

Is There a Relationship between Breakfast Nutrient Quality and Academic Performance?

Author: Maura Hohl

¹DEPARTMENT OF HEALTH AND SPORT SCIENCE, UNIVERSITY OF DAYTON, OH

INTRODUCTION

- Breakfast is considered to be the most important meal of the day.
- Benefits of a well-balanced breakfast include: lower BMI, meeting micronutrient needs earlier in the day, being more active, and improving academic performance.
- However, 13-14% of children aged six-11 and 30-31% aged 12-22 were found to skip breakfast on any given day.
- Breakfast nutrient quality has been found to play a role in academic performance as well.
- This research study will determine whether there is a relationship between the breakfast nutrient quality and academic performance of the University of Dayton (UD) students.
- Breakfast nutrient quality is defined in this study as eating at least three of the following MyPlate food groups: whole grains, fruits, vegetables, low fat dairy, and lean proteins (O'Neil et al., 2015).

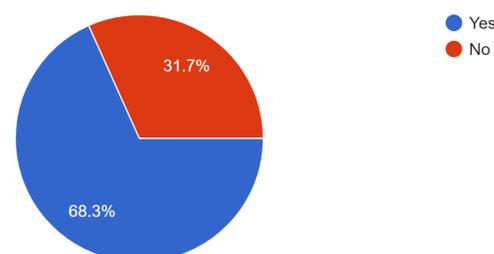
METHODS

Quantitative-Descriptive Survey

- 41 University of Dayton (UD) students were invited to fill out an electronic survey.
- The survey consisted of 11 questions regarding demographics, breakfast consumption, quality of breakfast (breakfast choices), and cumulative GPA.
- Data was statistically analyzed and each participant's breakfast was classified as healthy or unhealthy by the researcher.
- Due to lack of time, reliability and validity were not measured.

RESULTS

Did you consume breakfast today?
41 responses



Breakfast Consumption

- 68.3% of UD students consumed breakfast, while 31.7% did not.

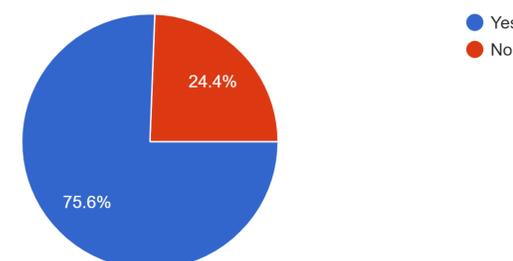
Figure 2 Proposed criteria to define a quality breakfast (O'Neil et al., 2015).

Component	Criteria	Considerations
Energy	15% to 25% of recommended total calories, based on age, sex, and activity level. From a mix of carbohydrates (eg, fiber-rich whole grains, fruit, low-fat/fat-free dairy) lean protein, and healthy fats.	Sliding scale for energy allows for variations in number and size of snacking and other meal occasions. School Breakfast Program guidelines provide approximately 18% to 28%* of Institute of Medicine daily energy requirements for children and adolescents. ^{108, 121}
Nutrients and components with positive health effects (ie, micronutrients, fiber)	Meet a minimum of 10% of Daily Value for 20% or more for as many nutrients of concern as possible.	Emphasis on provision of nutrients of concern—calcium, vitamin D, potassium, and fiber.
Food components to reduce	Consider amounts of sodium and saturated fat in individual foods in the context of daily allowances and meal patterns (eg, the daily recommendation for sodium is <2,300 mg. As a rule of thumb, if four eating occasions a day, then aim for <25% of the Daily Value for saturated fat and sodium at each one). Limit foods that provide calories with few nutrients.	Based on daily allowances recommended by 2010 Dietary Guidelines for Americans ³⁷ : saturated fat <10% of total energy; sodium <2,300 mg/day (or <1,500 mg/day for certain populations).
Food groups	Aim for contributions from at least 3 food groups, such as fiber-rich grains, nonfat or low-fat dairy, fruits/vegetables, and lean proteins.	Follow MyPlate guidelines ⁴⁶ for proportions and daily food group servings from US Department of Agriculture Food Patterns. ³⁷

UD Student Breakfast Choices

- The most popular carbohydrate breakfast choices included: Fruit (65.9%), Whole grain bread (46.3%), and To-go items (41.5%)
- The most popular protein breakfast choices included: Eggs (68.3%), High-fat meat (36.6%), and Cream cheese (31.7%).
- The most popular fats used with breakfast included: Butter (61%), Nut butters (48.8%), and Olive oil (34.1%).

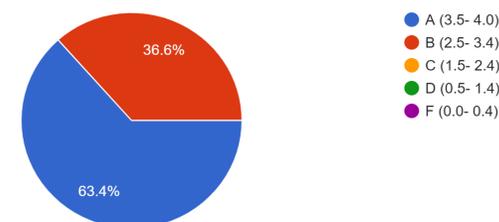
Would you classify your normal breakfast to be "healthy"?
41 responses



Breakfast Nutrient Quality

- Despite UD perceptions of their breakfast quality, 51% of their breakfasts (21) were found to be healthy, while 48% were not (20).

What range does your current cumulative Grade Point Average (GPA) fall under?
41 responses



Academic Performance

- UD students with GPA: A (3.5-4.0)
 - 58% consumed healthy breakfasts
 - 42% consumed unhealthy breakfasts
- UD students with GPA: B (2.5-3.4)
 - 40% consumed healthy breakfasts
 - 60% consumed unhealthy breakfasts

CONCLUSIONS

- A relationship between breakfast quality and academic performance of UD students has been found.
 - 58% of UD students with A range GPAs consumed healthy breakfasts, while 60% of UD students with B range GPAs consumed unhealthy breakfasts.
 - Therefore, breakfast nutrient quality was found to positively impact GPA.
- Limitations of the study include:
 - Small sample size
 - Non-heterogenous participant group
 - Possible inaccurate participant data
 - Lack of previous study on college students.
- Further study is needed to address possible barriers to eating breakfast or a high quality breakfast, such as socioeconomic status, food insecurity, body image, etc.

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