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Effect of six weeks conditioning training programme on biochemical profile 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 Glucose (Random Blood Sugar) of the female athletes was assessed by using GOD-POD (Glucose Oxidase- Peroxide method. On the other hand Blood Urea of the female athletes was measured by using GLDH Urease (Glutamate Dehydrogenase 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; an online statistical software was used. Results of the study explicated statistically that there was significant difference in Blood Glucose (Random Blood Sugar). However, insignificant difference was found in Blood Urea of female athletes.

Keywords: Blood glucose (Random Blood Sugar), blood urea, female athletes and biochemistry

Introduction

Conditioning training is used for improving athletic and sports performance. The athletic performance or as any other type of human performance, is not the product of one single system or aspect of human personality. Conditioning training is the product of the total personality of the athletes. The personality of a person has several dimensions e.g., Physical, Mental, Physiological Sociological and Psychic factors. In order to increment sports performance the social and psychic capacities of the sports person also have to be increment in addition to the Physical, Mental and Physiological Conditioning training, therefore directly and indirectly aims at improving the personality of the sportsman and athletes. No wonder, therefore, sports training is an educational process. 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) [5]. 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 glucose

The concentration of glucose in the blood is termed as blood glucose concentration. It is approximately 90 mg. in each 100 ml of blood. This level of concentration is regulated by the liver, insulin production by the pancreas, adrenal glands and secretion of glucagon by the pancreas and by the phenomenon called gluconeogenesis (Guyton, 1984) [2].

Blood urea

Blood Urea is a waste product from the breakdown of protein. The osmotically induced reabsorption of H_2O in the proximal tubule secondary to active NA^+ reabsorption produces a concentration gradient for urea that favors passive reabsorption this waste.

Extensive reabsorption of H₂O in the proximal tubule gradually reduces the original 125 ml/min of filtrate until only 44ml/min of fluid remain in the lumen by the end of the proximal tubule. Substance have been filtered in the but not reabsorbed become progressively more concentrated in the tubular fluid as H₂O is reabsorbed while they are left behind. Urea is one much substance. (Sherwood, 2012)^[6]. conducted the blood urea nitrogen (BUN) has been used in cross-country ski programs to help monitor training. Factors known to affect blood urea nitrogen (BUN) levels include dietary protein, injury, plasma volume, lean body mass, and type and time of activity. Nine top level female biathletes training in Lake Placid were monitored for blood urea nitrogen(BUN)levels every morning for two (2) weeks. Training included less intensity base work, medium intensity speed work, strength endurance work, and moderate intensity combo training. Each training day was assessed. The most difficult day was given a score of 13 while the easiest day was given a score of one (1). Each day's score was then related to the next morning's BUN level. A correlation of $r = 0.78$ indicated a significant relationship of increasing intensity to increasing morning blood urea nitrogen (BUN) levels. The results showed that more variability in blood urea nitrogen (BUN) values over the six (6) days with the less intensity scores, evaluate to the six (6) days with the high intensity scores. This suggests a

relationship between training intensity and morning BUN levels David *et al.*, (1996)^[1].

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 variables were selected for the present study.

1. Blood Glucose (Random Blood Sugar)
2. Blood Urea

Blood Glucose (Random Blood Sugar) of the female athletes was assessed by using GOD-POD (Glucose Oxidase-Peroxide method). On the other hand Blood Urea of the female athletes was measured by using GLDH Urease (Glutamate Dehydrogenase) Method.

Table 1: Mean, standard deviation, standard error of mean and 't' value of pre and post test of blood glucose (random blood sugar)

Group	N	Mean	Standard Deviation	Standard error mean	t-value
Pre test	47	97.00	14.32	2.09	2.3267*
Post test	47	90.85	13.92	2.03	

t.05 (46) = 2.01

The table & figure 4.1 reveals that the mean of pre and post-test of random blood sugar were recorded as 97.00 & 90.85 whereas the standard deviation was 14.32 & 13.92 respectively. The calculated t- value for pre and post conditioning training programme of athletes was 2.3267*,

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 post value of random blood sugar.

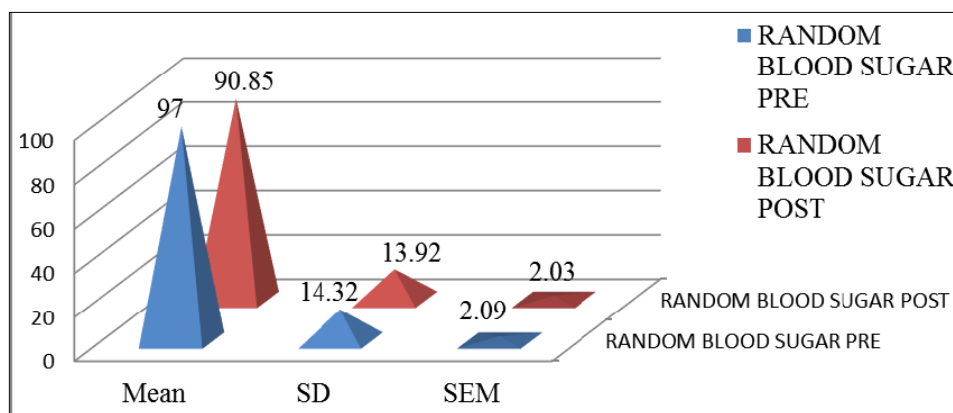


Fig 1: Mean and standard deviation, standard error of mean and 't' value of pre and post test of blood glucose(random blood sugar)

Table 2: Mean and standard deviation, standard error of mean and't' value of pre and post test of blood urea

Group	N	Mean	Standard Deviation	Standard error mean	t-value
Pre test	47	20.87	17.67	2.56	0.0931
Post test	47	21.13	6.82	0.99	

t.05 (46) = 2.01

The table & figure 4.2 reveals that the mean values of pre and posttest of blood urea were recorded as 20.87 & 21.13 whereas the standard deviation was 17.67 & 6.82 respectively. The calculated t- value for pre and post

conditioning training programme of athletes 0.0931, 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 post value of blood urea.

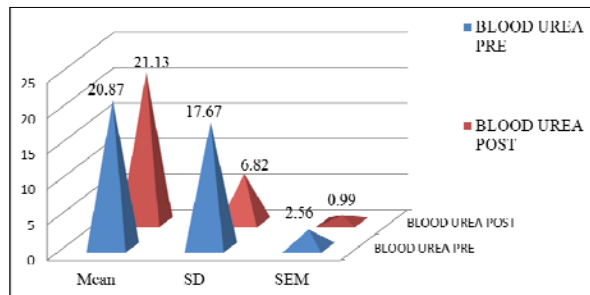


Fig 2: Mean and standard deviation, standard error of mean and 't' value of pre and post test of blood urea

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. 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 Glucose(Random Blood Sugar)
 2. Blood Urea
1. **Blood Glucose (Random Blood Sugar):** The result of the study revealed that blood glucose (Random Blood Sugar) 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 confirmed the findings of (O Peter Adams, 2013) ^[3] who also reported that significant reduced high intensity exercise (HIE) improves Blood glucose (BG) one to three days post exercise in both diabetics and non-diabetics. High Intensity Exercise (HIE) is unlikely to cause hypoglycemia (lack of glucose) during and immediately after exercise.
 2. **Blood Urea:** The result of the study revealed that blood urea 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) ^[4] 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. The results powerfully prove that, significant differences were observed between pre and post-test of athletes for their Blood Glucose (Random Blood Sugar).
2. The results strongly confirm that, insignificant differences were observed between pre and post-test of athletes for their Blood Urea.

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