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Effect of conditioning training programme of biochemical profile on blood cholesterol and creatinine of female athletes

Pawandeep Kaur and Dr. Nishan Singh Deol

Abstract

The present study was designed to determine the effect of six weeks conditioning training programme on biochemical profile of female athletes. Total forty seven (N= 47) female athletes from Punjabi University Patiala were selected to act as subjects for the present study. The study was conducted on university level female athletes, 21- 25 years of age group. Blood Cholesterol of the female athletes was assessed by using Chod –Pap (Cholesterol Oxidase - Phenol + Aminophenazone) method. On the other hand Creatinine of the female athletes was measured by Jaffe’s Method using Method. To effect biochemical profile of female athletes mean, standard deviation and paired t–test were employed. The level of significance choose in to test the hypotheses was 0.05, $P < 0.05$ accordingly; a online statistical software was used. Results of the study explicated statistically that there was significant difference in Blood Cholesterol. However, insignificant difference was found in Creatinine of female athletes.

Keywords: Blood cholesterol, creatinine, female athletes and biochemistry

Introduction

Biochemistry is combination of two sciences Biology and Chemistry. Biochemistry is derived of two words Bio & Chemistry. Bio means Life or Living things or Chemistry means chemical. Biochemistry is the study of the chemistry of life process. Since the discovery that biological molecule such a urea could be synthesized from nonliving components in 1828, scientists have explored the chemistry of life with great intensity. Through these investigations, many of the most fundamental mysteries of how living things function at a biochemical level have been solved. However, much remains to be investigated. As is often the case, each discovery raises at least as many new questions as is answers. Furthermore, we are now in age of unprecedented opportunity for the application of tremendous knowledge of biochemistry to problems in medicine, agriculture, anthropology, environment sciences and many others fields. We begin our journey into biochemistry with one of the most startling discoveries of the past century: the great unity of all living things at the biochemical level (Jeremy *et al.*, 2015) [3]. Conditioning training is a systematic process extending over a long period. For best results the system of training has to be based and conducted on scientific facts and lines. Where it is not possible to do that, the training has to be based on the results of successful practice. This has withstood the test of time. (Rachna, 2001) [6]. So researcher decides to focus on physiological aspect of conditioning training. In physiological aspect biochemical profile of any athlete is very important to concentrate, there are so many variables in biochemistry like blood glucose, blood urea, uric acid blood cholesterol etc. which can be monitor time to time to enhance the athletic performance. In this research paper only two biochemical variables has been selected from female athletes.

Blood cholesterol

Cholesterol is the most she incidence of the strong correlation between high levels of cholesterol in the blood and the incidence of human cardiovascular diseases. Cholesterol is very essential in molecule in many animals, including humans. A small fraction of the cholesterol made there is incorporated into the membrane of hepatocytes, but most of its exported in one of three forms: bile acids, biliary cholesterol or cholesterol esters.

The three forms of cholesterol exported from the liver is, a fluid stored in the gall bladder and excreted into the small intestine to aid in the digestion of fat containing meals (David and Nelson, 2013)^[1].

Creatinine

Creatine phosphate is the first energy storehouse tapped at the onset of contractile activity. Like ATP, creatine phosphate contains high – energy phosphate group, which can be donated directly to ADP to form ATP. A rested muscle contains about five as much creatine phosphate as ATP. Thus, most energy is stored in muscle in creatine phosphate pool. At the onset of contraction, when the meager reserves of ATP are rapidly used, more ATP is quickly formed by the transfer of energy and phosphate from creatine phosphate to ADP. Because only one enzymatic reaction is involved in this energy transfer, ATP can be formed (within fraction of a second) by using creatine phosphate. (Sherwood, 2012)^[7]. Investigated the purpose of this study to provide Living-related donor kidney transplantation has become an important way to overcome the shortage of renal source. This study examined to provide more evidence about the safety of living kidney transplantations. One hundred forty eight (148) living kidney transplantations were performed between 2000 and 2011. Living things kidney donors comprehensive before-and after-operation inspections, including serum creatinine blood test, blood urea, glomerular filtration rate and urine protein and were continued followed up after the operation. All One hundred forty eight (148) operations were performed successfully and none of the living things or human beings related donors dead, including fifty two (52) male and ninety six (96) female donors and with mean age of 49.8 years; one

hundred twenty (120) donors. The mean was 59.6 months. The hemoglobin (HGB) decreased and had significant differences on day one and week one compared with pre-operation HGB levels. The Blood urea level was increased significantly compared with pre-operation blood urea levels. Glomerular filtration rate increased after the operation. Our study suggests that renal function in living related kidney donors is not damaged after uninephrectomy Lu *et al.*, (2015)^[4].

Methodology

The presented study was conducted with the purpose to determine effect of six weeks conditioning training programme on biochemical profile of female athletes. The study was conducted on university level female athletes, 21-25 years of age group. Total Forty seven (N=47) female athletes from Punjabi University Patiala were selected to act as subjects for the present study. Effect of six weeks conditioning training programme on biochemical profile in consultation with the experts in the field, minutely gleaned through the literature available and considering the feasibility criteria in mind, especially the availability of instrument. The following components of biochemical profile were selected for the present study.

1. Blood Cholesterol
2. Creatinine

Blood Cholesterol of the female athletes was assessed by using Chod –Pap (Cholesterol Oxidase - Phenol + Aminophenazone) method. On the other hand Creatinine of the female athletes was measured by Jaffe’s Method using Method.

Table 1: Mean and standard deviation, standard error of mean and ‘t’ value of pre and post test of blood cholesterol

Group	N	Mean	Standard Deviation	Standard error mean	t-value
Pre test	47	127.21	22.92	3.34	3.0303*
Post test	47	140.13	28.51	4.16	

t.05 (46) = 2.01

The table & figure 4.4 reveals that the mean values of pre and posttest of blood cholesterol were recorded as 127.21 & 140.13 whereas the standard deviation was 22.92 & 28.51 respectively. The calculated t- value for pre and post conditioning training programme of athletes 3.0303*, which

is greater than the tabulated t- value (2.01) at .05 level of significance. So, it implies that there was significant difference found between pre and posttest value of blood cholesterol.

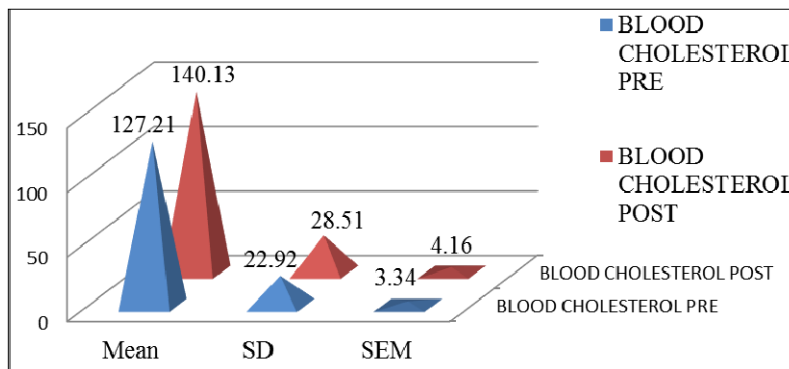


Fig 1: Mean and standard deviation, standard error of mean and ‘t’ value of pre and post test of blood cholesterol

Table 2: Mean and standard deviation, standard error of mean and ‘t’ value of pre and post test of creatinine

Group	N	Mean	Standard Deviation	Standard error mean	t-value
Pre test	47	0.668	0.164	0.02	1.3061
Post test	47	0.621	0.212	0.03	

t.05 (46) = 2.01

The table & figure 4.5 reveals that the mean values of pre and posttest of uric acid were recorded as 0.668 & 0.621 whereas the standard deviation was 0.164 & 0.212 respectively. The calculated t- value for pre and post conditioning training

programme of athletes 1.3061, which is less than the tabulated t- value (2.01) at .05 level of significance. So, it implies that there was insignificant difference found between pre and posttest value of creatinine.

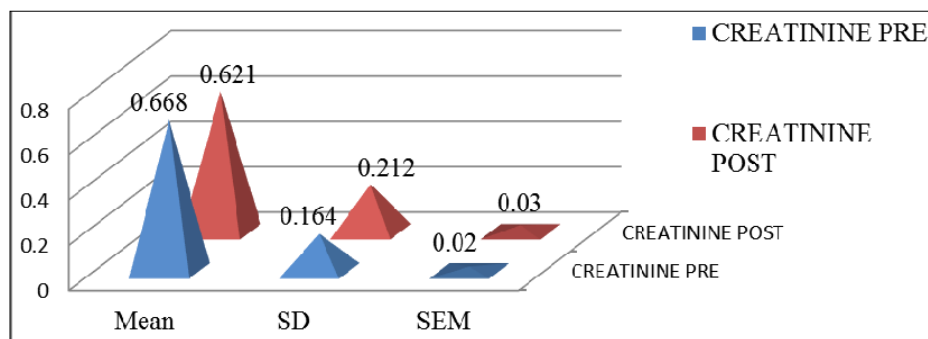


Fig 2: Mean and standard deviation, standard error of mean and 't' value of pre and post test of creatinine

Discussion of the findings

The present study was designed to scrutinize the effect of six weeks conditioning training programme on biochemical profile of female athletes. A total forty seven (N=47) female athletes between age group of 21- 25 years from Punjabi University Patiala were selected as subjects. To know the effect of six weeks conditioning training programme researcher had selected following two Biochemical variables as:

1. Blood Cholesterol
2. Creatinine

1. Blood Cholesterol: The result of the study revealed that blood cholesterol significantly difference in single experimental group after the application of six weeks conditioning training programme on biochemical profile of female athletes. These results of the study confirm the findings (Godara and Bishnoi, 2013) [2] who also found that that there were significant changes in Total cholesterol (TC) and High Density Lipoprotein-Cholesterol (HDL-C). It was concluded that the aerobic training is widely believed to induce changes in the Blood cholesterol, lipid profiles and Percentage of Body Fat of Children

2. Creatinine: The result of the study revealed that creatinine no significant difference in single experimental group after the application of six weeks conditioning training programme on biochemical profile of female athletes. These results of the study confirmed the findings of (Pandey *et al.*, 2017) [5] who also reported that insignificant reduction in blood urea and serum creatinine in yoga group as compared to control group.

Conclusion of the study

On the basis of findings of present study, the following conclusions were drawn.

1. Significant differences were found between pre and post-test of athletes for their Blood Cholesterol.
2. The results strongly confirm that, insignificant differences among between pre and post-test of athletes for their Creatinine.

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