

# Diet Quality and Academic Success

Can what you eat impact your success in school?

Kylee Wickline | York College of Pennsylvania

## Background

Evidence suggests diet quality has an impact on certain cognitive aspects of the brain like memory and mood. Few research studies have observed the effects of diet on academia and even fewer have conducted studies concerning college students' diet quality and academic success.

The purpose of this research project is to identify whether a college student's diet quality has an impact on academic success. It is frequently thought college students have poor diets caused by financial disparity and decreased free time. This project will observe whether college students' diets may have an impact on their grade point average (GPA).

## Literature Review

1. An article by Correa-Burrows, Burrows, Blanco, Reyes, & Gahagan (2016) reports an experimental study on high school students by assessing diet quality and then taking a test assessing academic performance. The diet quality was assessed by consumption of energy-dense, low-fiber, high-fat foods. The findings report individuals with "unhealthy" diets performed more poorly on language and math tests, and GPA.
2. This article reports an experimental study in which children are assessed on diet quality, assessed similarly to article 3, and test performance to observe academic performance. Children with decreased diet quality were significantly more likely to perform poorly on the given test.
3. The qualities of a "good" and "bad" diet must be objectively identified before conducting a survey about diet quality. According to the National Health Service (NHS), a "good" quality diet contains 5 cups of fruits and vegetables a day, fish twice a week, high fiber grains, and consistent portions of meat.

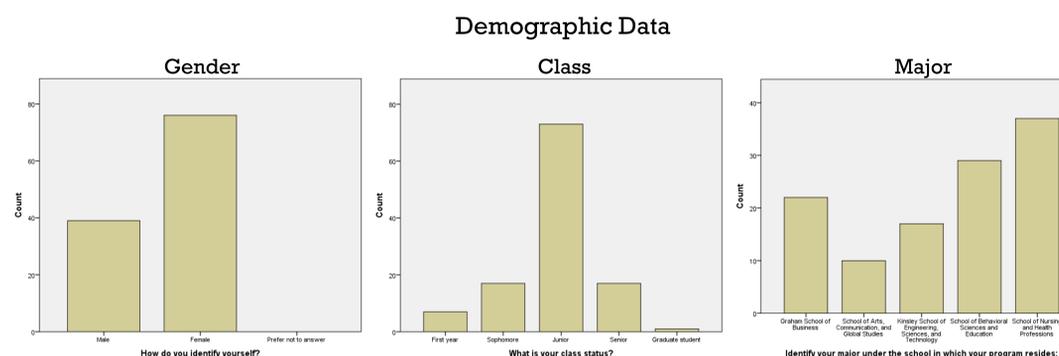
1. Correa-Burrows, P., Burrows, R., Blanco, E., Reyes, M., & Gahagan, S. (2016). Nutritional quality of diet and academic performance in Chilean students. *Bulletin of the World Health Organization*, 94(3), 185-192. doi:10.2471/BLT.15.161315  
2. Florence, M. D., Asbridge, M. and Veugelers, P. J. (2008). Diet quality and academic performance. *Journal of School Health*, 78, 209-215. doi:10.1111/j.1746-1561.2008.00288.x  
3. National Health Service. Eat well. Retrieved from <https://www.nhs.uk/live-well/eat-well/>

## Hypothesis

*Alternative (H1):* Grade point average will be increased when diet quality is increased\*.

*Null (H0):* Grade point average will not be increased when diet quality is increased\*.

\*increased diet quality is objectively measured on standards of "good" diet quality including required intake of multiple variables like fruits, vegetables, and fish identified in methodology.



## Results

After identifying eight variables to describe diet quality, I conducted correlation and linear regression tests. Of all eight variables, none were of statistical significance, less than or equal to 0.05, in predicting GPA.

Alcohol intake was the variable closest to predict GPA.

In a correlation test, the null hypothesis occurred,  $r = -0.140$ ,  $p = 0.135$ .

In a regression test, alcohol intake was found to not statistically significantly predict GPA,  $F(1, 113) = 2.265$ ,  $p = 0.135$ .

Diet Quality Effect on GPA			
Diet Quality Variable	Correlation Value	Regression Value	Significance
Fruit Intake	0.139	0.019	0.138
Vegetable Intake	0.106	0.011	0.258
Fish Intake	0.105	0.011	0.263
Vitamin Supplements	-0.070	0.005	0.459
Meat Intake	0.056	0.003	0.553
Alcohol Intake	-0.140	0.020	0.135
Frequency of Dining Hall Food	0.065	0.004	0.488
Frequency of Fast Food	-0.079	0.006	0.398

## Methodology

The qualities of a "good" and "bad" diet were identified before conducting a survey about diet quality. These variables were assessed in literature review.

There is a focus on nutrient-packed foods that boost brain cognition because these are more likely to impact academic performance. The survey asks questions about fruit, vegetable, fish, and meat consumption to evaluate a "good" quality diet. There are also questions about alcohol, dining hall food, and fast food consumption to assess a "bad" quality diet. Then participants were asked about GPA ranges to assess academic success.

After collecting participants' data, each variable was individually assessed for correlation and regression against participants' GPA range. The values were then assessed for significance.

## Discussion

After conducting a correlation test, no variable proved significant in having a relationship with grade point average (GPA). Alcohol intake was the closest variable to predict a student's GPA, with a significance of 0.135.

The results of this study indicate that diet quality, "good" or "bad", does not impact a college student's GPA. Based on the literature review findings, diet quality is more likely to impact children's or adolescents' academic success than college students' diet quality impacts their academic success.

Outside variables may influence the findings of this study: major, year, and hours of studying. Because of participation limitation, additional testing in which these variables will serve as control variables will need to be done. An example of this would be to look at diet quality within samples whom have similar years, majors, and spend similar amounts of time studying.