

Social Considerations for the Freshman 15

by

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A CAPSTONE PROJECT

submitted in partial fulfillment of the requirements for the acknowledgement

Honors Distinction

Name of your department (example: Social & Behavioral Sciences)

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TYLER JUNIOR COLLEGE

Tyler, Texas

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ABSTRACT:

For most college student going through their freshman year of college, many say the during your first year of college you will gain a significant amount of weight due to a multitude of factors or “The Freshman 15”. The goal of this study is the measure factors that may or may not contribute to fluctuation with a student’s weight. In this study we measure the following factors that may contribute to This hypothesis: hours of sleep, measurement of physical activity, distance from home, nutrition, stress level , financial status, and Sex and see how these factors correlate to the “Freshman 15”. The results of this study show that out of all the factors that were measurable in the survey that the three most prominent factors involved nutrition, physical activity, and distance from home. The other measurable factors that influences ones’ metabolic rate also had influential roles in weight shifts but were not as consistent as the three mentioned above. In conclusion, the “The Freshman 15”, is correlated by these primary factors: nutrition, physical activity, and distance.

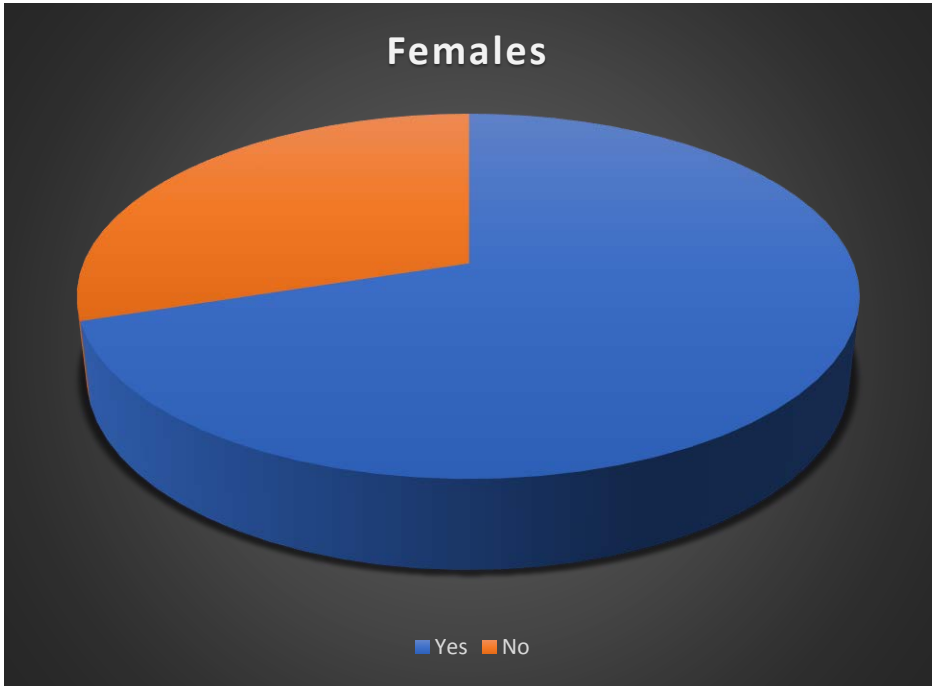
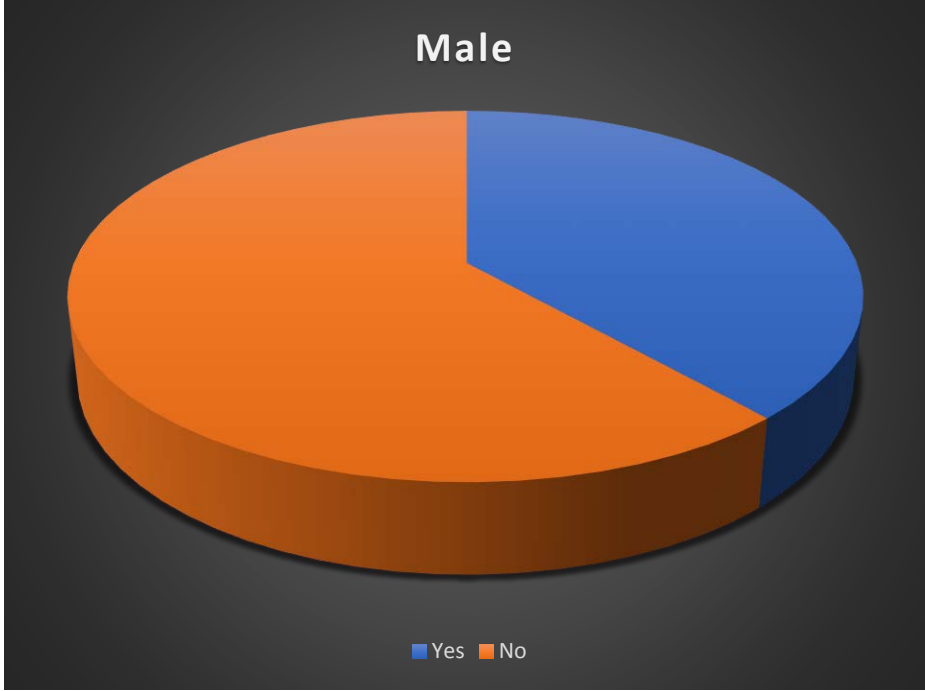
INTRODUCTION

The “Freshman 15”, is a term that everyone hears when they go to college. The terms generally mean that during the first semester of college for a student, a student is expected to gain weight due to a new lifestyle. Although it does not generally mean you will gain 15 pounds, but it generally means you will gain weight. The question I chose to explore in this scenario was this: Which factors influence a fluctuation in weight the most and whom is more prone to gaining weight (males or females). The factors I wanted to measure are the following: hours of sleep, consumption of fast food and cafeteria food, physical activity, distance from home, stress level, and student finances. The constant variable I wanted to remain controlled is I wanted to solely focus on students who lived in a dormitory and not those who commute from an apartment or

from home (which may allow them to have access to facilities that are not accessible to students who live on campus). The questions I chose to construct involve measuring lifestyle habits that will fluctuate one's metabolic rate, financial limitations, and distance. This is the process of how I conducted this experiment.

METHODOLOGY

The experiment was designed to measure several factors that may cause a shift in weight for college students. My initial design of the experiment was involved food and exercise logs over the span of a semester for volunteers, however due to time constraints I changed my experiment toward a more question-based survey (composed of 15 questions) to assess results and measure which factors were prominent in fluctuation of weight. The first factor I wanted to measure was to measure if sex played a prominent role. I wanted to measure who is more prone in gaining weight in college. According to Cluskey, he conducted research on which percentage of males and females were to gain weight in college. According to his study, males tended to not watch their nutritional and exercise habits, so males were projected to gain more weight than females (Cluskey). However, I decided to reassess the experiment to solely focus on students who lived in a dormitory on campus and away from home. These were my findings.



My findings were the following: 38% of all males said they gained weight during college and 70% of females said they gained weight in college (Note that 14/23 applicants are males).

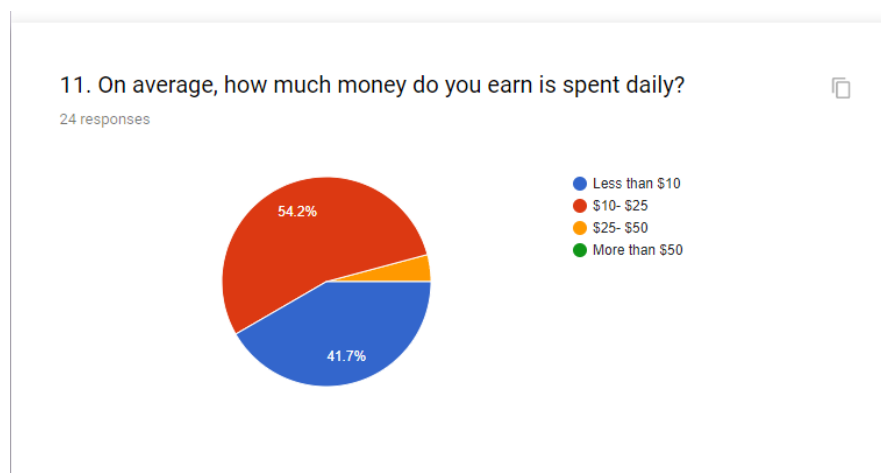
From the data, we can interpret that females are more prone to gain weight than males. However,

according to Bedenlos; males said they gain weight in college (average of 6.38 lbs) versus females gaining an average of 4.38 lbs. The factors are attributed to physical activity and alcohol consumption (Bedenlos). Bedenlos states that males do not practice healthy behaviors as consistently as females do. The study also mentions that the survey process can be skewed because physical activity may lead to weight gains and losses (Bedenlos). In another study in regards to alcohol consumption, 15 participants (8 males and 7 females) were asked to record the amount of alcohol consumed throughout of a time period of a 6 months. The participants were randomly selected and asked to report height and weight. Alcohol intake was much higher in males than females by 19.1 units (units not specified). Of the 15 participants, 13 stated that they had gained weight over the six-month period. However, despite the intake of females being lower than males, a larger percentage of females have gained more weight than males (Holloway).

The variable I wanted to maintain constant is that students must live in a dormitory on campus. In this instance, I assessed the collegiate body of Tyler Junior College as my test subjects. The dormitories found on campus lack amenities that individuals who live off campus have access to; examples include: kitchen appliances, 24-hour fitness centers and budget constraints. In all dormitories on campus, kitchen appliances are prohibited because they are considered fire hazards that will endanger residents. With limited to no access to these appliances, student will not have much of an option to prepare healthier meals and are reliant on the cafeteria and food off-campus as their main source of nutrition. Tyler Junior College does offer a rec center offering athletic amenities such as a lap pool, track, weight room, and racquetball courts. However, hours at the rec center are limited and may cause time constraints for students who cannot allocate time to go to the gym. Budget constraints is another example

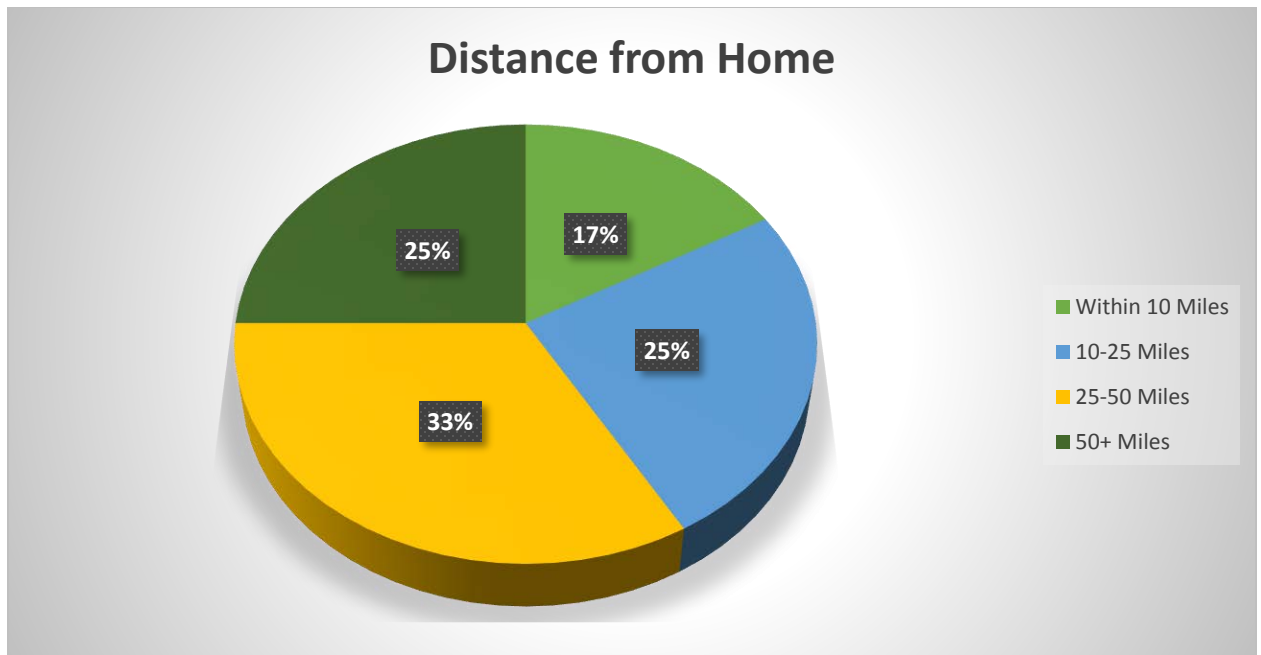
that many college students lack. Although healthier food options and local gym memberships are available to students off-campus; budget constraints may pose a problem to students who lack financial stability to maintain a healthy lifestyle. These are just some examples of what students in resident halls may face while their time in college. I had 32 surveys collected, however among the 32 that volunteered, 24 surveyors said that they lived on-campus in a dormitory. The other nine stated that they either lived off-campus in an apartment or in a house. For the sake of the experiment, I am solely focusing on the 24 students living in an on-campus resident hall.

I first asked students, what is their financial situation like while in college. I ask this question because it is to gauge financial disparity between students who did not experience weight shifts and those who did. Those who have a larger disposable income have access to more resources that could promote a healthier lifestyle. An example would be healthier groceries, access to a 24-hour gym facility, ability to eat off-campus with more nutritious options, etc. I compiled data from the 24 applicants who stated that they gained weight in college. This will allow me to gauge the survey sample and their financial status. Below shows an image of a pie chart representing the financial spread of the surveyors.



As you can see, the majority of the surveyors who said they gained weight during their first semester of college said they spend below 25 dollars daily, 41.7% state that they spend less than \$10 and over majority of the survey of 54.2% state they spend anywhere from between \$10-25. One student in the survey states that they spend \$25-50 a day and zero state they spend more than \$50 a day. According to Bona, the amount spent could be the result of the purchasing of scholastic supplies such as laptops, books, tuition fees, room, board, assignments; while spending less on what they do throughout the semester (Bona).

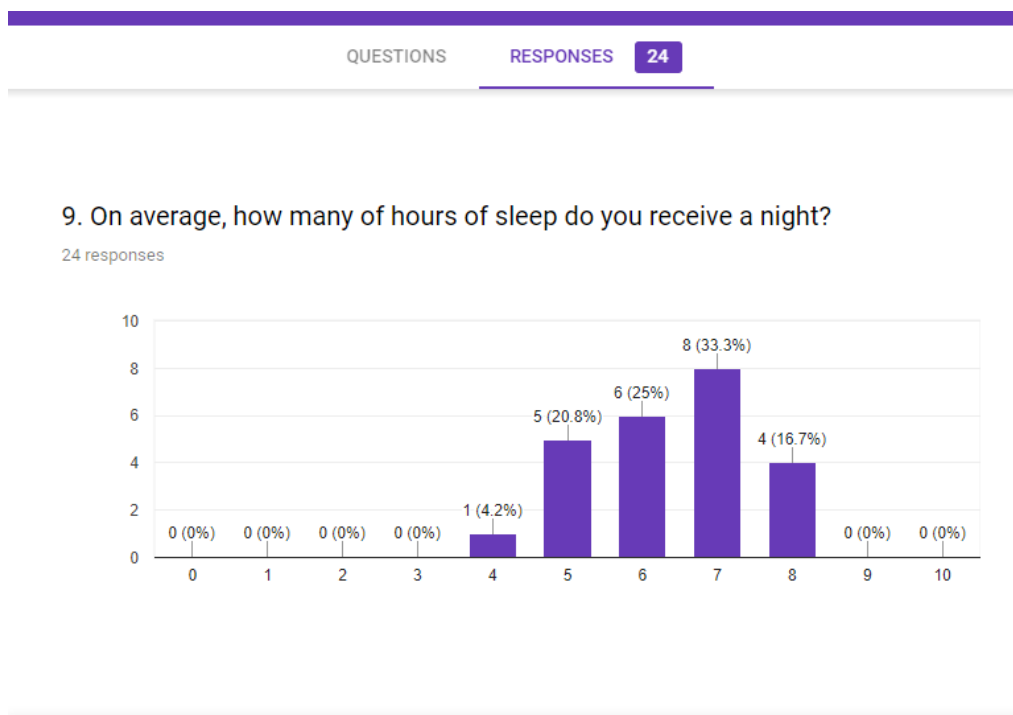
I asked students in the survey involved asking how far away the student from their homestead. The options I gave as answer choices are "closer than 10 miles", "between 10-25 miles", "between 25-50 miles", or "more than 50 miles". Please note, I had surveyed only students who said they had gained weight in college (total of 23 applicants). According to De Vos, students who live on campus gain weight in the range of 1.6 kg to 3.1 kg versus who lives off campus with their parents gain .5 kgs (De Vos). The question I wanted to explore further is that with a student who lives in resident hall are they more prone to gaining weight depending on distance. Distance will separate the student from one's legal guardians further and allow the student to not be as influenced by their parents as if they were living closer to home. An example would be alcohol consumption, drinking among the first semester college students is really high with peer pressure and college culture and has become a concern for parents (Sher). With that, the nutritional value in beer can lead to obesity. According the Wang, beer contains a lot of carbohydrates and overconsumption of carbs will lead to composition of fat deposits. Wang reports that females who consume alcohol are more prone to becoming obese and obtaining health problems than women who consume alcohol minimally (Wang). This is just one example. These are my findings correlating weight shifts to amount of distance.



In the pie-chart, it represents students who gained weight during college and their distance from home. As you can see, the green area of the graph representing <10-mile range was found to have the lowest percentage of students who gained weight. The blue area represents 10-25-mile range representing a fourth of the entire population of surveyors. However, the same applies to surveyors that live in the >50-mile range which represents the section of surveyors who live furthest away from home. In comparison to the 25-50-mile range containing a third of the population. Therefore, although the data does seem that distance does play a pivotal factor on why students gain weight, the data can be also viewed inconclusive since the section that contained the furthest distance (> 50-miles) does not surpass the second largest section (25-50 miles) in terms of percentage.

The next question I asked to the surveyors asked “how many hours of sleep you receive on average. According to Mann, lack of sleep will lower an individual’s metabolism. Individuals who are sleep deprived depend on high carb foods for a source of energy. Examples include

doughnuts, potato chips and energy drinks. Individuals receive the energy from the carbohydrates but fail to burn off all the macronutrients found in the consumed food items which will ultimately lead to the formation of a bigger waistline and unwanted pounds (Mann). During a student's first semester, freshman may find it difficult to allocate their time between socializing, academia, and extracurricular activities. With this, they must sacrifice sleep to accomplish all tasks at hand. I can personally vouch for this. My goal of this question is simple, it is to identify whether hours of sleep had an impact on a college student.



I then analyzed the surveys to see if there are any correlation between considerable amounts of sleep and see if it correlated to weight gains. What I am trying to prove is that the more sleep you should minimize the amount of weight one would put on. Listed below is a simplified survey (which lists variables that are relevant to hours of sleep) and various results.

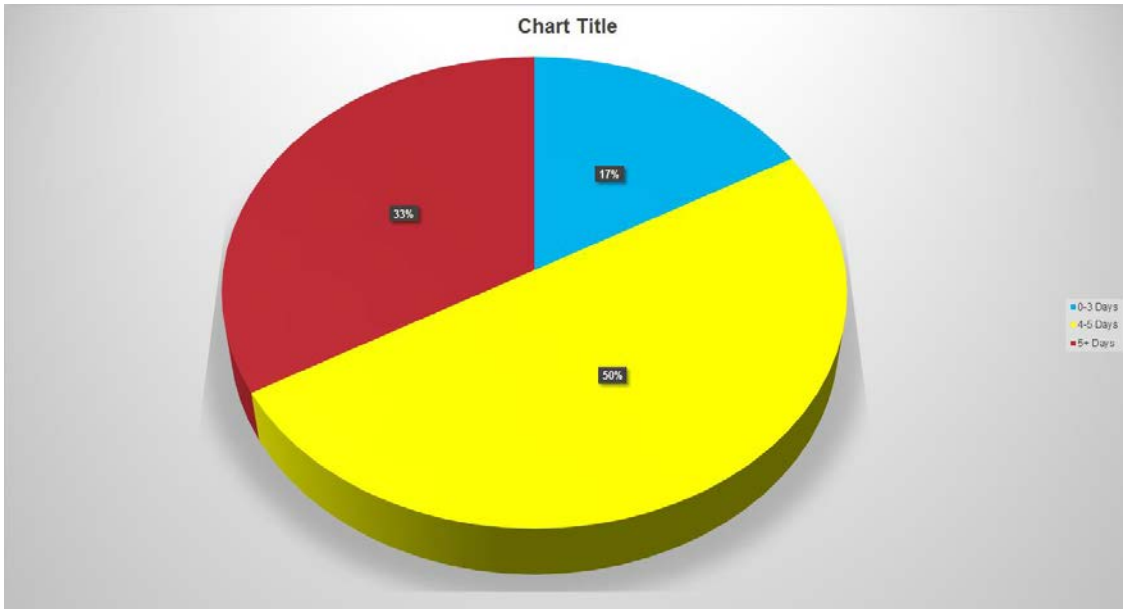
31	Sex	Gain Weight (Yes/No)	Hours of Sleep
32	Male	No	8
33	Female	Yes	8
34	Female	No	5
35	Male	Yes	7

From this sample of data, we can interpret that the hours of sleep can prove that it can be effective and ineffective. On line 32 we can view that a male student averaged approximately 8 hours of rest a night and the participant stated that he did not gain weight. However, another male student (line 35) says that he did gain weight with an average of 7 hours of sleep. In the study, the mean average of rest is 6.65 hours of sleep per students. Even with a student who reportedly gain weight that is above the calculated mean states that the correlation of hours of sleep to gaining weight is inconsistent. The same can be applied to the females in the survey. On lines 33-34 shoes two female students and their hours of sleep. On line 33, it shows a female surveyor who averaged 8 hours of rest a night and she reported weight shifts. Line 34 shows a female who reportedly did not experience weight shifts with average 5 hours of sleep. The theory if sleep correlates with weight shift proves to be inconclusive.

The next question I then asked involves nutrition, specifically the consumption of fast food, cafeteria. A study was done were women were put through a qualitative analysis to measure eating habit to freshman. The interview comprised of thirty freshman female students who were previously interviewed on body dissatisfaction. The result cite that the women claimed that "the freshman 15 is inevitable" as they said that the reason to "freshman weight gain to newly found food independence, social comparison with peers, and the influence of friends and family" (Smith-Jackson). Another study was done where a group of surveyors asked 217 volunteers to assess their weight, height and BMI (body mass index) to measure any shifts in weight over a period of time by focusing on nutritional habits, consumption of meals in dining

halls and measuring physical activity. At the end of the time period, the students were asked to come back to go through an assessment of any bodily changes. However, since only a small percentage of students came to for the second assessment this study was not 100% accurate. From the findings, the average mean of weight gain from the students from the second assessment is 2.86 lbs. The conclusion is that that nutrition and physical activity do play a pivotal role in the "Freshman 15"; however, it is difficult to pinpoint the exact reason why (Hoffman). Nutrition is essential for any individual to maintain a healthy lifestyle and not to gain fat. However, maintaining a diet can prove to be very costly. According to Meldrum, students on financial aid were offered a food plan that involved a nutritious meal plan for \$296 a month. Most students could not afford the meal plan. Meldrum's findings were that "students reliant on financial assistance likely have insufficient money for a nutritionally adequate diet and are at risk for food insecurity. Shopping skills and budgeting, while important, would be insufficient to alleviate food insecurity for many students who require financial aid. Increased funding for food in student loans is necessary. (Meldrum). Students find themselves in a situation where they are stuck in a lifestyle where they are vulnerable to gaining weight due to financial implications.

However, college students are very prone to gaining weight due to unhealthy eating habits. According to Zigmont, students find fast-food appetizing because it allows an individual to purchase a hot meal at practically any time of the day and at an affordable price. However, most students misinterpret the nutritional value that is in fast food; for example, reading nutritional facts. The goal of the study was to see if adding nutritional fact on fast food menu will allow students to make healthier choices and the answer was overwhelming yes (Zigmont). The question I wanted to answer is that if cafeteria consumption and fast food factors in the freshman 15. Here are my findings:



In the chart above represents the students who gained weight in college and the amount of times a student's eats in the cafeteria on weekly basis. The answer choices are as follows: 0-3 days, 4-5 days, and 5+ days. As you can see from the graph, students who eat in the class less are less prone to gain weight in comparison to those who eat in the cafeteria more. In the red section representing the 5+ day category, although the percentage is less that the 4-5-day category (yellow section); 4 students have said that they eat on campus dining 5+ days a week and 4 of them said they gained weight. Please Note: The data below was pulled from the overall data and consolidated by category for the sake of simplicity

	Sex	Gain Weight Yes/No	Cafeteria Consumrion in terms of days out of the week
16	Male	Yes	5+
17	Male	Yes	5+
18	Male	Yes	5+
19	Male	Yes	5+
20	Female	Yes	5+

In conclusion, the more a student eats in the cafeteria, the more likely it is a student is to gain weight.

Fast-food is also a factor that can result in weight gain among college students. Fast-foods offers hot meals at any time of the day and at a very affordable price. It is also part of college culture and motivated to consume fast food. According to Xiaohong, fast food promotes motivation for college students at Wuhan University in the following categories: social motivation, conformity motivation, show-off motivation, self-hedonic motivation, quality-pursuing motivation, and self-gift giving motivation. Thus, in turn also influences consumption practices and frequencies (Xiahong). However, with this, the nutritional value offast food is really poor. According to Freeman, fast-food is a major source of nutrition for individuals with a limited disposable income and with marketing strategies, like the dollar menu and cheap menu items, fast food is only growing in popularity. Fast food has been linked to obesity, and makes individuals be more prone to contract health problems. The ones most affected by this is the African-American and Latino population. College students are also lined to this problem as well due to income shortages and its convenience (Freeman). In the graph below shows a bar graph labeling the amount of college students who gained weight in correlation to the amount of fast food consumed in terms of days out of the week.



As you can see from the data, it is found that fast-food could potentially lead to weight shifts; the data presented shows that 0 times a week a student consumes fast-food but still gains weight. Therefore, fast-food does play a role in a student gaining weight, but the data is not

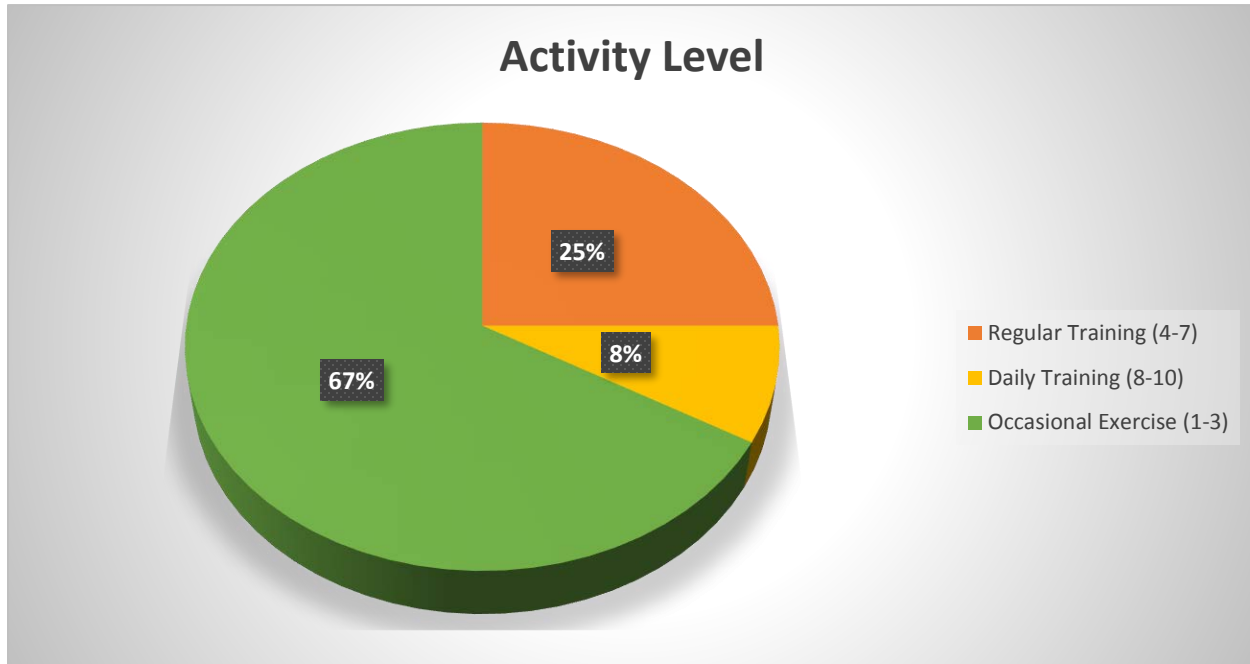
consistent in saying that the consumption of fast-food automatically leads to gaining weight since we had students say they eat fast food no more than once a week and still say they gain weight.

The last variable I wanted to test was the measurement of physical activity. Physical activity is vital in long-term wellness such as preventing heart disease, type 2 diabetes, and overall quality of life. According to Downes, “The majority of college students do not practice recommended guidelines for physical activity for 30 minutes \geq 5 days per week (86.6%), do not eat fruit daily (84%), and do not eat vegetable daily (83%)” and that the consumption of unhealthy foods invokes a lack of motivation to undergo physical activity or to practice healthy behaviors (Downes). I used a Garmin Activity chart to gauge student’s physical activity level during their first semester in college.

Activity Class Chart

	Training Description	Training Frequency	Training Time Per Week
0	No exercise	-	-
1	Occasional, light exercise	Once every two weeks	Less than 15 minutes
2			15 to 30 minutes
3		Once a week	Approximately 30 minutes
4	Regular exercise and training	2 to 3 times per week	Approximately 45 minutes
5			45 minutes to 1 hour
6			1 to 3 hours
7		3 to 5 times per week	3 to 7 hours
8	Daily training	Almost daily	7 to 11 hours
9		Daily	11 to 15 hours
10			More than 15 hours

After showing the chart I asked the students what you would rank your activity level during college using the numbers on the left side of the chart (excluding walking on campus). Shown below is a pie-chart that classifies students and their following activity levels.



I consolidated that numbers (1-3), (4-7), and (8-10) in the following categories respectively: occasional exercise, regular training, and daily training. From my findings, most of the individuals who gained weight said they trained less than 30 minutes a week (67%- Occasional exercise). Twenty-five percent of the surveyors said that they did regular training, and eight percent said that did daily training. As you can see, there is an obvious correlation between the amount of time put into physical activity and the number of individuals that gained weight. There is also a possibility that individuals who exercised also gained muscle-mass so the data can potentially be skewed.

Future Study

What I learned from this study is with a multitude of factors that result in gaining weight, those that seem to manipulate weight the most is nutrition, fitness, and distance from home. This study

taught me to be more cautious on unhealthy behaviors to prevent conforming to an unhealthy lifestyle.

Equivalent number of males to females may result in a different result (population size: 14 males and 10 females)

Using sample on multiple campuses

Record athletic background of a student prior for taking the survey (may influence initial metabolic rate)

Results/Conclusion

The result of the study shows that females are more prone to gaining weight than males. With 70% of females saying they gain weight during college and in comparison, with 38% of males. The three most outstanding factors being activity level, distance from homes, and cafeteria consumption (nutrition). Individuals who report lower activity are more prone to gaining weight, the farther the distance from home; the more prone an individual is to gain weight, and lastly high consumption of cafeteria food results in weight gain. Although sleep, financial status, and stress do affect an individual's metabolism, and the data did not have a profound impact on an individual's weight.

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