



# Acceptability of Low-Carb Pizza Crust

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## Abstract

- Diabetes is a chronic disease that affects how the body turns food into useable energy. This public health issue has been growing worldwide. In 2014 the WHO stated 422 million adults had diabetes and 1.6 million deaths are caused by diabetes each year.
- The purpose of this study was to create a completely low-carb alternative to a conventional pizza crust, lower the sugars/carbs, provide nutritional value, and still produce an acceptable and palatable result. The hypothesis of the experiment is that by replacing all-purpose flour and granulated sugar with almond flour and a vegetable, a pizza crust can be made with a more acceptable nutritional profile (lower sugar and lower calories) that has a similar palatability level to the control pizza crust.
- Limitations of this study included the test subject size and inability to have diabetic test subjects.

## Introduction

- Many clinical trials have found weight loss associated with low carb diets as well as improvements with chronic diseases including hypertension, insulin resistance and plasma lipid profile. In a meta-analysis of studies comparing low carb diets (<45%) to very low carb diets (>26%), researchers found A1C benefits were greater in the very low carb diet. The low-carb diet was originally conceived as a treatment for epilepsy and became popular as a weight loss strategy in the 70s.
- To respond to this rising population of low-carb eaters, flour substitutes, sugar substitutes, and low-carb alternatives, such as vegetables serving as a pizza crust, are constantly being added to the market

## Methods and Materials

**Materials:** Large glass bowls, small glass bowl, potato masher, scale, measuring spoons, 2-3 baking sheets, oven

Almond flour was used to lower the grams of carbohydrates.

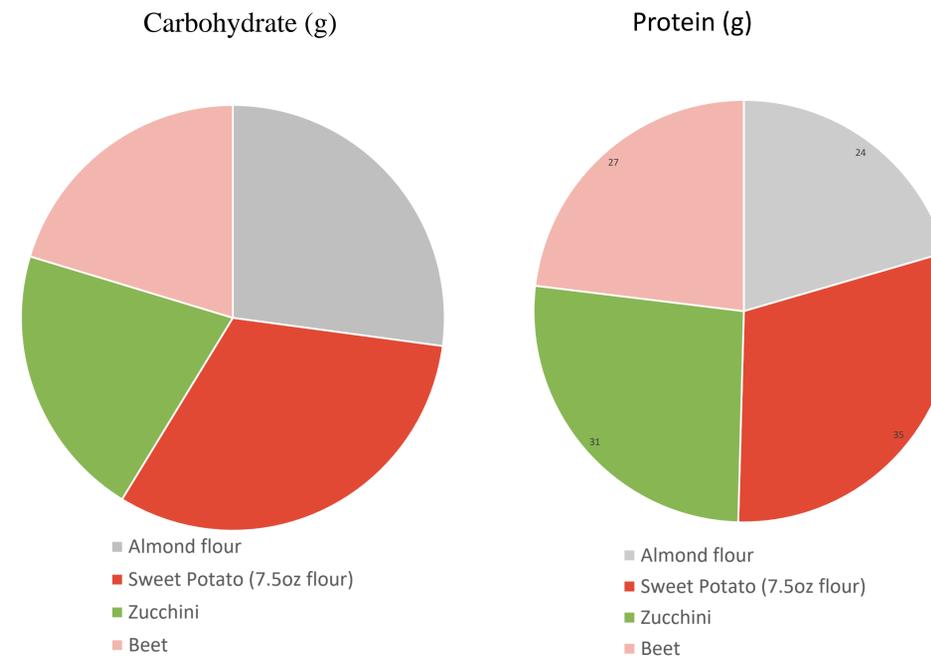
**Subjects and Setting:** A selection of dietetic students from a Midwestern University. The sample of dietetic students ranged from 6-10 with an age range of 20-39. One professor was also included in the sample testers.

**Objective Evaluation:** 4 samples pizza crusts were provided to the test group. The test group used a 1-3 Likert scale to rate, the color, texture, flavor, sturdiness and overall likability.

### Nutrition Analysis

- Food Processor

## Nutrition Analysis



Picture: Golden Beet, Zucchini and Sweet Potato Pizza Crust

## Results

- Attempts 2, 4 and 8, added sweet potato to the almond flour crust. These attempts received the highest scores on the sensory score card. The addition of sweet potato added more vitamin A to the recipe.
- Attempts 3 and 5 added beets to the almond flour crust. Attempt 3 was inedible due to researcher error. The appearance of both scored low on the sensory scorecard. Due to this, beets were removed from future attempts.
- Attempts 6 and 7 added zucchini to the almond flour. The final zucchini crust, attempt #7, will need more adjustments to the structure of the crust, but the flavor was well liked.

## Discussion

- The addition of vegetables to an almond flour crust does raise the carbohydrates and lower the protein per serving.
- The type of vegetable used plays an important role in the nutrition content of the crust, because different vegetables provide different vitamins and nutrients.
- Zucchini was chosen for its' vitamin C content. The sweet potato crust provides majority of the recommended daily intake for Vitamin A.
- The weights of vegetables weren't comparable to one another due to failure to receive request amounts of ingredients.
- Future research should expand the trials to include other flour alternatives with focus on a diabetic population.

## Conclusions

- The crust is carb balanced due to the hospital recommendation of 60g or less per meal.
- Overall likeability and palatability did not suffer, with the final crust achieving the greatest rating and volunteers requesting the recipe.
- The researchers were successful in creating a product that could easily be used as a healthier diabetic-friendly substitute to traditional pizza. The researchers were successful in creating a product that could easily be used as a healthier diabetic-friendly substitute to traditional pizza.

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## References

Upon Request