Practice Based Evidence in Nutrition (PEN) Knowledge Pathway – Should a plant-based dietary approach be recommended for overweight, hypertensive children? – A review and update of the literature

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Introduction

The prevalence of obesity and hypertension in children and adolescents has increased significantly within the past few decades. Multiple studies have reported a healthier body mass index (BMI) and blood pressure in children who adhere to plant-based diets compared to those that consume high amounts of animal products. Further research needs to be conducted to explore the association between these variables in children.

Objectives

- 1) To provide Registered Dietitians (RD) with evidence-based therapeutic guidelines for treatment
- 2) To update the literature on effective dietary treatments in overweight/obese and hypertensive children/adolescents

Methods

Results

- A plant-based nutrition care plan with increased servings of fruit, vegetables, nuts, seeds and whole grains has demonstrated reductions in overweight/obesity and blood pressure in the pediatric population.
- Multiple studies reveal that weight loss through a plant-based diet, along with sodium reduction appears to be effective for decreasing blood pressure in children and adolescents.
- Modest increases in fruit, vegetables, nuts, and whole grains along with sodium and dairy restrictions are recommended.
- Further, results have indicated that weight and BMI reductions play a role in blood pressure regulation.
- A summary of the findings can be found in Table 1.

Results

Table 1: Summary of findings from journal articles

Intervention	Journal	Findings
Plant-based approaches to overweight/obesity and hypertension	NLM. 2011;10(17)	• Consumption of nuts and whole grains decreased the likelihood of overweight and obesity • Vegetable intake was shown to be protective against the risk of overweight
	J Am Diet Assoc. 2007;107(7)	• Underweight and healthy weight students had more frequent fruit consumption than students who were at risk of being overweight and students who were overweight
	NLM. 2017;16(31)	• Kim et al. found a correlation between increasing body mass index (BMI) and consumption of meat equal to or less than 3 times per week
	Eur J Clin Nutr. 2013;67	• This randomized controlled trial examined the effects of dietary intake on BMI by assigning one participant group to an intervention that consisted of a low-fat vegan diet • At 6 months, the intervention group on average had lost 2.9 kg compared to the control group, who lost 0.06 kg
	Nutr Diabetes. 2017;7	• This randomized control trial requested that their intervention group adhere to a low-fat plant-based diet, and at 6 months the intervention group had lost 4kg more than the control group, on average.
Hypertension and Overweight/Obesity	Int J Obese. 2003;27	• Mean BMI was the highest among meat-eaters, second highest among vegetarians, and lowest among vegans • Vegans have a higher intake of fiber and polyunsaturated fats compared to the other groups, and meat-eaters consumed the highest amount of energy, protein, total fat, saturated fat and monounsaturated fat
	NMCD. 2015;25	• Children who are overweight or obese are 4 times more likely to experience hypertension

Conclusions

There is convincing evidence that a plant-based diet may be an effective therapeutic tool for overweight/obesity and hypertension in pediatrics. However, studies in this population are limited, and further research is needed before recommendations can be made.

Significance to Dietetics

An RD-supervised plant-based diet nutrition care plan may prove to be an effective therapeutic approach for overweight, hypertensive children and adolescents.