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Effect of Energy Drinks on Blood Lactate amid Male Cyclists

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ABSTRACT

There are several categories of bicycle racing such as bicycle short races produce lot of fatigue in muscles such as lactic acid and muscle stiffness. To find the exact effect the study conducted to determine the effect of commercial energy drinks on the depletion of blood lactate of interuniversity level cyclists. the design of the study was pre – post control group. this experimental study was carried out on 30 fit male cyclists who participated in all India inter university championship and cyclists divided into three equal groups. they were given a standardize energy drink such red bull group, gatorade group and control group, before the exercise researcher check the pre-examination on lactic acid variable. after performing they schedule cyclists was post examined on the lactic acid variable by using lactate pro portable blood lactate analyzer. for the results of the investigation analysis of covariance was used to find out mean differences between pre and post- test with the help of statistical package for the social sciences (spss) 16.0. the findings on pre-test mean values on blood lactate acid of red bull group, gatorade group and control group was 2.950, 2.860 and 3.310 respective. the obtained 'f' ratio of 1.652 for pre-test scores is less than the table value of 2.87 for df 2 and 27 required for significance at .05 level of confidence on blood lactate acid and the post-test mean values on blood lactate acid of red bull group, gatorade group and control group was 4.560, 5.250 and 4.707 respectively. the obtained "f" ratio of 1.274 for post-test scores is less than the table value of 2.87 for df 2 and 27 required for significance at .05 level of confidence on blood lactate acid. the result of the study shows that there was an insignificant effect of drinking gatorade group, rio group, red bull group and control groups on blood lactate acid. After that the F-ratio was found to be significant, the Scheffe's post-hoc test for differences between the paired adjusted final means is use in this investigation. The mean difference .230 between Group- control group and gatorade Group was found significant in favour of Group- control and mean difference .140 between control group and red bull Group of was found insignificant However, the differences for the remaining paired means was not significant.

1. Introduction

Sport is generally recognized as system of activities which are based in physical athleticism or physical dexterity, with the largest major competitions such as the Olympic Games admitting only sports meeting this definition (The Olympic Movement). Blood boosters (blood doping agents) increase the oxygen-carrying capacity of blood beyond the individual's natural capacity. They are used in endurance sports like long-distance running, cycling, and Nordic skiing. Recombinant human erythropoietin (rhEPO) is one of the most widely known drugs in this class (Momaya, 2015). An energy drink is a type of beverage containing stimulant drugs, usually including caffeine, which is marketed as providing mental and physical stimulation. They may or may not be carbonated and many also contain sugar or other sweeteners, herbal extracts, taurine, and amino acids. They are a subset of the larger group of energy products, which includes bars and gels, and distinct from sports drinks, which are advertised to enhance sports performance. There are many brands and varieties of energy drinks.

2. Selection of Subjects

For the purpose of the study 45 male cyclists was select as subjects who participated in Inter University Championship and cyclists divided into three equal groups such as red bull group, gatorade group and control group. The subjects were thoroughly acquainted with the testing procedure as well as the purpose and significance of the study. A thorough orientation of requirements during the testing procedures and performance test was made for successful completion of study. The selected samples were requested by the scholar to cooperate and to participate with utmost sincerity. Everything regarding the tests was made clear.

3. Selection of Variables

Blood Lactate: It was measured with the help of Lactate pro portable blood lactate analyzer in millimolar.

4. Statistical Technique

Analysis of covariance was used to find out mean differences between pre and post- test after that the Scheffe's post-hoc test for differences between the paired adjusted final means with the help of statistical package for the social sciences (SPSS) 16.0.

5. Results

Table - I

ANALYSIS OF COVARIANCE ONBLOOD LACTATE ACID AS MEASURED BY PRO PORTABLE BLOOD LACTATE ANALYZER AMID MALE CYCLISTS PRE- TEST, POST – TEST AND ADJUSTED POST - TEST OF DIFFERENT EXPERIMENTAL AND CONTROL GROUPS

Test	Gatorade Group	Red Bull Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre – Test								
Mean	2.860	2.950	3.310	Between	.412	2	.412	1.652
S. D	.3026	.2635	.3725	Within	1.008	42	.336	
Post – Test								
Mean	4.560	4.650	4.700	Between	1.033	2	1.033	1.274
S. D	.9489	.5126	.6488	Within	1.951	42	.650	
Adjusted Post – Test Mean								
Mean	4.643	4.700	4.707	Between	1.951	2	.650	1.274
S. D	.233	.229	.233	Within	17.870	43	.511	

*Significant at .05 level of confidence. F.05 (3, 45) = 2.81

Table - I shows that the pre-test means values on blood lactate acid of gatorade group, red bull group and control groups are 2.860, 2.950 and 3.310 respectively. The obtained 'F' ratio of 1.652 for pre-test scores is less than the table value of 3.35for df 2 and 27 required for significance at .05 level of confidence on blood lactate acid.

The post-test means values on blood lactate acid of gatorade group, rio group, red bull group and control groups are 4.560, 4.650 and 4.707 respectively. The obtained "F" ratio of 1.274 for post-test scores is less than the table value of 3.35for df 2 and 27 required for significance at .05 level of confidence on blood lactate acid.

The adjusted post-test means on blood lactate acid of gatorade group, rio group, red bull group and control groups are4.643, 54.700 and 4.707 respectively. The obtained "F" ratio of 1.274 for adjusted post-test means is less than the table value of 3.37for df 2 and 26 required for significance at .05 level of confidence on blood lactate acid.

The results of table - I indicated that there was an insignificant effect of drinking Gatorade group, Red Bull group and control groups on blood lactate acid.

Since the F-ratio was found to be significant, the Scheffe's post-hoc test for differences between the paired adjusted final means is use in this investigation.

Table - II

THE SCHEFFE'S TEST FOR THE DIFFERENCESBETWEEN PAIRED MEANS ON BLOOD LACTATE ACID

Gatorade Group	Red Bull Group	Control Group	Mean Differences	Confidence Interval Value
4.643	4.700	-	.090	.228
4.643	-	4.707	.230*	.228
-	4.700	4.707	.140	.228

* Significant at .05 level of confidence.

Table - II reveals that the three experimental groups (gatorade group, rio group and red bull group) on blood lactate acid were significantly different in their adjusted final means when compared to the adjusted final mean of control group. The mean difference .230 between Group- control group and gatorade Group was found significant in favour of Group-control and mean difference .140 between control group and red bull Group of was found insignificant However, the differences for the remaining paired means was not significant.

6. Discussion of the Findings

The present study was designed to scrutinize the effect of commercial energy drinks on the depletion of blood lactate of interuniversity level cyclists. A total ten (N=30) male cyclists between age group of 18- 25 years from Punjabi University Patiala were selected as subjects. To know the effect of commercial energy drinks researcher had selected following one Exercise Physiological variables as: Based on the statistical analysis of data following findings was drawn by the researcher:

Blood Lactate: The result of the study revealed that blood lactate (Gatorade energy and Red bull energy drink) significantly difference in control and experimental group (Pre and Post-test) of commercial energy drinks on biochemical profile of male cyclists. These results of the study confirmed the findings of (Hassin and Ahmed, 2016) who also reported the results showed that glucose and blood lactate was increased in experimental group. Moreover, the function after drinking carbohydrate was better and drinking prevents the lack of blood sugar significantly.

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