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RESEARCH ARTICLE

EFFECT OF GLUCOSE SUPPLEMENTATION ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES OF UNIVERSITY MEN FOOTBALL PLAYERS

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ABSTRACT

To achieve the purpose of the study 20 University men football players were selected and their criterion variables namely Speed, Explosive Power, Leg Strength and Heart rate were measured prior and after the game by supplementing glucose and by not supplementing glucose. By using t-ratio pre and post tests were compared and the results showed no significant changes either in the physical or in the physiological variables.

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INTRODUCTION

Diet is a major method by which the amount of glycogen stored within the muscle is controlled. Higher resting muscle glycogen concentrations can be achieved after ingesting a CHO-rich diet, resulting in a beneficial effect on the performance during prolonged continuous exercise. However only a few research were conducted in intermittent exercise where intense activity alternative with repeated periods of lighter activity or rest. Some intermittent sports are of such a long duration that a large reduction of muscle glycogen stores occurs by the end of the competition. Example Football, nevertheless the influence of CHO-rich diet on the endurance performance for such activities is not well established. Intermittent Sports are characterized by intermittent bursts of high intensity exercise and execution of complex sports specific skills and cognitive tasks over a prolong period of time is a part of it.

Historical aspects of the study: As early as 1925, Gordon ***et al.*** reported that ingestion of candy by runners during a marathon prevented hypoglycemia and improved race times compared with when no candy (sugar) was consumed. In intermittent sports, similar work was pioneered by Cade ***et al.*** in the early 1970's. In 1971, Cade and colleagues reported the effects of exercise on blood glucose changes in four players of the University of Florida football team during a vigorous 2 hour practice session with no food or fluid intake. The football players' blood glucose concentration decreased progressively throughout practice. This work was followed by a study in 1972 to determine whether carbohydrate replacement could prevent the disturbances in blood glucose concentration. Cade *et al,* found that performance during a standardized walk-run test (7 mile course) was significantly improved when approximately 1 L of a 3% glucose-electrolyte solution was consumed compared with when the athletes drank the same volume of water.

Whereas subjects' blood glucose concentration decreased during the water intake trials (by 1.3 mmol/L), it increased (by 1.0 mmol/L) while drinking the 3% glucose-electrolyte solution. Speed is the ability to move quickly across the ground or move limbs rapidly to grab or throw. Explosive power is the rate of force development is at the maximum for any type of muscle action. In activities requiring high acceleration and output, explosive power training is necessary for maximum development. Strengthening leg muscles will make it easier for us to do aerobic exercises easily. A normal resting heart rate for adults ranges from 60 to 100 beats per minute. Generally, a lower heart rate at rest implies more efficient heart function and better cardiovascular fitness. For example, a well-trained athlete might have a normal resting heart rate closer to 50 beats per minute.

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Table 1. Analysis of the criterion variables of the control and experimental groups pre and post tests

Criterion measures	Control Group				T-ratio	Experimental group				T-ratio
	Pre test		Post test			Pre test		Post test		
	M	SD	M	SD		M	SD	M	SD	
Speed	6.64	0.52	7.35	0.53	2.57	7.24	0.46	6.96	0.58	1.45
Explosive power	0.46	0.48	0.48	0.06	1.50	0.43	0.05	0.07	0. 06	1.53
Leg Strength	65.2	10.35	73.4	8.05	0.42	63.2	10.66	77.0	8.30	0.98
Heart rate	72.4	3.66	76.0	4.63	1.78	70.0	2.45	100	5.01	2.08

METHODOLOGY

For the purpose of the study Twenty (N=20) men football players who participated in the All India Inter University Football tournament representing Annamalai University, Chidambaram were selected as subjects. Their age ranged from 20 years to 25 years. The criterion measures were Speed, Explosive Power, Leg Strength and Heart Rate and they were measured by using tests namely 50 meter dash, Leg lift with dynamometer, Vertical jump, and Pulse rate respectively. The selected football players were formed as a team and directed to play against a local team for a period of two halves of 45 minutes each. The criterion measures were collected both prior and after the match. The very next day they played their second match and 30 minutes before this match the subjects were advised to drink a liquid comprising of 50 gm of glucon-D and 100 ml of water. The criterion measures were once again measured prior to and after the match. Since there were only two groups' t-ratio was applied to find out if there was any significant difference after the glucose supplementation on the criterion measures. The consolidated findings are presented in Table-1

RESULTS OF THE STUDY

The statistical analysis by applying dependent t value revealed that there was no significant difference on the criterion variables namely Speed, Explosive Power, Leg Strength and Heart Rate after the glucose supplementation to the selected group of Annamalai University Football team players.

However a study with larger magnitude would be more conclusive since the results are in disagreement with the available literature in general.

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