

STUDY OF PLASMA TESTOSTERONE IN INDIAN CYCLISTS AT DIFFERENT LEVEL OF PARTICIPATION.

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ABSTRACT: The purpose of this study was to find out the level of Plasma Testosterone in the blood of male cyclists at different level of participation. To fulfill the purpose of this study, blood sample of 60 male cyclists were taken. Result of the study showed that there is a significant difference between Inter District and Inter University National & Inter-District level of male cyclist. It was also found that there no significant difference between inter college and inter district and inter university & national level of male cyclists.

Keywords: Plasma, Testosterone, Blood cyclists

INTRODUCTION

Now a days sports is no more a hobby it has become a full time profession. Sports coaches, scientists, organizers and Administrators all over the world are in search of better way and mean for spotting talent. They are working round the clock with single aim of improvement in the human machine during the course of action.

In the field of exercise physiology much has been accomplished in the last decade to elucidate the functions of hormones and energy producing substances during physical work, but we have only observed their behaviour during physical activity, now there is a need to know more about the ways by which each, one of these are stimulated and how they are regulated in quantity. The well-known hormonal Testosterone. Testosterone is the hormone which is largely responsible for muscle development in the male and female, and level of Testosterone of these in blood are strong indicators of athletes physical fitness.

TESTOSTERONE:

Testosterone is a steroid hormone from the androgen group. Testosterone is secreted in the testes of men and the ovaries of women. It is the principal male sex hormone and the original anabolic steroid. In both males and females, it plays key roles in health and well-being. The systematic chemical name for testosterone is 17-beta-hydroxy-4-androsten-3. Testosterone has several physical roles within the male.

Jenson et al (1991) studied the change in the testosterone concentration after single sessions of endurance and strength training in seven trained men experiencing the both forms of training. Both training session were rated as hard to very hard, blood samples for testosterone measurements were taken before, immediately after and 2.4 and 6 hr. after the training sessions and as well as next morning. The mean testosterone concentration increased 27% and 37% during the strength and endurance training session respectively. Two hours after the training sessions the mean testosterone concentration returned to the pre-training level and remained at that level for the length of observation period. These were large differences in the testosterone response at the level of the individual. A high correlation ($r=0.98$; $P<0.001$) for individuals was found between increases in testosterone concentration after strength and after endurance training. The inter-individual differences, in testosterone response may be of importance for individual adaptation to training.

OBJECTIVES OF THE STUDY:

To find out the level of Plasma testosterone in the blood of Indian male cyclists at different level of participation.

HYPOTHESIS:

There exist significant difference in the concentration of Plasma testosterone in the blood of Indian male cyclists at different level of participation.

METHOD AND PROCEDURE

To achieve the purpose of this study, blood sampling of 60 male cyclists were taken from Haryana and Punjab. Present study an attempt has been made to examine variation in the Testosterone. According to the performance of the subject participating at different levels i.e. Inter College, Inter District, inter University and National Testosterone is the hormone which is largely

responsible for muscle development in the male and female and level of testosterone in blood are strong indicators of athletes Physical fitness.

PROCEDURE OF BLOOD COLLECTIONS:

The blood was drawn by a trained technician who accompanied the investigator to various places for the collection of blood samples of cyclists. The following procedure was adopted to collect the blood samples.

A strip of bandage was tightly tied around the arm of the subject at a distance of about 2 inches above the elbow. The cyclist was advised to close his fist tightly. The skin surface was cleaned with ethanol. After this vein was held immobile by pressing on it with the thumb below the elbow, it became very clearly visible on the upper skin. Now it is ready to insert a sterilized syringe into the vein to get the desired amount of blood. After inserting into the vein the plunger of syringe was slowly pulled. The blood entered the syringe. When the desired amount of blood entered in the syringe. The tourniquet was loosened, the cyclist was allowed to unclench his fist. Now the needle of the syringe was removed from the vein. At the point of entrance of the needle on skin, a small pad of cotton moistened with ethanol was placed. Now the subject was asked to fold his elbow and keep the cotton at the same place for some time to prevent from over-bleeding. Finally the blood sample was collected into two different test tubes for further examination of the blood. The similar procedure of taking blood samples was applied to the other cyclists.

Method of analyzing Testosterone:

1. ELISA (Enzyme Immune Assay)
1. ELISA:

STATISTICAL ANALYSIS:

After collecting the relevant data the investigator proceeded to fulfill the different objection of the study by Analysis data with the help of simple technique like mean, S.D and t- test was used to analysis.

Table No. 1

MEANS AND STANDARD DEVIATIONS FOR MALE CYCLISTS AT DIFFERENT LEVELS ON TESTOSTERONE

TESTOSTERONE			
Levels	Mean	S.D	Std. Error
Inter College	5.25	1.31	0.34
Inter District	5.43	1.33	0.34
Inter University	6.59	1.58	0.40
National	7.26	1.66	0.43
Total	6.13	1.67	0.21

The scores of means and standard deviations of testosterone at different levels of participation shown in the table 1. In general, the level of testosterone is 6.13 ± 1.67 and that of male cyclists, whereas the level of testosterone. Here, it is pertinent to mention that the level of testosterone, is lower in males cyclists of Inter-college, inter district then those of inter university and National level male cyclists.

It is clear from the means presented in Table 1 that means score of male cyclists on testosterone increase as a function of the levels of participation. The mean scores are 5.25, 5.43, 6.59 and 7.26 for Inter-college, inter district, inter-university and national level cyclists, respectively. This finding clearly supports the hypothesis pertaining differences in the testosterone levels of cyclists exerting different amount of endurance training and strength exercise.

Table No. 2

T-TEST FOR DIFFERENCE BETWEEN DIFFERENT LEVELS ON TESTOSTERONE AMONG MALE CYCLISTS

Source of Variation	T	Df.	P.
Inter-college V/s Inter-district	0.36	28	n.s
Inter-district V/s Inter-University	2.20*	28	.05
Inter-district V/s National	3.30**	28	.01
Inter-university V/s National	1.14	28	n.s

*significant at .05 level

**significant at .01 level

It is apparent from the mean scores of the four groups of cyclists that differences are more marked at higher level of participation, i.e., inter-university and national level. The difference between the testosterone of inter-college and inter district participation is almost negligible. In order to check whether the difference between these two groups of participants is significant or not, t-test was employed as a post-hoc test. The results are presented in Table 2. Interestingly, the difference in the testosterone of inter-college and inter-district cycling participants is not significant, t-value is just 0.36, 1.14 therefore, non-significant Inter-university and National. However the difference between the level of testosterone of inter-district and inter-university cyclists as well as between inter-district and national level participations is strikingly high, the t-values are 2.20 ($p < 0.05$) and 3.30 ($p < 0.01$), respectively. These results speak loudly in support of the proposition that consistent endurance exercise and active participation in sport events lead to increment in the level of testosterone.

DISCUSSION OF RESULTS:

After analyzing the data, according to table 2, it is found that male cyclists have same amount of plasma testosterone at Inter-college and Inter-District levels. Similarly, the level of testosterone has found to be same at Inter-University and National levels. But there is a very high concentration of plasma testosterone at National level when it is compared with Inter-College and Inter-District levels. So, here it is concluded that Inter-University and National levels possess same and very high level testosterone than both of the Inter-College and Inter-District Levels.

Hence, further it is concluded from the above-mentioned results that the concentration of plasma testosterone increases with level of participation. Because as the level increases. The endurance of a sportsperson increases. He has to do more hard exercises and endurance work to compete further higher levels. Because endurance activity and hard exercises are responsible for better performance, both produce high concentration of plasma testosterone in the blood of male cyclists at Inter-University and National levels.

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