

The Acceptability of Different Squash Varieties in Lasagna to Increase Red-Orange Vegetable Consumption for School Nutrition Requirements

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Introduction

- Children and adolescents struggle to meet dietary guidelines for fruit and vegetable intakes
- High red-orange vegetable requirements for school nutrition

Purpose

- To evaluate the acceptability of squash varieties in a lasagna recipe to help meet school nutrition requirements for red-orange vegetables.

Nutrition Facts

Serving Size	1 cup (328g)
Servings per container	12
Amount Per Serving	
Calories 280	
	% Daily value
Total fat 11.5g	18%
Saturated fat 5g	25%
Trans fat 0g	
Cholesterol 50 mg	17%
Sodium 245mg	10%
Total Carbohydrate 34g	11%
Dietary Fiber 5g	20%
Sugars 10g	
Protein 19g	
Vitamin A ≥ 142% Vitamin C 60%	
Calcium 24% Iron 31%	
*Percent Daily Values are based on a 2000-calorie diet. Your daily values may be higher or lower depending on your calorie needs.	
Ingredients: Squash, tomatoes, beef, onions, whole-wheat noodles, tomato paste, mozzarella cheese, colby jack cheese, water, various seasonings	

Acknowledgements

I would like to thank Maria Anderson and the CSB Nutrition Department for their support of this project.

Methods

- A lasagna recipe was selected and adapted to create different versions with squash varieties - buttercup, butternut, and acorn
- Sensory panels were conducted in duplicate (n=66; mean age=18.89)
- Sensory analysis assessed liking of overall taste, squash flavor, lasagna flavor, appearance, and texture, using a 7-point hedonic scale
- Anova determined differences among the three squash lasagna recipes
- Significance was set at $p < 0.05$
- All three lasagna recipes provided approximately 0.76 cups of red-orange vegetables, 280 calories, 11.5 g fat, and 245 mg sodium for a one cup serving



Results

- No significant differences in liking of overall taste, squash flavor, lasagna flavor, appearance, or texture among the three lasagna recipes ($p > 0.05$)
- Average overall liking scores ranged from 4.64-5.00

Conclusions

- No difference between squash varieties
- Squash lasagnas were liked by panelists
- Butternut, Buttercup, and Acorn squash could be used interchangeably in the recipes
- Recipes could be implemented into foodservice to increase red-orange vegetable intake
- Future research could determine acceptability of different red-orange vegetable recipes in younger age groups



Average acceptance ratings of three different squash varieties in lasagna (Butternut, Acorn, & Buttercup)

