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THE EFFECTS OF A THREE AND HALF DAY LONG PROCESSED SUGAR-FREE DIET

UDC:
(Original scientific paper)

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Abstract

Blood glucose levels are evaluated as a part of this preliminary study. The primary step included measuring blood glucose levels during and after 3 ½ days on processed sugar free diet. The secondary step measured the blood glucose levels before and after a 30-minute exercise. The preliminary research did not aim to link the two steps. In both steps however, an average decrease in the blood sugar levels is evident. Based on the finding from this preliminary study a diet low in processed sugars along with a physically active life style resulted in lowering blood glucose levels. These results have a potential of being used as prevention tools to communicate avoidance of possible adverse health problems in adults and children.

Key words: *processed sugar, blood glucose, health, diet, exercise*

Introduction

Consumption of processed sugar is associated with countless health problems in children and adults as it affects health, quality of life**,** and may cause premature aging (Freese et al. 2016; Malhotra, 2015; Kahn, 2014). This preliminary study was conducted in order to test if the glucose blood sugar levels would decrease in a group of individuals who volunteered to follow a three and a half day long diet without processed sugar. In addition, another scenario in which measuring of blood glucose levels was conducted a month after the dietary portion of the experiment was concluded. In this scenario blood glucose levels were measured before and after 30 minutes of light exercise. The study involves a group of volunteer college students, a population which is heavily linked with daily stressors associated with on the go dietary intake, long hours of sitting, psychological strains highlighted by academic pressure**,** and common expectations associated with all of the above.

Method of work

Subject of the research

Table 1. Research participant data

Sugar free group	Age	Mean	Number
Males	62-21	31	5
Females	52-18	27	11
Range	62-18	28	
Total			N=16
Control group (CG)			
Males	40	40	1
Females	19-22	21	4
Range	40-19	27	
Total			n=5
TOTAL for ALL	62-19		N=21

A volunteer group of twenty college students and a professor were used, totaling 21 individuals from a College campus located in Southern California. The participants' age and sex are presented in Table 1. Materials used for blood glucose testing are Blood Glucose Meter: One Touch Ultra2, One Touch Ultra Delica, One Touch Ultra 25 test strips, One Touch Delica Lancets all distributed by LifeScan, Inc. and Alcohol Prep Pads.

Goals of the research

This preliminary experiment aimed to explore if the blood glucose levels could be lowered in a short period of time or specifically within three and a half day long diet lacking processed sugar. Additional aim of this study was to measure if the blood glucose levels will fluctuate before and after 30 minutes of a light exercise a month after the diet portion of the experiment was concluded.

Responders of the research

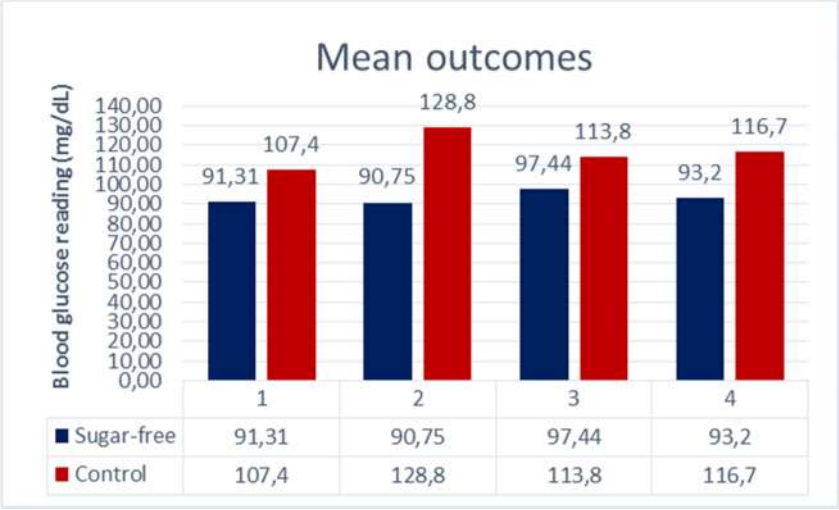
A sample of college students enrolled in Medical Anthropology course and their professor from Southwestern College, Chula Vista, California volunteered for this preliminary study. The subjects were divided into two groups. The first and a larger group (n=16) volunteered to go on a processed sugar free diet. The control group (n=5) decided not to engage in dietary alteration and continued their normal daily diet.

Temporal and spatial determination of the research

This short preliminary research portion that concerned dietary alteration was carried from March 07, 2016 until March 10, 2016 when the last glucose measurements were taken after which the participants were no longer asked to follow the processed sugar free diet. The very last measurements concerning this portion of the experiment were taken following week on March 15, 2016. Before and after exercise blood glucose measurements were recorded on later date almost a month later on May 12, 2016.

Results of the research

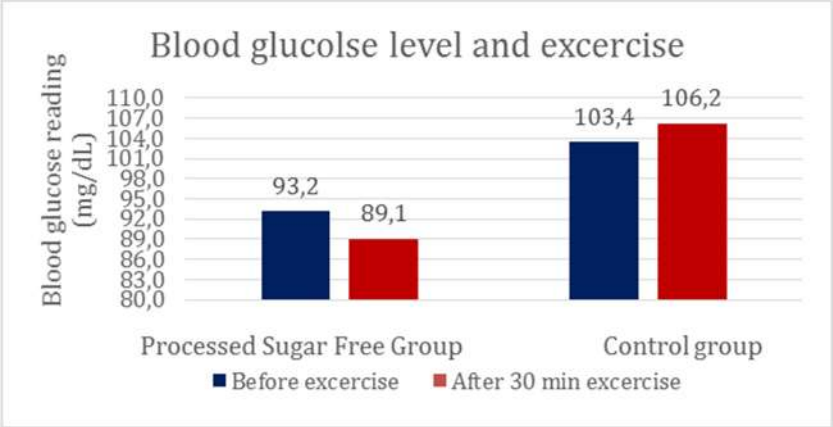
The results show the mean difference in blood glucose levels readings of 38.05 mg/dL on the last day of the restricted diet. The control group mean reading was 128.8 mg/dL, while the group on the processed sugar free- diet mean readings were 90.75 mg/dL (Graph 1). The average glucose levels remained lower even after the diet portion of the experiment was completed resulting in an average drop of 16.36 mg/dL. Average readings between the groups spanning from March 7 to March 15, 2016 resulted in (93.2 mg/dL and 116.7 mg/dL) a mean difference of 23.5 mg/dL.



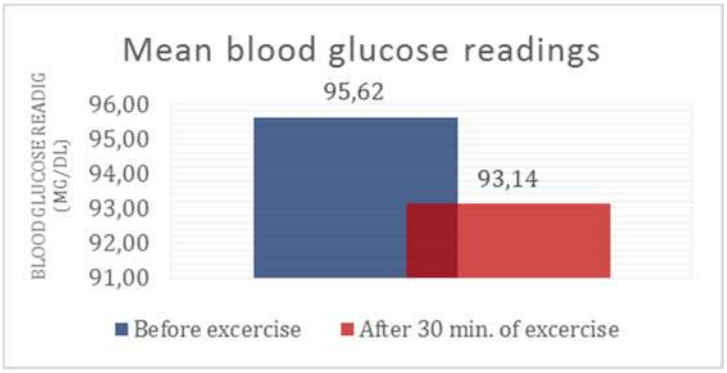
Graph 1.

The second part of the experiment recorded blood glucose levels, before and after, 30 minutes brisk walk. The data indicates that 16 individuals who were on processed sugar free diet a month before continued showing lower blood glucose readings before (93.2 mg/dL) and after exercise (89.1 mg/dL) when compared

to the control group whose readings before exercise were 103.4 mg/dL and after 106.2 mg/dL (Graph 2) showing an increase in the blood glucose levels. Mean outcomes for all of the individuals combined showed a lowering of blood glucose levels from 95.62 to 93.15 mg/dL a difference of 2.48 mg/dL (Graph 3).



Graph 2.



Graph 3.

Conclusion

Health problems associated with contemporary day diet among adults and children suggest that humans, in general, consume large quantities of sugar and such changes in our dietary preferences result in health decline. It is becoming clear that dietary restriction alone is simply not enough, and that changes in physical activity must be taken into consideration if we are to prevent and or life-style related diseases (Freese et al. 2016; Makhotra et al. 2015; Khan and Sievenpiper, 2014).

In this short preliminary study a group of 21 individuals (5 males and 16 females) from Southern California were volunteer participants in a short experiment aimed at exploring if the blood glucose levels could be lowered within a three and a half day long diet without processed sugar. In addition to the original question above, the experiment also explored if the effect of 30 minutes long walk. The outcome of this preliminary study was an eye opener.

Not only did the glucose levels drop during the sugar free stage that lasted from Monday morning (3/8/2016) through Thursday afternoon (3/10/2016), but they also remained lower even five days after (3/15/2016) the part of the experiment concerning refined sugar free diet was terminated. The control group was averaging 113.8 mg/dL and the refined sugar free group averaged 97.44 mg/dL showing a total of 16.36 mg/dL points lower readings among diet restricted individuals. The readings during the dietary restrictions provided even stronger correlations of 16.09 mg/dL and 38.05 mg/dL collected during the 2nd and the 3rd day of the diet respectively. The difference in readings between the days being 21.96 mg/dL suggesting that blood glucose steadily decreased in the restricted diet group. When all of the individual readings were included in the experiment and were then divided into processed sugar free group and control group the means resulted in readings of 93.2 mg/dL and 116.7 mg/dL a difference of 23.5 mg/dL. Thus, potentially indicating that a short-term processed sugar dietary restriction resulted in measurable decrease of the blood glucose levels.

The results of this preliminary experiment also clearly indicate that a mild physical activity lasting only 30 minutes resulted in decreased levels of glucose in blood 2.48 mg/dL for all of the individuals included in the 1st part of the experiment. However, once the group that was in a refined sugar free diet and the control group were evaluated separately the outcome was remarkable. The diet participants (n=16) showed a decrease in their blood glucose levels from 93.2 mg/dL to 89.1 mg/dL a drop of 4.1 mg/dL, while the control group measured 103.4 mg/dL prior and 106.2 mg/dL post exercise identifying an increase in the blood glucose levels of 2.8 mg/dL. Therefore, it should be highlighted that processed sugar and lack of a mild exercise in this study suggest that blood glucose levels (measured a month after the dietary restriction part of the experiment was completed) are on average higher in the control group and that glucose levels increased after exercise, while it decreased in the original dietary restricted group.

The results of this study, even though preliminary, strongly suggest that dietary restrictions directly connected to lower intakes of processed sugar have a tremendous importance on positively influencing blood glucose levels. This study results also show that light exercise results in lower blood glucose levels. There is a strong possibility that the two mentioned above when combined may have positive influence overall health and a wellbeing. In addition, it is important to highlight that lack of exercise and daily ingestions of dietary choices loaded with processed sugar may theoretically result in health problems, malnutrition and behavioral problems on a long run.

Even though intention of this study was not to evaluate how blood glucose levels will change with refined sugar free diet and exercise combined the results of it suggest that there possibly may be a link that needs to be further explored. A further longitudinal research is needed to clarify if and to what degree the blood glucose levels will decrease on refined sugar free diet over a period of time and if it will remain constant when combined with a light exercise. Tremendous potential exists if these two factors together are taken into consideration, as they may be the essential parts in prevention of possible future health risks in children and adults.

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