EFFECT OF SPORTS DRINKS ON CARDIOVASCULAR ENDURANCE OF FOOTBALL PLAYERS

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Abstract: The purpose of the study was to find out the “Effect of Sports Drinks on Cardiovascular Endurance of Football Players”. 48 male’s football players of Bharati Vidyapeeth Football Club, Pune were randomly selected for the study, whose average age between 15 to 17 years. Coopers 9 min run/walk test was used as a criterion measure to find out the effect of Venky’s Sports Drink on cardiovascular endurance of football players. For finding out the significance of difference between Pre-Test and Post-Test, paired ‘t’ test was applied. The level of significance was set as 0.05. Many sports drinks claim to enhance cardiovascular performance if taken before match hence researcher tried one of the sports drinks from the market to confirm the actual effect of the drink over cardiovascular endurance. Hence the experiment was conducted two group were made. In pretest both the group shown no significant difference in cardiovascular efficiency. Then experiment group consume Venky’s Sports Drink whereas control group were given tonic water as a placebo effect. Post test was conducted and again both groups had shown statistically no significant difference in cardiovascular endurance. Thus, the hypothesis Sports drink consumption or its interaction will not affect the performance at which a young football can perform” and has sustained by showing no significance difference level between both the groups.

Key Words: Sports Drinks, Cardiovascular endurance

1. INTRODUCTION

Soccer is one of the most popular sports with competitors of all ages and abilities. In young age, many participants train and compete at intense levels to improve their
performance and become a top, unbeatable player. At high levels of play, the demands of soccer require a player to be exceptionally fit both aerobically and anaerobically. Studies show that in 90-minute match older, elite males run between 8 to 13 km and expend about 800-1500 calories. The type of activity during a game includes high, moderate and low intensity running and many other exercises that require high amounts of energy (ii,iii). Since soccer includes short, bouts of high intensity exercise for a prolonged period, many researchers have investigated the use of carbohydrate (CHO) on the performance of elite players. For example, Saltini found out that players with low glycogen stores at the start of the game covered 25% less distance and ran at a much slower rate. And Balsomiv figured out that those players, who began the match with proper glycogen levels and continued to supply the body with Carbohydrate during the game, increased their running distance at speed by 33% in the second half.

Many athletes, young soccer players included, choose to consume sports drinks whether it is for the added CHO or the taste preference. Because sports drinks contain CHO and CHO supplementation has been found to delay fatigue in elite athletes, manufacturers argue that sports drinks enhance performance during intermittent, high intensity and/or prolonged exercise. But do sports drinks really contain enough CHO concentrations to benefit an athlete? Researchers have found improvements when comparing sports drinks and water while running or cycling, but unfortunately, the evidence is somewhat limited and controversial for other activities. More research on the effects of sport drinks during team sports and their effects on children in any type of activity is necessary, especially since a large number of young athletes, who mimic their favorite sports idols in commercials, consume these products with the belief that they have ergogenic effects.

Performing high-intensity workouts that are near maximal capacity can result in increased oxidative stressv. While reactive oxygen species are a natural reaction by-product of cellular respiration, their formation increases as the intensity of exercise

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increases. Oxidative stress has been linked to muscle damage, fatigue and lipid peroxidation, all of which can delay muscle recovery and negatively affect performance.

The high stress of anaerobic exercise is sufficient enough to overload the body with free radicals brought about by oxidative stress. Supplementation with antioxidants has been investigated to determine their impact on oxidative stress. Though an increased need for antioxidants is evident as exercise intensity increases, very little attention has been focused on the anaerobic athlete and performance. An alternative to antioxidant supplementation is enhancement of endogenous antioxidant capacity through positive changes in the antioxidant enzymes glutathione peroxidase and superoxide dismutase (SOD)\textsuperscript{vi}. Recent research has suggested that direct supplementation with SOD may be highly effective at combating oxidative stress and enhancing endogenous resources.

In conclusion, evidence suggests that, in elite male, Carbohydrate supplementation improves running performance and fluid intake prevent skill deterioration, but it has yet to be determined whether or not a young athlete can experience similar benefits. Since sport-drinks are readily consumed and easily available to children in sports, it is a popular question whether or not they will provide performance benefits beyond the effects of water?

2. THE PROBLEM AND ITS SOCIAL RELEVANCE

Today sport-drinks are new trend in competitions. Many sports drinks manufacturer claim that drinking their sports drinks increases the sports performance of an athlete. By conducting an experiment, claims of these companies can be seen justified. Hence, researcher trying to see the effect of particular sports drinks which claim to increase the sports performance.

By doing this kind of experiment researcher wants to see the real effect of sports drinks and hence conclude the results in the end of his study which might be helpful for the athletes in consumption of these drinks.

\textsuperscript{vi} Cavas L and Tarhan L (2004). Effects of vitamin–mineral supplementation on cardiac marker and radical scavenging enzymes, and MDA levels in young swimmers. \textit{International Journal of Sport Nutrition and Exercise Metabolism} 14: 133–146
3. METHODOLOGY

3.1 Sample selection
48 male’s football players of Bharati Vidyapeeth Football Club, Pune were randomly selected for the study, whose average age between 15 to 17 years. The requirement of the study was explained to the entire subject who voluntarily agrees to undergo testing and training programme. Hence, sample was selected by using simple random technique. (n=48)

3.2 Variables used for Study
The following variables were used for the study
- Cardiovascular endurance
- Venky’s Sports Drink
Coopers 9 min run/walk test was used as a criterion measure.

4. OBJECTIVE OF THE STUDY

1. To find the effect of sports drink on cardiovascular endurance of football players by conducting pre-test and post-test
2. To analyze the effect of sports drink on cardiovascular endurance of football players

5. HYPOTHESIS

The following hypotheses were tested during this experiment:
“Sports drink consumption or its interaction was affecting the performance at which a young football player can perform”.

5.1 Selection & Administration Of The Questionnaire
One experiment group and control group was used as scholar conducted the experiment completely under control condition. During the test and regularly reported to scholar for training. These measures to great extend nullified the requirement of control group.
The training programme and test were administered at the Bharati Vidyapeeth University Football ground.

Before the administration of the test the subjects were given a chance to practice the prescribed tests. So that they because familiar with the test and know exactly what was to be done. With sufficient warm-up and the subjects were instructed to go through the tests.

5.2 Experimental Design

The researcher was made experimental research design for this study as following ways:

1. Pre-test for both the groups
2. Treatment for experimental the group.
3. Post-test for both the groups

5.3 Statistical Analysis

For finding out the significance of difference between Pre-Test and Post-Test, paired ‘t’ test was applied. The level of significance was set as 0.5 levels.

6. RESULT AND DISCUSSION OF FINDINGS

6.1 Findings

The result on cardio vascular endurance as obtain among the students on their pretest has been presented in Table 4.1, which indicates that:

- The mean cardio vascular endurance of control and experimental were 1710.416 (SD=466.252) and 1710.416(SD=466.252) respectively
- The calculated “t” value indicates that there was no significant difference between control and experimental in cardio vascular endurance (t= 0.000, p<0.05). This inference that both the groups are having same cardio vascular endurance.

Table 1: comparison of pretest 9 min run/walk performance of both the groups

<table>
<thead>
<tr>
<th>Performance</th>
<th>Means Pre Test</th>
<th>Means Pre Test</th>
<th>M. diff</th>
<th>S.D.</th>
<th>‘t’</th>
<th>Sig. (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 min run/walk</td>
<td>1710.416</td>
<td>1710.416</td>
<td>.0000</td>
<td>466.252</td>
<td>.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Significant at .05 level. T 0.5 (46) = 2.021
Figure 1: Graphical Representation of Pre -Test of Control and Experimental Group

6.2 Result of posttest of cardio vascular endurance
The result on cardio vascular endurance as obtain among the students on their post-test has been presented in Table 4.1, which indicates that:

- The mean cardio vascular endurance score of control and experimental were 1762.500 (SD=90.975) and 1764.583 (SD=90.975) respectively.
- The calculated “t” value indicates that there was no significant difference between control and experimental in cardio vascular endurance efficiency (t=0.023, p<0.05) even after Venky’s Sports Drink was provided to experimental group. This inference that Venky’s Sports Drink had no control over enhancing cardiovascular performance of experiment group.

Table 2: Comparison of post-test 9 min run/walk performance of both the groups

<table>
<thead>
<tr>
<th>Performance</th>
<th>Means Post Test</th>
<th>Means Post Test</th>
<th>M. diff</th>
<th>S.D.</th>
<th>‘t’</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 min run/walk</td>
<td>1762.500</td>
<td>1764.583</td>
<td>2.083</td>
<td>90.975</td>
<td>0.023</td>
<td>0.982</td>
</tr>
</tbody>
</table>

*Significant at .05 level. T 0.5 (46) = 2.0
7. DISCUSSION AND CONCLUSION OF RESULTS

Many sports drinks claims to enhance cardiovascular performance if taken before match hence researcher tried one of the sports drinks from the market to confirm the actual effect of the drink over cardiovascular endurance. Hence the experiment was conducted two group were made. In pre-test, both the group showed no significant difference in cardiovascular efficiency. Then experiment group consume Venky’s Sports Drink whereas control group were given tonic water as a placebo effect. Post test was conducted and again both groups had shown statistically no significant difference in cardiovascular endurance.

Thus, the hypothesis “Sports drink consumption or its interaction will not affect the performance at which a young football can perform” has sustained by showing no significance difference level between both the groups.

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