The Relationship Between Fruit & Vegetable Intake and Metabolic Syndrome in Young Adults with Obesity

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Subject Demographics

	Obese Class I	*Obese Class II*	*Obese Class III*
n	**302**	**76**	**29**
Gender			
Male%/ Female%	42/ 58	43/ 57	39/ 62
Class Standing			
Freshmen (%)	48%	51%	48%
Sophomore (%)	33%	27%	31%
Junior (%)	10%	16%	21%
Senior/ Other (%)	8%	5%	0%
Age (years ± SD)	19.1 ± 1.2	19.1 ± 1.3	19.3 ± 1.5
BMI (kg/m² ± SD)	31.9 ± 1.4	37.0 ± 1.5	42.6 ± 4.0
Vegetables (cups/ day ± SD)	1.6 ± 1.1	1.5 ± 0.9	1.9 ± 1.2
Fruit (cups/ day ± SD)	1.1 ± 1.0	1.1 ± 1.1	1.1 ± 1.1
# of MetS Criteria (± SD)	2.0 ± 1.1	2.4 ± 1.0	2.6 ± 1.0

Introduction

Metabolic syndrome (MetS) is highly prevalent in the U.S population and is more common in those with obesity (BMI ≥ 30 kg/m²).[1,2] Most current interventions emphasize weight loss, however the majority of weight loss attempts result in weight regain long-term.[3,4] Current research suggests that with weight regain, MetS may return, leaving efficacy of weight loss interventions as treatment for MetS questionable.[5] New interventions for MetS are needed to provide a more sustainable alternative to traditional weight loss methods. Higher fruit and vegetable (F&V) intake has been associated with lower incidence of MetS in several populations but has yet to be studied in a young adult population with obesity.[6-9]

Methods

- Data were collected between 2008 - 2023 from the College Health and Nutrition Assessment Survey (UNH IRB #5524).
- From a sample of 8,935 students, participants were included if they had a BMI ≥ 30kg/m² (n=407).
- Anthropometric, biochemical, and clinical measures were collected after an overnight fast and used to assess prevalence of MetS.[3]
- Groups of MetS were created based on 0, 1, 2, or 3+ criteria met for MetS.
- Daily F&V intake was calculated from an online nutrient analysis software (Diet & Wellness+) from participants' self-recorded 3-day food records.
- The relationship between F&V intake and number of MetS criteria was evaluated using Spearman's correlation. Frequencies were used to report demographics.

Objective

To observe the relationship between F&V intake and its correlation with criteria met for MetS in a population of young adults with obesity (BMI ≥ 30kg/m²).

Results

- Most participants (74.2%) had a BMI categorized as class I obesity, 18.7% class II, and 7.1% class III. 34.2% fell in the 3+ category.
- Mean intake of daily F&V was 2.5 ± 1.5 cups.
- Spearman's correlation analysis showed no significant differences between F&V intake and number of MetS criteria met.

Conclusions

Findings demonstrate a high prevalence of MetS among young adults with obesity. Nor relationship between F&V intake and number of MetS criteria met was observed. More research should be done, particularly in a sample with a more even spread across obese BMI categories.

Main Findings

MetS was found to be most prevalent in those with class III obesity. The relationship between F&V intake and number of MetS criteria met was found to be not significant in a population of young adults with obesity.

Acknowledgements

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Sources

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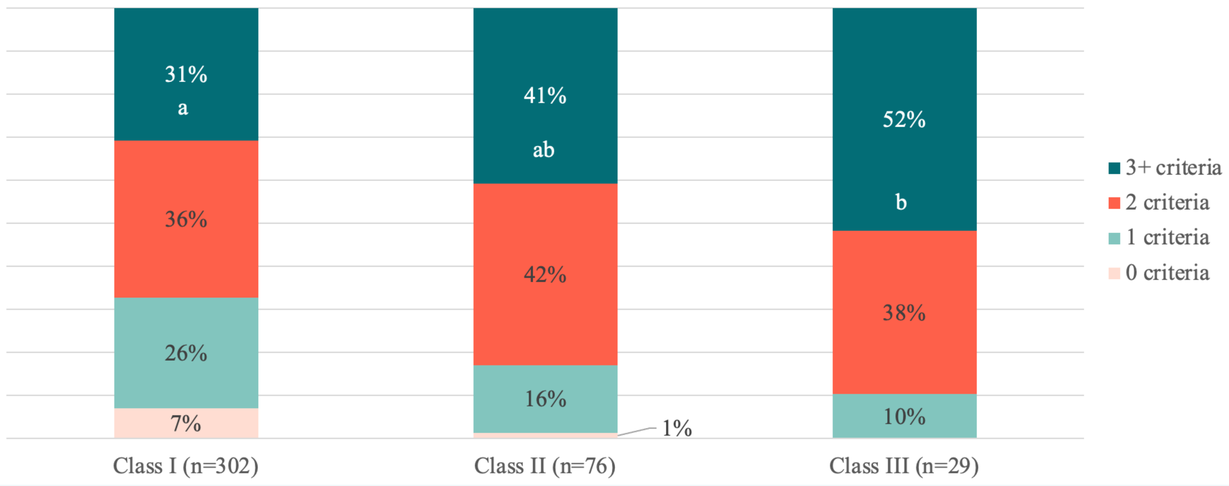
Distribution of MetS Criteria Across Obesity Classifications



Sections with different letters indicate mean differences ($p < .05$).