

## EFFECT OF SPECIFIC EXERCISES PROGRAMME ON ERYTHROCYTES AMONG ACTIVE PEOPLE

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### ABSTRACT

The body constantly changes based on the demands people place on it. The key to understanding the effects of cardiac exercise or cardiac training on the body is that the impacts can occur both in the short term and long term. The purpose of the study was to determine effect of cardiac exercise on erythrocytes count in human body. Total thirty male who are good class gym member of West Delhi were taken as subject for the purpose of the study. The chronological age of subjects was between 35 and 45 years. There are two group i.e. experimental group (N=15) and control group (N= 15). Experimental group exposed in treatment with different fitness equipment based on cardiac fitness machine and control group were not exposed in any type of fitness programme. The Pre-Post test design has been selected for collecting the data. The criterion variable was assessment of programme of cardiac exercise by using Erythrocytes Count Test in Lal Path lab of Delhi. The data was collected before and after the treatment. Dependent 't' test was computed to find out the effect of specific exercise programs on erythrocytes. There was significant difference found in case of experimental group (cardiac exercise) and no significant difference was found in case of control group on erythrocytes Count in the people of west Delhi.

### INTRODUCTION:

The body constantly changes based on the demands people place on it. The key to understanding the effects of exercise or physical training on the body is that the impacts can occur both in the short term and long term. Some changes are obvious. People build muscle mass, reduce fat over time and may find other changes like occur in the makeup of blood, specifically red blood cells called erythrocytes. The human body adapts to stress and change in its environment to increase its efficiency and chances for survival. It is no different with the stress of athletic training. The purpose according to the intensity of this exercise and activity places greater demands on the body for energy and oxygen. Changes in the cardiovascular system are some of the main ways in which the body copes with the added pressures. Cardiovascular (cardio) exercise refers to exercise that strengthens the cardiac and vascular system. Which can be continue in the presence of oxygen and exercise refers to exercise that lasts long enough to require oxygen via aerobic metabolism. Cardiac exercise uses large muscles. Erythrocytes or red blood cells carry oxygen to the cells through the network of arteries and capillaries in the circulatory system and also remove waste products such as carbon dioxide. Concentrations average 5.2 million red blood cells per milliliter of blood for men which vary in sedentary, active and athlete life style. Erythrocytes or red blood cells are constantly being produced and destroyed by the body.

### METHODOLOGY

A total of thirty male were taken for the purpose of the study and there were equally divided into two group i.e., experimental group and Control Group belonged to local people of west Delhi those who are the member of good class gym are served as the subjects for the study. The experimental group has exposed in exercise training and control group has not exposed in any training. The Pre-Post test design has been selected for collecting the data. The procedure for selection of the subjects was based on random sampling technique. The chronological average age of the subjects was 40 year. The experimental group got the treatment i.e. Cardiac exercise programme including exercise on machine like Treadmill (warm-up), Cross Trainer, Ark Trainer, Upright Bike, Recumbent Bike or Rowing Machine breathing and stretching for 45-50 minutes, control group which were not got any treatment during the experiment. The treatment was given to subjects for 45-50 minutes, 4 days a month for a period of 3 months. The data on the selected variables were collected before and after given the treatment with the help of Lal Path Lab of West Delhi. The data was collected before and after the treatment. In order to test the hypothesis of the study the criterion variables selected for the study was to determine the effect of specific cardiac exercise on selected physiological variables called erythrocytes count among active peoples. To determine the effect of Cardiac exercise, dependent 't' test was computed. The level of significance was set at 0.05.

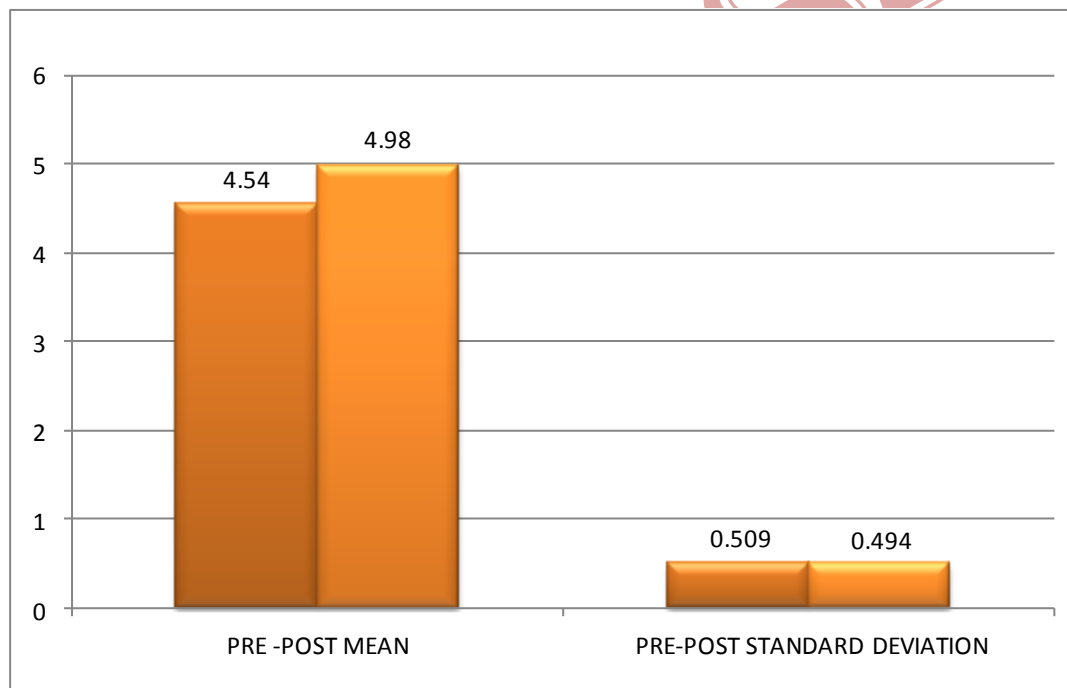
**RESULT**

**TABLE No. I  
COMPARISON OF PRE AND POST TEST MEAN OF ERYTHROCYTES  
COUNT OF EXPERIMENTAL GROUP**

Group	Mean	Standard Deviation	Standard Error	Mean Difference	t-value
Pre Test	4.546	.509	.509		
				.433	7.769*
Post Test	4.980	.494	.494		

\* Significant at 0.05 level significance  $t'_{(0.05)(14)} = 2.145$

Table-I show that there is significant difference between pre- post tests of erythrocytes of experimental group as calculated value t-ratio 7.769 is greater than tabulated t-value 2.14. Thus it can be said there was effect of three months of specific cardiac training programme on erythrocytes count of experimental group. Graphical representation of above table is presented in figure no. I.



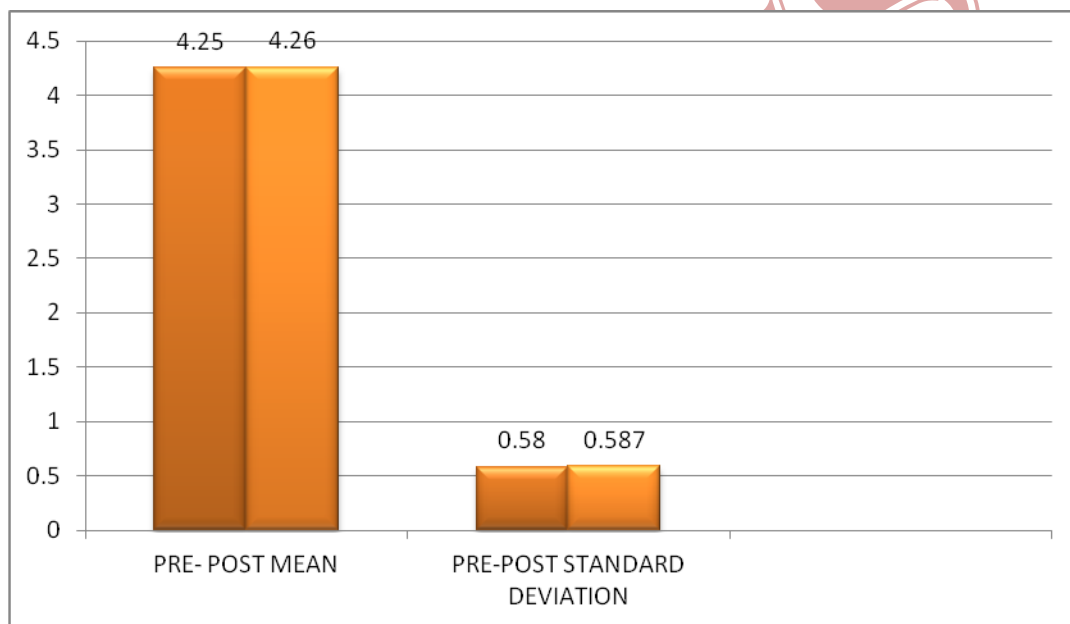
**Figure no. 01: Comparison of Mean and Standard Deviation of Pre- Post Tests of Erythrocytes of Experimental Group**

**Table No. II**  
**COMPARISON OF PRE AND POST TEST MEAN OF ERYTHROCYTES**  
**COUNT OF CONTROL GROUP**

Group	Mean	Standard Deviation	Standard Error	Mean Difference	t-value
Pre Test	4.25	.580	.58048		
				.0133	0.619
Post Test	4.26	.587	.58757		

\* Significant at 0.05 level of significance 't'  $(0.05)_{(14)} = 2.14$

Table-II show that there is no significant difference between pre- post tests of erythrocytes of control group as calculated value t-ratio 0.619 is lesser than tabulated t-value 2.14. Thus it can be said there was no effect of three months duration on erythrocytes of control group. Graphical representation of above table is made in figure no. II.



**Figure no. 02: Comparison of Mean and Standard Deviation of Pre- Post Tests of Erythrocytes of Control Group**

**DISCUSSION OF FINDING:**

The main findings of the present study were that the active individuals accustomed to regular cardiac exercise training combined with moderate intensity influence the adaptive response of active people by increases in erythrocytes of red blood cell counts. When the frequency of specific circuit training programme is moderate (4 days per week), a improvement in erythrocytes or red blood cells counts has been observed as Table-I show that there is significant difference between pre- post tests of erythrocytes of experimental group as calculated value t-ratio 7.769 is greater than tabulated t-value 2.14 and table-II show that there is no significant difference between pre- post tests of erythrocytes in case of control group as calculated value t-ratio 0.619 is lesser than tabulated t-value 2.14. Thus it can be said there was effect of three months of specific cardiac training programme on erythrocytes count of experimental group and there was no effect of three months duration on erythrocytes of control group.

Cardiac exercise can alter the number of red blood cells in several ways. Red blood cells carry oxygen and carbon dioxide through the bloodstream. In general, endurance training increases the number of red blood cells. Red blood cells, known as erythrocytes, contain a protein called hemoglobin; this protein binds both oxygen and carbon dioxide for transport through the body. When begin an endurance exercise program like specific cardiac exercise,

blood volume increases because erythrocytes are produced in bone marrow. Erythropoietin is secreted when oxygen levels are low. Moreover, most studies have not found elevated levels of erythropoietin with exercise. Another hypothesis is that growth hormones released during exercise may account for the change. Several mechanisms may contribute to this, including increases in body temperature during exercise and oxidative stress.

#### CONCLUSION:

The following conclusion has been drawn on the basis of present study:-

Specific Cardiac exercise programme significantly improves the volume of red erythrocytes in case of male.

Four to five days cardiac exercises for forty five minutes is sufficient for improving erythrocytes in human body.

Only daily routine can not significantly improve erythrocytes in human body.

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