors: Length of intervals between circuits. The number of circuits performed. The number of workout stations. The time spent at each station (60 seconds has been suggested as ideal). The intensity and speed at which each activity is performed. Whether rests are included between circuits. On this subject, there are mixed views. It is best to take into consideration the individual fitness level. Circuit training improves all round physical fitness, as opposed to fitness for a specific sport. A sportsman training for his activity, therefore, would be foolish to depend entirely on circuit training. However, skill related circuits can easily be implemented into every session. It must be recognized that only through work (assuming adequate rest and nutrition are taken) can a muscular and respiratory system be improved upon. Endurance training for which circuit training is a firm base to work from, must be regular and sustained over a long period. Starting at a low level, appertaining from the standard of the class or individual, intensity should be gradually increased, with a progressive load being placed on the cardiovascular system.

Circuit training is designed to develop cardio-respiratory endurance as well as flexibility, strength and muscular endurance in essential muscle groups. It is an efficient training method in terms of gain made in the shortest time.

Prof. Rajesh Kumar (2020) studied about the effect of Plyometric and Circuit Training on selected Physical Variables among Sprinters of Hyderabad District of Telangana State. To achieve this purpose, forty five Sprinters in the age group of 16 to 20 years those who have participated in the Hyderabad Open Sprints Athletics Championships at Gachibowli Stadium, Hyderabad for the year 2019 taken as subjects. The selected forty five subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which

group – I (n=15) underwent plyometric training for three days per week for Twelve weeks, group – II (n=15) underwent the Circuit Training for three days per week for Twelve weeks and group – III (n=15) acted as control who are not participate any training apart from their regular activities. The selected Physical variables such as abdominal strength, speed and leg explosive power were assessed before and after the training period. Sit Up Test, 50 M Dash and Standing Broad Jump are the Tests were used to conduct the pre test and post for Measuring the Physical Variables such as Abdominal Strength, Speed and explosive power of legs. The results of the study it was found that there was a significant difference of performance due to Plyometric and circuit training when compared with the control group.

Abraham D. Samson, Dr. D. Jim Reeves Silent Night, Arumugam Subramani (2020) Studied The Effect Plyometric Training On Explosive Power Among College Students. Twenty Four Volleyball Players From Thoothukudi District, Tamilnadu, India Were Selected Randomly As Subjects. The Age Of The Subjects Has Been Ranged From 19 To 25 Years. The Selected Subjects Were Divided Into Two Groups. Group I Underwent Plyometric Training And Group Ii Acted As Control. The Experimental Group Was Subjected To The Plyometric Training For Alternative Three Days For Up To Six Weeks. The Plyometric Training Was Selected As Independent Variable And The Criterion Variables Horizontal And Vertical Explosive Power Were Selected As Dependent Variables And The Selected Dependent Variables Were Assessed By The Standardized Test Items. Horizontal Explosive Power Was Assessed By Standing Broad Jump Test And The Unit Of Measurement Is In Centimeters, And Vertical Explosive Power Was Assessed By Vertical Jump Test And The Unit Of Measurement Is In Centimeters. The Experimental Design Selected For This Study Was Pre And Post Test Randomized Design. The Data Were Collected From Each Subject Before And After The Training Period And Statistically Analyzed By Using Dependent-'T' Test And Analysis Of Covariance (Ancova). It Was Found That There Was A Significant Improvement And Significant Different Due To The Effect Of Plyometric Training On Horizontal And Vertical Explosive Power.

Methodology:

The Purpose Of The Study Was To Find Out The Effect Of Effect Of Circuit Training For Development Of Explosive Power Among Female Volley Ball, Basket Ball And Hand Ball

Players of Social Welfare Degree Colleges in Telangana State. The subjects (N=120) were divided into four groups of 120 female sports persons at random i.e. Volleyball Basketball and handball Players. The groups were designed as experimental Group I circuit training (volleyball players), Group II circuit training group (basketball players), Group III circuit training group Handball players), and Group IV acted as control group (CG). A pre-test was conducted for all the 120 subjects on selected physical fitness variable such as explosive power. The experimental group participated in Circuit Training for twelve weeks. The control group did not participate in any of the training programs. After twelve weeks, all four groups underwent the post-test on the dependent variables. The variations between the initial and final tests were considered as the effects of various treatments by using the Standing Broad Jump Test.

The following Tests were conducted at In Pre Test and Post Test for measuring explosive power.

1. Standing Broad Jump – Explosive Power of Leg

Results and Discussion:

The data collected prior to and after the experimental periods on leg explosive power for Circuit Training Volley Ball Group, Circuit Training Hand Ball Group, Circuit Training Basket Ball Group and Control Group were analyzed and presented in the following table -I. Table – 1 showing the Values of Circuit Training Volley Ball Group, Circuit Training Hand Ball Group, Circuit Training Basket Ball Group and Control Group.

STANDING BROADJUMP(M)	N	Pre-test		Post-test		Mean Var	value oft-cal	Critical Value	df	Sig .(2-tailed)
		Mean	S. D	Mean	S. D					
Volleyball	30	1.5950	0.121	1.7057	0.111	0.11	14.51	2.045	29	0.000
Handball	30	1.6537	0.099	1.7623	0.084	0.11	14.58		29	0.000
Basketball	30	1.5967	0.113	1.7007	0.085	0.10	12.77		29	0.000
Control	30	1.5830	0.116	1.5827	0.113	0.00	0.14		29	0.891

From the above test for the variable regarding standing broad jump of the selected sample. In Volleyball, the pre-test mean is 1.5950 with 0.121S.D and post-test mean is 1.7057 with 0.111S.D. The

critical value at 29 degrees of freedom is 14.51, which was determined through the paired 't' test. The difference between the pre- and post-test means is 0.11. For the standing broad jump in volleyball, the comparison between the pre- and post-test is quantitatively significant at the level of 5% significance. Difference between pre- and post-tests is plainly visible., hence the circuit training program is effectively affected among Volleyball female players.

Similarly for Handball, the pre-test mean is 1.6537 with 0.099 S. D, whereas the post mean is 1.7623 with 0.084 S.D. The Calculated value of 't' is 14.58 which is more significant than the critical value at the 29 degrees of freedom at $p=0.000<0.05$. both the pre- and post-test mean difference is 0.11. The Statistics show that the difference between the pre- and post-tests is significantly seen for the standing broad jump in hand ball at 5% level of significance. Hence the circuit training program is effectively affected among Handball female players.

For basketball, pre-test mean is 1.5967 with 0.113 S. D, whereas the post mean is 1.7007 with 0.085 S.D. The calculated value of 't' is 12.77 which, at $p=0.000>0.05$ and 29 degrees of freedom, exceeds the critical value. The pre- and post-test averages differ by 0.10 on average. For the standing broad jump in basketball, the comparison between the pre-test and post-test is statistically significant at the 5% level of significance. The basketball difference shown in the post test, which means the circuit training program is effectively affected among Basketball female players.

The control, pre-test mean is 1.5830 with 0.116 S. D, whereas the post mean is 1.5827 with 0.113 S.D. The computed 't' value, 0.14, is less than the critical value at the 29 degrees of freedom, where $p=0.938>0.05$. The mean difference between the pre-test and post-test is 0.00. For the standing broad jump, the comparison of the pre-test and post-test of the control was statistically insignificant, indicating a modest improvement between the two times.

RESULTS

From the above clearly shows that standing broad jump is increased in Volleyball, Basketball, and Handball whereas the control did not improve from pre-test to post-test due to the Circuit Training.

CONCLUSIONS

From the analysis of the data, the following conclusion were drawn.

There was a significant improvement due to the Circuit training on female Volley Ball Players, Female Basket Ball Players and Female Hand Ball Players.on explosive power when compared with the control group.

References:

Prof. Rajesh Kumar (2020) Effect of Plyometric and Circuit Training On Selected Physical Variables among Sprinters of Hyderabad District of Telangana State, IOSR Journal of Sports and Physical Education (IOSR-JSPE) e-ISSN: 2347-6737, p-ISSN: 2347-6745, Volume 7, Issue 2, (Mar –Apr 2020), PP 55-57

Abraham D. Samson, Dr. D. Jim Reeves Silent Night, Arumugam Subramani(2020) , Effect Of Plyometric Training On Explosive Power Among Volleyball Players,Journal Of Information And Computational Science,Online Issn: 1548-7741 10(9):416-421

Taşkin (2009), “Effect Of Circuit Training On The Sprint-Agility And Anaerobic Endurance”, J Strength Cond Res, 23:6, (2009), 1803 – 1810. State Of Nigeria