



## **EFFECT OF SPECIFIC CIRCUIT TRAINING PROGRAM ON THE SELECTED PHYSICAL FITNESS VARIABLES AND VERTICAL JUMP SHOT PERFORMANCE OF INTER COLLEGIATE BASKETBALL WOMEN PLAYERS**

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**Abstract:** Physical fitness is not only one of the most important keys for a healthy body, but it is also the basis for dynamic and creative activity. Healthful living implies freedom from disease, enough strength, endurance, skill, agility, capacity to meet the daily demands and sufficient reserves to meet extra ordinary stresses without undue fatigue, besides mental development and emotional balance according to the maturity level of the individual. The purpose of the present study to find out the effect of Specific Circuit Training Program On The Selected Physical Fitness Variables And Vertical Jump Shot Performance exercises for the development of physical fitness ability among basketball players. The sample for the present study consists of 80 female basketball players out of which 40 are experimental group and 40 are controlled group. Circuit Training exercises are given four times a week for 12 weeks for experimental group and controlled group were given general training of Basketball game. The data was collected in the beginning and at the end of 12 weeks of training, in the selected physical fitness variables (Muscular endurance, Explosive power, Flexibility, Speed and agility) and in vertical jump performance. Analysis of covariance was applied for statistically analyze data and the hypothesis were tested for significance at 0.05 level. To assess the Physical fitness Pre Test and Post Test were conducted on Tuck Jump, Split Jump , lunge to High jump , Broad Jump Vertical Jump and Free vertical Jump to assess the physical fitness for both the groups. Physical fitness is one of the most important things in life and one of the most valuable assets one can ever have Most basketball players are relatively strong and sturdily built. Their workouts include various Circuit training exercises to develop the Physical fitness.

**Keywords:** Circuit Training , Physical Fitness Variables , Vertical Jump ,Basketball Players.

### **INTRODUCTION:**

A success of any sports and games can be accredited to many factors, but training is the one of the most important factor. Different training methods have been commonly used to improve physical fitness and related standards of performance of athletes. High level of health and fitness are very vital aspect for sports men performance. Fitness emphasizes on the state in which an individual has sufficient energy to avoid fatigue and give best in his event. Sport training is long, continuous, and systematic process or physical and mental hard work, to attend high level of performance in competitions at various levels by making the best use of the principles derived from the sports sciences (Singh Hardayal, 1993). Fitness is a state of happiness that comprises sports and health related components. Sports men experience various types of training to improve their performance and physical fitness.

Sport training is a subject of great importance in physical Education. It has developed to a high level in the western countries. Sports have become an important social and cultural activity of the modern world which is being given the rightful place it deserves by the nations and societies of the world. The contribution of sports towards the overall welfare of the human society. **Training:** means process of preparation for some task. This process invariably extends to a of days, months or sometimes



longer duration .**Method:** means manner of doing something in a Systematic i.e. organization of produce. Training is an education process .It aims at improving the sports performance as well as education of the sports man. High sports performance though training can be achieved by a scientific use of training means .Training means are various physical exercise and other object, methods and procedures which are used for the improvement, maintenance and recovery of capacity and performance readiness. Each training method has its own specific on the performance capacity. The effect may be director indirect. Physical exercises have a direct on performance capacity. In training methods the basic of classification of physical exercise is the comparison of load caused by the exercise with the actual load during the competition for this comparison two parameters are used i.e. load structure of exercise and performance structure of exercise .In training the sportsmen to improve the optimum level of performance the following methods are used.

Circuit Training develops All-round strength and endurance capacity. It is a form of performing various exercises in a group continuously in a series of sets, with prescribed interval between sets. The variables here are the number of different exercises in a circuit, the number of repetition in each set. An additional refinement is placing a time limit on a given number of repetitions and an overall time for a full circuit. Circuit training is best done in Gymnasium or in sports hall where you can move easily from one exercise to another, each already set up in its own area .In this general and specific training programme can frame to improve technical and tactical efficiency of the individual.

The simplest method to measure an athlete's vertical jump is to get the athlete to reach up against a flat wall, with a flat surface under their feet (such as a gym floor or concrete) and record the highest point they can reach flat-footed (the height of this point from the ground is referred to as "standing reach").

**STATEMENT OF THE PROBLEM:** The purpose of the study “Effect Of Specific Circuit Training Program On The Selected Physical Fitness Variables And Vertical Jump Shot Performance Of Inter Collegiate Basketball Women Players”.

### **OBJECTIVE OF STUDY:**

1. To find out the effect of Specific Circuit Training on physical fitness variables and Vertical jump Shot performance of Inter collegiate women Basketball Players.
2. To find out the impact of selected exercise in circuit training will have better effect on physical fitness and Vertical jump shot performance of Inter collegiate women Basketball players.

### **METHODOLOGY :**

The study has been conducted on Female Students studying in Affiliated Colleges Inter Collegiate Basketball Women teams in Acharya Nagarjuna University , are between 18-24 years. Students were divided in to 2 groups Experimental group (6 days per week , Morning section duration time 45 min ), and control group consisting of 40 students each. The data was collected in the beginning and at the end of 12 weeks of training, in the selected physical fitness variables (Muscular endurance, Explosive power, Flexibility, Speed and agility) and in long jump performance. Analysis of covariance was applied for statistically analyze data and the hypothesis were tested for significance at 0.05 level.



## **VERTICAL JUMP:**

### **Standing Approach**

**Measure Your Reach** - Walk through the Vertec device with your arm reaching as high as you can. Keep your arm tight to your ear as you walk through. Do this twice to assure the most accurate reading. Record the height of your reach.

**Load and Explode** - Jump off of two feet to start with and see which bar you can reach. You can do this multiple times. Do NOT take any steps with this standing approach. Remember, snapping down QUICK will help you get more height on your jump!

**Calculate Your Jump** - Subtract your reach from the height you jumped. This number is your vertical leap from a standing approach.

### **Full Approach (Max Vertical Approach)**

**Measure Your Reach** - Walk through the Vertec device with your arm reaching as high as you can. Do this exactly as you did for the standing approach. Then, record the height of your reach.

**Max Vertical Approach** - For the max vertical approach, you can take as few or as many steps as you think necessary to reach your maximum jumping height. You may be more comfortable with one or two steps, or you may choose a 5-15 yard running start. The idea is to find your maximum vertical so try several methods and choose what works best for you and as many attempts as you want.

**Calculate Your Jump** - Subtract your reach from the height you jumped. This number is your vertical leap from a full approach or max vertical approach.

For most athletes, your highest vertical leap will come from the full approach. The speed of the approach will help you jump higher... to a certain point. Your body must be able to control this speed and use the energy to help create a maximum vertical leap. Too much speed begins to have a negative effect on your maximum vertical leap.

### **Vertical Jump Test (Without Equipment)**

So maybe you don't have the Vertec System to help measure your vertical leap. This is absolutely no problem. A couple tweaks to what you do and you are on your way to establishing a baseline for your vertical leap.

Let's walk you through step-by-step how to do the same vertical jump tests without equipment.

**Start** - Find a tall wall to use. If you can't find an indoor wall that is tall enough for you, simply use the exterior wall of a building.



**Tape** - Take some double sided tape, or roll a piece of tape into a ball and very lightly stick it to the tip of your middle finger (another option is to use chalk on the tip of your finger).

**Reach** - You need to establish the height of your reach. To do this, reach as high as you can, keeping your arm tight to your ear and reach your hand up to the wall. As you do this, touch the wall and allow the tape to stick to the wall. You now have established your reach.

**Standing Approach** - You are now ready to find your vertical jump by using the standing approach from above. Use tape on your middle finger to mark the wall with the height of each jump. After you have your best jump, use a tape measure or yardstick to measure the difference between the two. You now have established what your standing vertical jump is.

**Full Approach (Max Vertical Leap)** - Apply tape to your middle finger for each jump. Take as many or as few steps as you require to reach your maximum height. You may also take as many attempts as necessary. The goal is to find your maximum vertical leap through this test. Once you have your best jump, use the tape measure to measure the difference between the tape that marks your reach and the tape that marks your maximum vertical leap. The difference between the two is your mass vertical jump.

#### Circuit Training Program

S.no	Training Programme	Warm Up	Duration per each station	Interval Between sets	Sets per Day
1	On the spot run with high knee action	10Min	60 sec	2 Min	1 – 4 Weeks sets  3  5 – 8 weeks 4 sets  8 – 12 weeks 5Sets
2	Trunk Bending				
3	Jump and toe touch				
4	Step-ups				
5	Tuck Jump				
6	Sit-ups				
7	Split Jump ,				
8	Wall Dips				
9	lunge to High jump				
10	Opposite toe touching				
11	Broad Jump				



12	Free vertical Jump				
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**Collection of data**

S.No.	Variables	Tests	No. of Trails	Score-Units
<b>I</b>	<b>Physical Variables</b>			
1	Speed	30 Mts run	3 Trails	In Sec
2	Agility	5 x10 Mts run	3 Trails	In Sec
3	Flexibility	Bend And Reach	1Trail	In Cm
4	Explosive Strength	Tuck Jump	3 Trails	No of jumps (1 Min)
5	Endurance	Sit Ups	1 Trail	No.of Sit Ups(1Min)
<b>II</b>	<b>Jump Shot Performance</b>	Vertical Jump	3 Trails	In Inches

The above table explained with the help of which test which variables data was collected.

**STATISTICAL TECHNIQUE**

The statistical techniques Analysis of covariance was (ANACOVA) used to find out the effect of circuit training programme on selected physical fitness components and jump Shot performance among college women basketball players. Pretest and post-test data were collected on variables. (ANACOVA) analysis of covariance was used to find out the significant mean difference resulting from the circuit training. All the hypotheses were tested for significance at 0.05 level.

**Table -1: Computation of ANCOVA Speed , Agility ,Flexibility, Explosive Strength And Endurance of Experimental group and Control group following table.**

S.No	Variables	Group	Test Mean		Sources of variance	df	MS		f Ratio
			Pre	Post			Pre	Post	
1	Speed	Exp.Group	6.95	6.07	Between sets	2	0.068	0.056	0.435*
		Con.Group	7.06	6.98	With in sets	87	0.132	0.112	42.087*
2	Agility	Exp.Group	11.82	10.76	Between sets	2	1.702	1.564	1.324*
		Con.Group	11.75	11.68	With in sets	87	2.687	2.654	35.432*
3	Flexibility	Exp.Group	20.4	23.2	Between sets	2	0.176	0.254	0.025*



		Con.Group	20.3	20.5	With in sets	87	2.786	2.765	17.342*
4	Explosive Strength	Exp.Group	16.8	24.6	Between sets	2	0.068	0.152	0.007*
		Con.Group	16.8	17.4	With in sets	87	0.765	0.792	54.564*
5	Endurance	Exp.Group	9.85	12.78	Between sets	2	0.321	0.653	0.324*
		Con.Group	9.87	9.76	With in sets	87	6.342	6.273	45.701*

\* Significant at 0.05 level

The above table clearly shows that there were significant difference of post-test of 30 Mts speed .Agility, Flexibility ,Explosive Strength and Endurance Dash of different groups, as the obtained ‘F’ value was significantly higher than the table value at 0.05level of significance.

Figures:

**Table 2: Computation of ANCOVA on Vertical jump performance of Experimental and Control group following table.**

S.No	Variables	Group	Test Mean		Sources of variance	df	MS		f Ratio
			Pre	Post			Pre	Post	
1	Vertical Jump	Exp.Group	29.95	36.07	Between sets	2	6.068	7.056	2.435*
		Con.Group	29.06	30.98	With in sets	87	6.132	6.182	1.087*

\* Significant at 0.05 level

The above table clearly shows that there were significant difference of post-test of Vertical – jump of different groups, as the obtained ‘F’ value was significantly higher than the table value at 0.05 level of significance.

**CONCLUSION**

With the help of the interpretation of data, the following conclusions were drawn from the study. There was significant difference between the experimental groups and control group in muscular strength and endurance, explosive power, speed, agility and Vertical jump Shot performance. Experimental group (with training in a 12 week) was better than control group in all physical fitness variables and in Vertical jump shots performance in the basketball computation . Experimental group is better than control group in all variables and in jump shot performance in basketball computation.

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