



Effect of Chia Seed Consumption on Blood Pressure in Overweight and Obese Women

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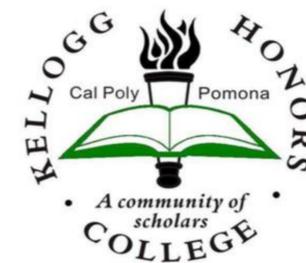


Figure 1. Study Layout

Wk0	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Post	
										Timeline
+				+					+	Experimental Group
+				+					+	Control group

Abstract

Chia seeds contain high amounts of dietary fiber and omega-3 fatty acids that have shown beneficial effects, ranging from increased energy to reducing the risk of many diseases. Very few studies have been conducted to analyze the effects of chia seed consumption in overweight/obese women. The few studies that have occurred have shown positive effects in body composition and diet quality. Therefore, the purpose of this study is to examine the effect of chia seed consumption in sixty overweight/obese women between the ages of 18 and 45 years, with an addition of 20% of their total caloric energy needs in chia seeds, through water. Specifically, we will be collecting data on body composition, blood glucose, satiety, mood, joint pain, blood pressure, dietary composition, and urinary serotonin levels in overweight/obese women. We hypothesize that consuming chia seeds will lower blood glucose levels, increase fiber intake, and bring about a positive change in body composition, satiety, mood, joint pain, dietary composition, and blood pressure, in overweight/obese females. In my part, I will be examining the effect of blood pressure on weight loss due to chia seed consumption.

Introduction

Chia (*Salvia hispanica L.*) is a desert plant that has been used for centuries by the Aztecs of ancient Mexico. They incorporated these types of seeds into their daily diet. They are known for their rich source of polyunsaturated fats (omega-3 fatty acids), dietary fiber, protein, antioxidants, several types of minerals. When added into water and allowed to sit there for approximately 30 minutes, they begin to form a gel and turn into a seed gum or slimy material. This occurs due to the water-soluble fiber of chia seeds (1). Therefore, the specific chemical composition of chia seeds consist of 15-25% protein, 30-33% fat, 26-41% carbohydrates, 18-30% fiber, and 4-5% ash(2).

A study revealed a correlation between weight loss and consumption of chia seeds in individuals who consumed chia for 12 weeks. Both men and women were randomly grouped into either ingesting 35g of chia flour per day or placebo for the 12 weeks. Their body composition and food intake were taken for four weeks. (3). Previous studies have also shown that a high fiber diet results in low blood pressure (4). But, there are very little studies that compare the decrease of blood pressure with the consumption of chia seeds. There are also very few studies looking specifically at the effect of chia seed consumption in women between the ages of 18 and 45 years who are overweight/obese.

Chia seeds is significantly nutrient dense and stable compared to crops like wheat, oat, corn, and rice and therefore can be used as a functional food to improve nutritional quality and density in the modern diet (4).

Methods

Originally, there were a total of 7 participants that were part of this study. For 6 weeks, 4 participants were on chia seeds, while 3 were not on chia seeds. There was 1 week for baseline data collection and there will be 1 week for post data collection. Participant data will be collected at baseline, week 4, and after the completion of week 8. Towards the end, one participant dropped from the study to the inability of consuming a lot of chia seeds and two of the participants were switched from the experimental group to the control group. At the end, there were only 6 participants, 2 on chia seeds and 4 in the control group.

Blood pressure data will be collected for a total of three times (see in figure 1), once at the baseline week, once during week 4, and once after week 8. Blood pressure was taken twice based on the arm of the participants preference using a Omicron blood pressure cuff. A minute was waited before taking the second blood pressure results. Both systolic and diastolic could only have a difference of +/-4, if the difference was greater than this value, the blood pressure was taken again.

For the experimental group, the participants were given 7 bags of chia seeds for the week that contained 20% of their daily caloric recommendations. This value was calculated using the Harris-Benedict equation for estimated caloric needs and multiplied by the activity factor of 1.2, 1.375, and 1.55. This ranged from 75 to 95 grams of chia seeds, differing between each individual. The participants were required to put the chia seeds in an 8 fluid oz. water bottle 30 minutes prior to eating a major meal. They were also asked not to change their exercise habits and to avoid foods high in omega 3.

The control group did not have chia seeds in their diet and were asked to drink an 8 fluid oz. Water 30 prior to consuming a major meal and keep their physical routines consistent

Results/Discussion

This study will not have any results until another of couple of weeks, but will include it during the time of presentation, along with the discussion and significance of the results.

Conclusion

This study has not been completed yet, but hope that the results will show that there is a significant difference in both systolic and diastolic blood pressure. Due to the amount of participants that were not able to go through with the study, this current study will be re-evaluated and will begin again in a couple of weeks. It was difficult for the participants to consume 20% of the caloric energy needs in chia seeds. It is hoped that if the study is changed from 20% to 10%, it will be easier to consume and still provide benefits in overall blood pressure.

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