

# THE BENEFITS OF NUTRITION EDUCATION ON STUDENTS IN PRESCHOOL AND ELEMENTARY SCHOOL

Kaylee D. Case, Tennessee Technological University  
Faculty Advisor: Allison B. Coutinho, MS, RDN, LDN

## Introduction

Adults are known for trying all different kinds of diets to drop the weight they have gained from unhealthy eating patterns throughout their lives. Perhaps, if they had been taught better eating habits as children, they wouldn't have to resort to those methods. There are many factors that can influence a child in his or her nutrition patterns, so the question is: how does exposure to nutritional habits and nutrition education affect the nutrition knowledge, nutrition behaviors, and health in preschool and elementary school children?

## Methods

Various databases were used

Keywords:

- nutrition education
- school meal programs
- children's health
- exposure to nutrition habits
- children's nutrition habits

Filter Settings:

- full-text articles only
- peer-reviewed articles only
- articles published within the last 10 years only
- open access articles only
- journal articles only
- articles in English only

## Nutrition Knowledge (NK)

What do teachers and/or caregivers know about nutrition?

- Most could not identify correct balance of macronutrients in healthy diet<sup>1</sup>
- Most did not know serving recommendations for fruit and vegetables for adults or children<sup>1</sup>
- Most did not know caloric values for each macronutrient<sup>1</sup>

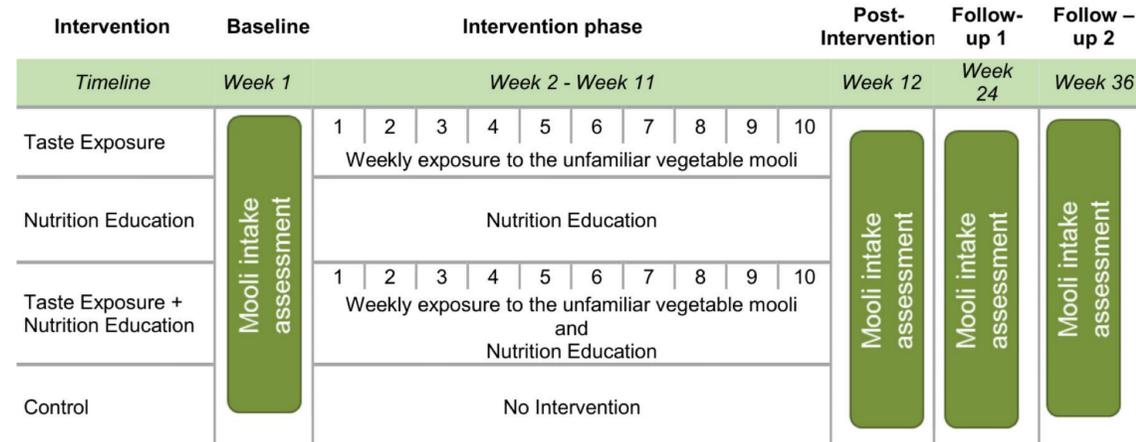
What nutrition behaviors do teachers/ caregivers practice in front of their students?

- No significant connection between policies in place and modeled behaviors<sup>2</sup>
- Modeled behaviors shape children's habits, not the policies<sup>2</sup>

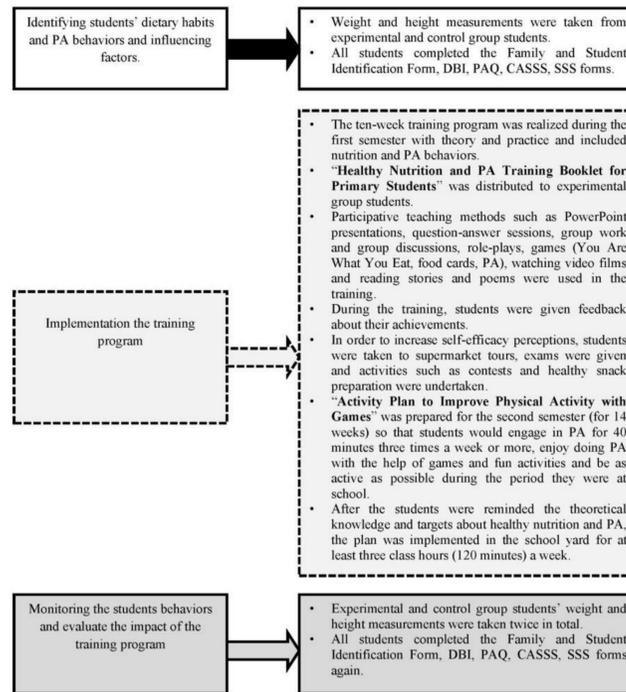
What effects do teachers'/ caregivers' NK and modeled behaviors have on students?

- Nutrition education program used a control group and an experimental group to determine effects<sup>3</sup>
- Students in experimental group on average scored higher on the posttest than the control group<sup>3</sup>
- Students in training program had healthier diet program had healthier diet patterns at the end than those who weren't<sup>3</sup>

It has been proven in multiple studies that school-based programs are significantly effective at increasing the nutrition knowledge of preschool and elementary school students<sup>4,5,6,7</sup>



Nekitsing C, Blandell-Birtill P, Cockcroft JE, Hetherington MM. Taste Exposure Increases Intake and Nutrition Education Increases Willingness to Try an Unfamiliar Vegetable in Preschool Children: A Cluster Randomized Trial. *J Acad Nutr Diet*. 2019;119(12):2004-2013. doi:10.1016/j.jand.2013.01.003



Sert ZE. The effects of the training program to improve healthy nutrition and physical activity behaviors of school children on weight management. *Progress in Health Sciences*. 2020;10(2). file:///media/fuse/drives/072cad9a02c95489550821339156fa2/root/Advanced%20Research%20Article%207.pdf. Accessed August 31, 2021

## Limitations

- Potential for bias
- Parameters applied to database excluded:
  - Articles keep 10 years
  - Articles with restricted access
  - Independent studies not yet published in scientific journals
  - Studies from journals not accepted by the Tennessee Tech library database
  - There is a limited number of articles on the topic due to the lack of longitudinal studies done to track the progression of nutrition knowledge, nutrition behaviors, and health across the lifespan

## Nutrition Behaviors (NB)

How do modeled nutrition behaviors affect students?

- Nutrition education with modeled behaviors has been proven to increase fruit and vegetable consumption among children<sup>4</sup>
- Nutrition policies that regulated teachers' behaviors in front of students resulted in both teachers as students being more likely to consume healthier food options<sup>6</sup>

What can affect a child's willingness to try fruits and vegetables?

- In a study done using taste exposure, it was found that a combination of taste exposure and encouragement significantly affected a child's willingness to try new vegetables, but it has an insignificant effect on fruit consumption<sup>4\*</sup>

How do school meal patterns affect children's nutrition behaviors?

- Significant effect on vegetable consumption<sup>8</sup>
- Insignificant effect on fruit consumption<sup>8\*</sup>
- How can exposure to nutrition programs help to improve children's dietary intake?
- Nutrition policies help with children's dietary intake at school, however they do not necessarily affect dietary intake at home<sup>9</sup>
- Parents' choices and guidance have a greater effect on students' overall dietary intake, as well as which life-long nutrition behaviors are formed<sup>9</sup>

\*The lack of a significant effect on fruit intake is likely due to children naturally liking and eating fruits better than vegetables in their normal intake, usually due to their sweet tastes.

## Health

How are weight and weight management affected by nutrition programs?

- A 10 week nutrition education intervention program was conducted, in which a pre- and post-test were given<sup>3</sup>
- 78% of students in experimental group were more aware of weight management as opposed to 63.6% during the post-test<sup>3</sup>
- The percentage of students aware of weight management dropped from 62.5% in the pre-test to only 55.4% in the post-test<sup>3</sup>

How are BMI and obesity affected by nutrition education?

- In a study done on the topic, a statistically significant reduction in BMI in participants was found after receiving nutrition education<sup>5</sup>
- There was also a decrease in weight after nutrition education among students as a result of healthier eating habits<sup>5</sup>

How are BMI and obesity affected by nutrition education?

- In a study done on this topic, a statistically significant reduction in BMI among participants was found<sup>5</sup>
- There was also a decrease in weight among children

How is nutrition status affected by dietary approaches?

- This study was done by using students' food recalls to assign each food they consumed a DASH score of 0-9 based on total fat, saturated fat, protein, cholesterol, fiber, calcium? Magnesium, potassium, and sodium contents of each food<sup>10</sup>
- The mean score was 1.48 to 2.14<sup>10</sup>
- Study was inconclusive, as no participants adhered to the intervention or consumed a "heart-healthy" diet<sup>10</sup>
- This study leads to the conclusion that few children in the US have a diet in alignment with the DASH diet, and would have a relatively low DASH score if their diets were assessed

## Conclusion

The purpose of this literature review/ research was to assess whether or not nutrition education and exposure to nutrition has an effect on the dietary and eating patterns of preschool and elementary-aged children. Based on the conclusions that we're determined from the studies detailed above, exposure to nutrition education and nutritional habits do affect the nutrition knowledge, nutrition behaviors, and health in preschool and elementary school children in a way that has a positive effect on the eating patterns and nutritional habits.

### References

- Sharma S, Dorch KS, Byrd-Williams C, et al. Nutrition-Related Knowledge, Attitudes, and Dietary Behaviors among Head Start Teachers in Texas: A Cross-Sectional Study. *J Acad Nutr Diet*. 2013;113(4):558-562. doi:10.1016/j.jand.2013.01.003
- Erinosa TO, Hales DP, McWilliams CP, Emana J, Warm DS. Nutrition Policies at Child-Care Centers and Impact on Role Modeling of Healthy Eating Behaviors of Caregivers. *J Acad Nutr Diet*. 2012;112(1):119-124. doi:10.1016/j.jand.2011.08.048
- Sert ZE. The effects of the training program to improve healthy nutrition and physical activity behaviors of school children on weight management. *Progress in Health Sciences*. 2020;10(2). file:///media/fuse/drives/072cad9a02c95489550821339156fa2/root/Advanced%20Research%20Article%207.pdf. Accessed August 31, 2021
- Nekitsing C, Blandell-Birtill P, Cockcroft JE, Hetherington MM. Taste Exposure Increases Intake and Nutrition Education Increases Willingness to Try an Unfamiliar Vegetable in Preschool Children: A Cluster Randomized Trial. *J Acad Nutr Diet*. 2019;119(12):2004-2013. doi:10.1016/j.jand.2013.01.003
- da Silveira JAC, de Aguiar Carracedo Taddai JA, Guerra PH, Nobre MRC. The effect of participation in school-based nutrition education interventions on body mass index: A meta-analysis of randomized controlled community trials. *J Prev Med*. 2013;56:237-243. doi:10.1016/j.jpremed.2013.01.011
- Meinck EM, Thomas K, Farewell C, et al. Impact of a nutrition education programme on preschool children's willingness to consume fruits and vegetables. *Public Health Nutrition*. 2020;23(10):1846-1853. doi:10.1017/S1368880019005032
- Keshani P, Mousavi SM, Mirzaei, et al. Effect of a School-based Nutrition Education Program on the Nutrition Status of Primary School Children. *Nutrition and Food Sciences Research*. 2016;3(1):27-34. doi:10.18869/acadpub.nfsr.3.1.27
- Cullen KW, Dave JM. The New Federal School Nutrition Standards and Meal Patterns: Early Evidence Examining the Influence on Student Dietary Behavior and the School Food Environment. *J Acad Nutr Diet*. 2016;117(2):185-191. doi:10.1016/j.jand.2016.10.031
- Mitcheva DM, Powell LM. National School Lunch Program Participation and Child Body Weight. *East Econ J*. 2013;39:328-345. doi:10.1057/ej.2012.14
- Cohen JFW, Lehnert ME, Houser RF, Rimm EB. Dietary Approaches to Stop Hypertension Diet, Weight Status, and Blood Pressure among Children and Adolescents: National Health and Nutrition Examination Surveys 2003-2012. *J Acad Nutr Diet*. 2017;117(9):1437-1444 e2. doi:10.1016/j.jand.2017.03.026