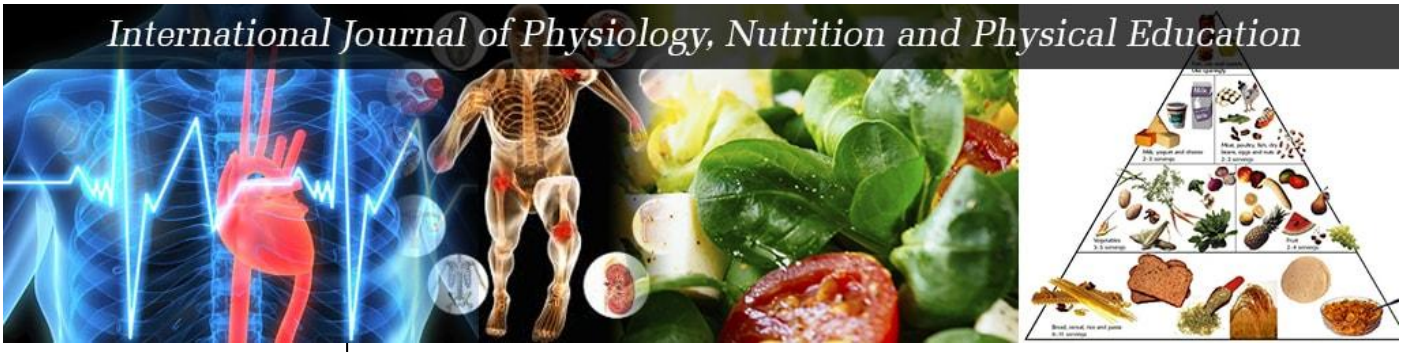

ISSN: 2456-0057
IJPNPE 2017; 2(2): 973-975

www.journalofsports.com
Received: 19-05-2017
Accepted: 20-06-2017

Monika Saini
J.V.M.R.R. College Charkhi Dadri, Physical Education Department, Haryana, India

Correspondence
Monika Saini
J.V.M.R.R. College Charkhi Dadri, Physical Education Department, Haryana, India

Effect of circuit training and aerobic exercises on lung capacity of gymnasts

Monika Saini

Abstract
The Present study was an attempt to find out effect of six weeks circuit training and six week aerobics exercise on gymnasts. A number of 60 female gymnasts of state level belonging to Rohtak Gymnastic Centre (Chotu Ram Stadium, Bal Bhawan gymnastic Centre) were selected as a sample on the basis of random sampling method. Experimental method has been used into this study. The selected groups have been divided into the three groups i.e. group A, B and C. A group has been given six week circuit training treatment. Group B has been given six week circuit training treatment. Group B has been given six weeks aerobics exercise and group C was control group. Lung capacity of the subject was measured by Spiro meter. Mean, standard deviation and 'Anova' test were used to analyses the data. The findings of the study revealed that there is a significant difference in Lung capacity among three groups of Gymnasts after six week training. The experimental group I (circuit training method) has better impact on the lung capacity on gymnasts as compared to control and experimental group 2(aerobic training method).

Keywords: Gymnasts, Lung Capacity, circuit training, aerobic exercises

Introduction
Sports is a social phenomenon by it helps the society to develop all necessary traits of personality these are required for the development of an individual. Sports are natural desire of human beings. physical and mental development of the children is promoted by sports, so inspiration for sports is quire natural. In modern society, sports have a very important role to play. Much of the attraction of the sports comes from the wide variety of experience and feeling that result from participation namely, joy, anguish, success, failure, pain, relief and a feeling of belonging. The sport of gymnastics, which derives its name from the ancient Greek word for disciplinary exercises, combines physical skills such as body control, coordination, dexterity, gracefulness, and strength with tumbling and acrobatic skills, all performed in an artistic manner. Gymnastics is performed by both men and women at many levels, from local clubs and schools to colleges and universities, and in elite national and international competitions.

Physical fitness is one component of total fitness of an individual. Total fitness is a result of the genetic makeup and the interaction with the environment. The totally fit individual is psychological stable, mentally alert, emotionally balanced and socially adjustable to different circumstances prevailing in the society. For successful motor sequence to achieve an accurate and efficient movement is needed whether it is a single effort as in a golf drive or a series of complex and rapidly changing movements as in basketball.

There is a significant impact of modern technology on human living. His muscles, upon which he used to rely entirely for survival, are now used for less and less with inevitable results. Many researchers in such divergent fields as medicine, psychology and physiology, however, attest to the fact that exercise with attendant development of fitness has far reaching effects on vital bodily) processes and upon the functional realization of one's growth and capabilities.

Physiology
Physiology is defined by dictionaries as "the science of the normal functions and phenomena of living things'.

Phys1olog1cal parameters may be defined as those parameters, which are directly linked with various physiological systems and may be voluntary or involuntary, such as pulse rate, hemoglobin: blood pressure and vital capacity etc.

Circuit Training

Circuit training was developed by R. E. Morgan and G. T. Anderson in 1953 at the University of Leeds in England (Sorani, 1966). The term circuit refers to a number of carefully selected exercises arranged consecutively). In the original format, 9 to12 station comprised the circuit. This number may vary according to the design of the program.

Aerobic Training

Aerobic fitness is a very important factor in growth and development during childhood and adolescence. It is also an important factor in the aging process. A high level of aerobic fitness during the growing years indicates good development of the muscles, bones, and cardio respiratory System. It is more important in this respect than body weight. In advanced age aerobic fitness provides a measure of how fit one is physiologically.

Lung Capacity

The maximum amount of air the lungs can inhale. Jogging and Running can increase the capacity but not likely more than 10 percent.

Significance of the study

The present study has taken into cons1deratIon a court game, Gymnast Court games arc unique in the sense they are played in a small area. It requires a high degree of short running and total body agility in order to gain good. Court position and compete with one's opponent on both offensive and defensive maneuver. Competition is a fundamental feature of any sport and it is one type of human behavior also. The proper physical development of young people is determined by the systematic performance of physical activities. Exercises performed by the elderly help to improve and sustain their health. The influence of different types of physical activity on body composition, muscle function, bones and joints is indisputable. It also shapes physical efficiency in different periods of ontogenesis. Much research has proven that appropriately selected physical activity decreases the risk of premature death and also helps prevent coronary artery diseases, high blood pressure, cancers and diabetes. Resistance training of inspiratory muscles can constitute one of the additional means support ng the circulatory-respiratory system of an athlete. Resistance exercise improves muscle mass, strength, and endurance and physical fitness. Circuit training and aerobic exercises are an excellent way to build strength and Stamina simultaneously. In addition, resistance workouts heighten body awareness, upgrade coordination, reduce body-fat levels, and improve self-esteem, all of which can contribute to improve performance of health and motor related.

Statement of the problem

Effect of circuit training and aerobic exercises on lung capacity of gymnasts

Objective

1. To compart the lung capacity among three groups of gymnasts after six weeks training.

Hypothesis

I. There will be no significant difference in lung capacity among three groups of gymnasts after six weeks training.

Sample

In the present study, 60 female gymnasts of state level belonging to Rohtak Gymnastic Centre (Chotu Ram Stadium, Bal Bhawan gymnastic Centre) were selected as a sample on the basis of random sampling method.

Method Used

The methodology of this study consisted of experimental method for testing the effect of circuit training and aerobic exercise on cardiovascular endurance of gymnasts. The selected groups have been divided into three groups i.e. group A, B and C. A group has been given six weeks circuit training treatment. Group B has been given six weeks aerobic exercise and Group C was control group.

Tool Used

Lung capacity of the subject was measured by spirometer.

Statistical Techniques

Mean Standard deviation and 'ANOVA' Tests were used to analyze the data.

Results

Descriptive Analysis

Table 1: Descriptive statistics of physiological variables of gymnasts before and after training treatment.

Physiological Variables	Groups	N	Before Treatment		After Six week Training	
			Mean	SD	Mean	SD
Lung Capacity	CT	20	102.95	7.12	106.75	4.64
	AT	20	103.25	8.25	108.55	4.69
	CG	20	102.40	4.98	102.55	3.61
	Total	60	102.86	6.81	105.95	4.96

Note: CT = Circuit Training
AT= Aerobic Training
CG = Control Group

Table 2: Mean standard deviation score of lung capacity among three groups of gymnasts after six weeks training.

	Category	N	Mean	Standard Deviation
Groups	Experimental group 1(Six Weeks Circuit Training)	20	106.75	4.64
	Experimental Group 2 (Six Weeks Aerobic Training)	20	108.55	4.69
	Control Group	20	102.55	3.61

Table 3: Anova Table of lung capacity among three groups of gymnast after six weeks training.

	Sum Of Square	DF	Mean Square	F	Significant Level
Between Groups	648.93	2	324.46	13.180	.000
Within Groups	1403.25	57	24.61		
Total	2052.18	59			

Significant at 0.01 level of significance

From table 3 it is evident that F value of 13.180 with DF (2, 57) is significant at 0.01 level of significance for the main effect six weeks training on gymnasts.

This means six weeks training have a significant independent effect upon lung capacity of gymnasts. Therefore, null hypotheses "There will be no significant difference in lung capacity among three groups of gymnasts after six weeks training" is rejected. Therefore, it can be said that there is significant difference among the three group. It means that various categories are not belonged to the same population with regard to their means scores. The significant mean difference in lung capacity among three groups ie. experimental group I, experimental group 2 and control group have been calculated by using post-hoc test and presented in table no.4.

Table 4: Post hoc table for the lung capacity among three groups of gymnasts after six week training.

Groups	N	Subset of Alpha =0.05	
		1	2
Experimental group 1(Six Weeks Circuit Training)	20	100.8500	
Experimental Group 2 (Six Weeks Aerobic Training)	20		106.7500
Control Group	20		108.5500
Sig.		1.000	.489

From the Post hoc comparison, it can be concluded that as regard 10 lung capacity, control group and experimental group 2 differed significantly with experimental group I. So it can be stated that experimental group I was found better in lung capacity as compared to gymnasts belonged to control group and experimental group 2 after six weeks training. It can also be concluded that experimental group I (circuit training) method has better impact on lung capacity on gymnasts as compared to aerobic training method.

Finding

It was found that there is a significant difference in lung capacity among three groups of gymnasts after six weeks training. The experimental group I (circuit training method) has better impact on lung capacity on gymnasts as compared to control and experimental group 2 (aerobic training method).

Discussion

The result reveals that the subjects given six weeks circuit training were found better in lung capacity, as compared to gymnasts belonged to control end experimental group 2. It shows the importance of circuit training method on lung capacity of gymnasts.

References

1. Akilan. Effect of basketball specific endurance circuit training on body composition and aerobic capacity of high school male basketball players, International Journal of Physical Education, Fitness and Sports. 20l4; 3(I):15-21.
2. Singh Nanda I, Kaur Jasveer. Lung Capacity and Body Mass Index between Physical Education and Non-Physical Education Students- A Comparative Study.international journal of Health. Physical education and computer Science in Sports, 2011; 4(1):1-4.
3. Vijayakumar N, Shenbagavalli A. Impact of circuit training on athletic performance of school boys, Star Phy. Ecln. 2014; 24(6):37-42.
4. https://en.wikipedia.org/wiki/Circuit_training
5. www.fitnesshealth101.com › Fitness › Cardiovascular