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A Guide to Acquiring Healthy Nutrition and Fitness Habits for College Students: Preventing Diabetes, Hypertension, Coronary Heart Disease, and Stroke

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A Guide to Acquiring Healthy Nutrition and Fitness Habits for College Students:
Preventing Diabetes, Hypertension, Coronary Heart Disease, and Stroke

For the past three decades, obesity has been cited as a growing epidemic in the United States, according to the New England Journal of Medicine (NEJM). Obesity is a major contributing problem to a number of medical conditions. Studies in the *NEJM* have “correlated obesity with myriad cancers, coronary heart disease, hypertension, diabetes, and stroke,” and other health-related problems (Fumento). Healthcare experts, doctors, and practitioners estimate it will cost billions of dollars a year to bring this problem under control and it is a major contributing factor in the rising cost of healthcare (Oliver 1). Luppold, Voilette, and other practitioners argue that “Rising health care costs affects the economic vitality . . . from government, business, and non-profit agencies to families and individuals” (1). If a child is overweight by the age of six, the likelihood of that child becoming obese in adulthood rises to 50 percent, according to Dietz (411S) and will struggle with obesity over a lifespan (Karp 1). Obesity is a “disorder of energy imbalance; that is, more energy is consumed” (Luppold and Violette 1). One of the major groups afflicted by this epidemic is a college student and this problem usually starts in the home. Most college students are obese and super-sized fast food deals are fattening for the consumers. The purpose of this project is to discuss the theoretical implications of obesity: defining it, its causes and cures, and to create a nutrition guide to help college students maintain a healthy lifestyle.

Many people would argue that obesity is a choice because over-eating or eating the wrong foods is a choice. There are others who would argue that people become slaves to food and that the choice of controlling one’s over-eating habits is diminished. What exactly is obesity and how is it determined? Obesity is determined when an individual’s body weight is compared to his or

her height, which is called the Body Mass Index, better known as BMI. When the weight is approximately 20 percent higher than the ideal weight, given the persons' height, then that person is considered obese. If college is an option for an individual who is raised in an unhealthy eating environment it can be a catalyst for changing bad eating habits to help prevent and cure many problems that lead to bad health. Genetic, psychological, cultural, social, and economic factors are contributing to factors to obesity but bad eating habits are a major factor. For this reason, I provide a general overview of obesity and some health-related problems associated with it such as obesity and Diabetes (Type I & Type II Diabetes); obesity, hypertension, and coronary heart disease; obesity and cholesterol, and some tips for changes in controlling obesity.

The Obesity Problem and College Students

The problem of obesity has escalated over the years. Socially and culturally, our culture and society have a severe penalty for those who are obese. Obesity has risks to the health and makes it easy to support this assumption; however, these risks are highly variable depending on the person's age, sex, and genetic makeup (Parham 196). Over the past 30 years, according to the CDC, the obesity rate among college students increased more than 14 % among kids ages 12-19. Excess weight during these ages has long-term physical and psychological effects on this age group (Duyff 412). As many as 2.4 million deaths can be associated with obesity or obesity related disease ("Poor Diet" 98). The CDC estimates that "poor diet and reduced physical activity will soon over-take tobacco as the leading cause of death" ("Poor Diet" 98). Obesity is just as much of a behavioral and social problem than an educational one. Behavioral change is motivated not by knowledge alone but by a supportive social environment and the availability of facilitative services. As a result, future research "efforts will be devoted to learning more about the target audience, their environment, and what motivates their food decisions. Research is also

needed to develop methods to evaluate the effectiveness of nutrition education programs to determine if behavior is changing” (Davis and Saltos 1).

Obesity-related diseases such as cardiovascular disease, cancer, diabetes, and high blood pressure all rely on the development of screening techniques, cholesterol screening, blood pressure, and blood sugar monitoring on campuses, which can be used in preventive activities. Roughly 50 percent of premature mortality in the United States can be traced to lifestyle-related problems (Zager 65). As the obesity epidemic rises, it is becoming vital for these tests to be done at an earlier age, and effective educational programs may be the key to decreasing this widespread incidence (Zager 65).

Regular physical activity has been widely proven to decrease the risk for heart disease and provides an important component for the treatment and prevention of obesity (Zagar 65). The American College of Sports Medicine has recommended a lifelong practice of routine aerobic exercise, at least three times per week for 30-60 minutes (ACSM 207). The American Dietetic Association also suggests that to maintain an ideal weight through healthy eating practices and an adequate exercise program are essential to health promotion strategies because many college students have been identified either as overweight or obese. Consequently, college students are exhibiting a variety of health risks as the college years have an important role in behavior practices, such as physical inactivity and establishing patterns of healthy living, based on the 2006 American College Health Association National College Health Assessment, potentially altering the way students live the remainder of their lives (205). However, motivating college students still seems not to be a mainstream concern in today’s economy. The lack of exercise and poor eating habits cause obesity and are the leading causes of death in America, causing at least 300,000 deaths annually (Von Ah 468). Studies that have taken place in the college

population suggest that unhealthy diets and low physical activity (PA) levels are the major reasons to overweight and obesity problems among college students (Huang 85). Based on the surveys of some students when asked about what would motivate them to eat healthy and exercise regularly, they said:

- “I eat healthy and exercise regularly to help keep my body image. I don’t want to get lazy when I get older.”
- “Gaining an immense amount of weight or incurring a health problem.”
- “To become healthy and active, maintain a good weight and live longer.”
- “Because it's really good for health of the body.”
- “. . . I have a family full of diabetics and HBD so I see what their life is like and their weight struggles. So that is motivation enough.”
- “My own body because it's my own insecurity; I hate flab and healthy food and exercise makes flab stay away.”
- “Seeing other healthy people and comparing myself to them.”
- “Weight loss.”
- “I think if I had the money and cooking skills to eat healthier I would.”

However, when they were asked whether they use exercise and eating as a source of weight maintenance or whether they find it easier when they exercise and eat with support of friends/family, some said:

- “. . . I believe friends and family are not that supportive when it becomes to weight maintenance. The people need to be able to depend on themselves.
- “I do not want family or friends to support me. I enjoy doing it myself.”
- “I do exercise and eat healthy to maintain a good healthy weight. I do find it easier to exercise when I'm on an active schedule with friends.”
- “I use them as a source of encouragement and without encouragement I wouldn't be able to make it.”
- “. . . I do find it easier with a friend or family support because I am very competitive and the support from them would motivate me.”
- “I use exercise as weight maintenance and diet somewhat. It’s definitely easier to work

out and diet when you have a friend to bear through it with.”

- “. . . Exercise and eating healthy play a major role in weight maintenance. It's easier when someone is supporting me and exercising with me. However, sometimes one must be their own motivation.”
- “It's easier with friends to manage weight. It's not as easy with family because it's the only behavior we know and somewhat affordable. Teach us how to eat healthy on a budget in ways that will not conflict schedules.”

Even though students had different reasons for eating healthy, exercising regularly, and using family and friends as a support system, they are aware of the importance of developing positive eating behaviors such as a balanced diet and regular exercise. These behavior patterns for college students are well documented (Horowitz 1934). There are gender differences between males and females in college. College males focus on lowering dietary fat and building muscle, while college females are more concerned with controlling their weight (Andrews 219). Educational efforts focusing on these issues are helpful for students in making healthy food choices within the environment of college. With college students carrying a heavy course work load, a poll indicated that 57 percent of males and 61 percent of college females report no vigorous or moderate activity for three or more days throughout the week (Buckworth 31).

As previously stated, college is an opportune time to establish healthy behavioral practices, as research shows a decline in physical activity during early adulthood between 18 and 24 years of age (Von Ah 468). The problem occurs as they are adjusting to a new independent life and trying to juggle classes, work, and a social life.

Eating habits are also a problem in both the general population as well as college students. A shocking study uncovered that only 28 percent of people over the age of two are meeting daily recommendations for fruit intake and fewer than 3 percent are meeting daily

recommendations for vegetable intake (United States Department of Agriculture Dietary). College students often exceed the recommended daily limit for saturated fat intake with the endless supply of fast food, alcohol, and junk food at their disposal. In their study, Susan Racette and her colleagues found that more than half the students in their sample reported eating high-fat fried or fast foods at least three times per week which is above the recommendation and cause of obesity and diseases associated with it (247).

The American College Health Association estimates that three out of every ten college students are overweight or obese (Strout 1). Both terms denote ranges of weight that are greater than what is considered healthy for a given height and have been shown to increase the likelihood of diseases. Over the past two decades, the number of American children who are obese has ballooned. According to the federal Centers for Disease Control and Prevention, the proportion of 12- to 19-year-olds that are overweight has risen from 5 to 17.4 percent (Strout 1). Now those kids are going to college, and many are burdened with hypertension, Type 2 diabetes, coronary heart disease, and high cholesterol and triglyceride levels.

A 2004 study found that self-efficacy was a significant predictor of exercise and nutrition behaviors. The higher the self-efficacy and the lower the perceived barriers to exercise and nutrition, the more likely respondents were to engage in protective behaviors, for example, exercising three times per week or eating well (Von Ah 472). Moreover, intra-personal, inter-personal, and environmental factors have been found to affect college students' exercise and eating habits. Inter-personal factors such as public support have also been found to play a positive role in students' physical activity and eating behaviors, and the lack of communal support has been shown to be detrimental to health behavior during times of stress (Von Ah 469).

Environmental influences that impact college students' exercise and eating habits have also been shown as buffet style cafeterias and excessive portions served at dining halls have been implicated in overeating and poor nutrition (Levitsky 1437). Little research on environmental influences about exercise in this population is small; it is common knowledge that the working and living environments of students have been shown to influence students to exercise routinely (Keating 137). Reed and Phillips' study has shown that exercise routines only increased when locations of the workout facilities were close by (287). College and university faculty and staff are fully aware that obesity is unhealthy but they have been slow to consider the cost it will take on students' whose sedentary habits and poor diets, if it continues, will harm their health.

In 2000, the obesity epidemic, according to the United States Surgeon General, cost an estimated \$78.5 billion in medical expenditures which is the most recent figure available from the federal government and half of which are paid by Medicaid and Medicare (Strout 1). To add that classes and studying increases the time students spend in sedentary work with no exercise is very obvious. When asked, students report spending almost 30 hours during a typical week in sedentary behaviors, with no exercise, often because they are studying (Buckworth 31). When students do have free time, many choose to use it for activities other than exercise and are not involved in organized sports (Levitksy 1441). Furthermore, many students spend a great deal of time watching television and using computers or other technology. Many hours of television viewing have been associated with being overweight, and the average college student reports watching two hours of television per day (Nelson 364). The hours of sedentary behavior with heavy advertising for unhealthy foods may explain why TV watching is associated with being overweight. Among college males and females, television watching and computer usage have

been negatively correlated with exercise and challenge active behaviors, such as exercise for college students' leisure time (Buckworth 29).

University health officials are predicting that some students may need increase their participation in health-services because of the increase in the number of students with obesity-related chronic diseases (Strout 1). University health officials believe it is the responsibility of colleges to help students avoid or overcome the problem with being overweight. However, action has yet to be taken. Erin Strout argues that "Colleges have a responsibility to help students prosper; it is great if they can learn to write well or their education leads to a successful career, but what good can that do if they're dead by 50?" (1). For researchers to understand the environmental and social factors that are important during college and how these factors influence student behavior and environments, researchers may need to redouble their efforts to focus on college students making their own independent choices for the first time and understand how location and ethnicity are major factors (Nelson 366).

The freshmen 15 ideology states that freshmen gain at least 15 pounds in their first year of college. A University of New Hampshire study of 800 undergraduates enrolled in a general-education nutrition course found that at least one-third of their students between the ages of 18 and 24 are overweight or obese. The study also indicates that this group is on a path toward chronic health problems. Obesity causes many diseases such as type 2 diabetes, heart, joint, and mental problems. It also influences college students' self-esteem, body image, and brings on stress and isolation from their peers. The American Diet Association claims that kids mimic the food and lifestyle habits observed in the home (Duyff 412). The Journal of Adolescent Health determined that "regular family meals provide an opportunity for the role modeling of healthy eating patterns and social interactions among family members and may help to reinforce healthy

eating patterns and prevent disordered eating behaviors” (Duyff 412). If children get a well-balanced diet and encouraged to engage in physical activity then they are more likely to develop positive self-esteem and social skills. Physical activity helps college students to reduce excessive weight loss as they change their eating habits.

There are a number of reasons why college students get stressed that lead to weight gain. The escalating cost of college and parents out of work have forced college students to work while taking classes. With full-time school and part-time work schedules, college students’ ability to eat healthy and prepare healthy meals is diminished. Transitioning from high school to college can be stressful on students. Freshmen might be stressed trying to adjust to the college workload. For example: when the body is stressed it releases Cortisol. Cortisol slows down the body's metabolism and is stress hormone that causes body fat (Duyff 346). Other studies have shown that when people are stressed, they begin to crave foods high in calories or sweet and salty processed foods (Epel 36). When college students crave processed food in large quantities, they are unaware they are not meeting the nutritional recommendations (Epel 37)

College cafeterias are the breeding grounds for students acquiring an unhealthy lifestyle. Food courts and cafeteria style eateries are the most common dining halls found at colleges and universities. A Cornell University study found that 20 percent of the weight gained by their subjects was due to students eating at all-you-can-eat cafeterias and food courts, which includes snacking and eating junk food (Levitsky 1437). Since many students have not learned how to eat healthy foods and have no parental monitoring of their eating habits, they discover or rediscover what it means to acquire good eating habits. If students follow a nutritional plan then they can avoid bad eating habits. This next section argues that obesity leads to severe health-related problems.

Obesity and Diabetes

Obesity is one contributing factor to diabetes. Diabetes is a disease that affects millions of Americans. Media ads tout the latest drugs for controlling the blood sugar while hundreds of books on Amazon.com and Barnes and Nobles illustrate how people should prepare their foods for controlling this disease (Gavin 63). Researchers are considering several other possibilities to help diabetics' better cope with the disease that can be managed, researchers say. When combined with other tests, regular doctor's exams, and preventive measures then medical experts believe a person with diabetes can keep the disease under control and even turn back the clock on its ravaging effects" (67). However, there are two types of diabetes: Type I and Type II. Type I diabetes is immune-mediated, the body completely stops producing insulin, and the individual becomes insulin-dependent. It must be noted that Type I diabetes usually occurs in young adults. With diabetes a persons' body still changes most foods into glucose. Glucose enters the body and travels to the cells. The cells cannot use sugar or glucose for energy without the help of insulin. Insulin is a special kind of chemical called a hormone. Insulin is made by a part of one's body called the pancreas. Diabetes is a disease in which your body is unable to properly use and store glucose. Glucose backs up in the bloodstream and can cause the blood glucose or "sugar" to rise too high. Type II causes one's body to not make sufficient insulin but the body cannot properly use it. Without enough insulin, the body cannot move blood sugar into the cells and sugar builds up in the bloodstream causing problems. Researchers have yet to find the cause of Type II diabetes, but it does run in families and usually takes another factor such as obesity to bring on the disease (Rosenbloom 12).

Obesity, Hypertension, and Coronary Heart Disease

Hypertension and coronary heart disease are linked to obesity, genetic predisposition to high blood pressure, as it leads to coronary heart disease. Hypertension is a common in obese individuals and cause of coronary heart disease. Hypertension is defined “as the level of blood pressure (BP) at which cardiovascular risk is measurably increased for the population and the level of blood pressure at which its treatment has been shown to significantly reduce cardiovascular morbidity and mortality in prospective randomized clinical trials” (Williams 3).

Hypertension or high blood pressure comes in two forms, primary and secondary. Primary is classified when the doctors find no specific cause for it and secondary is the exact opposite where a cause is identified. High blood pressure does not have any outward symptoms. High blood pressure causes permanent damage to the brain, the heart, the kidneys, and eyes. It might be years before chronic illness sets in, but it forebodes future costs in terms of health. Blood-pressure readings for young adults are labeled as a percentage compared to the older age groups; for example, when young adult readings are in the 90th percentile and above, they are diagnosed with pre-hypertension (Popkin 705). A study done at the University of North Carolina at Chapel Hill found that nearly one in five young adults between the ages of 24 and 32 have high blood pressure, also known as hypertension (Popkin 702). The study surveyed more than 14,000 young adults from different backgrounds across the country. Other studies have only concentrated on older adult because hypertension is more common. Many young adults develop hypertension and are not medically diagnosed until years later when other health concerns are addressed, according to the American Heart Association (Gardner 2211).

In 2008, researchers at Thomas Jefferson University in Philadelphia have established a clear link in their study using information from the National Childhood Blood Pressure database

(Falkner 247). The results showed a clear link between a pre-hypertension diagnosis and the progression to hypertension in 14 percent of the males and 12 percent of the females surveyed (Falkner 243). Young people are more likely to have a diet that has fast food in it with a high intake of sodium and additional calories from sugar drinks. Another risk factor is a lack of physical exercise. This is a transitional period in their life as they're just coming out of a fairly active period in adolescence, and they are in college or starting jobs which do not give them as much time to be active.

The link between pre-hypertension and hypertension is why young adults suffer from obesity. "Nation at Risk," a 2008 report sponsored by the American Heart Association labeled nearly 17 percent of all males between the ages 12 to 19 as overweight (Gardner 2211). The report stated that obesity, due to large portions of food high in sodium and fat as well as a lack of physical activity, is directly linked to high teen blood pressure. The key is finding high blood pressure in young adults because this increases the rates of stroke, diabetes, and poor kidney function (Gardner 2217). These kinds of chronic illnesses are slowly creeping down into the younger ages. In 2005, the American Heart Association said obesity and coronary heart disease are starting to affect children and teens. It was estimated that nearly 10 million children between the ages of 6 and 19 were considered overweight. Children who are overweight often have artery damage which is a precursor to coronary heart disease. Since coronary heart disease is progressive, AHA researchers expect obese children to have even shorter life spans than obese adults, unless something is done to fight childhood obesity.

Coronary heart disease (CHD), the most common heart condition, occurs when the arteries taking oxygen-rich blood from the lungs to the heart become hardened and narrowed because of plaque build-up. The plaque is made of cholesterol found in the bloodstream. When insufficient

blood is flowing to the heart, it can cause chest pains and eventually a heart attack. If left untreated, coronary heart disease can weaken the heart muscle by robbing it of oxygen, which leads to total heart failure (Hann 33). CHD has recently been on the decline; however, this disease remains the leading killer of US adults at all ages. CHD in young adults is not as well characterized as CHD in older adults because it occurs less frequently (Potier). Young patients are more likely than older patients to be smokers, male, obese, and have a positive family history (Potier). Risk factor reduction is of major importance in managing young CHD patients. Approximately, 20 percent of CHD in young adults is related to non-atherosclerotic factors such as coronary abnormalities, connective tissue disorders, and autoimmune disorders.

Obesity and Cholesterol

Cholesterol is naturally produced by the body and is structurally a combination of lipid (fat) and steroid. Cholesterol is a building block for cell membranes and for hormones like estrogen and testosterone (Hann 33). About 80 percent of the body's cholesterol is produced by the liver while the rest comes from our diet. The word cholesterol comes from the Greek word for bile (chole)- ster(solid) and -ol (alcohol). It is recommended that cholesterol screening begin at the age of 20 and is retested every five years and should have an LDL lower than 200. There are two kinds of cholesterol. LDL (low-density lipoprotein) cholesterol is called "bad" cholesterol because elevated levels of LDL cholesterol are associated with an increased risk of coronary heart disease (Hann 33). Think of the "L" as meaning lousy. The second is known as HDL (high density lipoprotein) cholesterol is called the "good cholesterol." Think of the "H" as healthy. HDL cholesterol particles prevent atherosclerosis (coronary heart disease) by extracting cholesterol from artery walls and disposing of them through liver metabolism. When individuals

have high levels of LDL cholesterol and low levels of HDL cholesterol, they are risk factors for atherosclerosis.

Certain foods particularly increase cholesterol and are consumed by younger adults without their knowledge of how it directly affects their health. The better the foods tastes, the higher the chance that they are high-cholesterol foods. There are two main nutrients in the foods that make cholesterol high. The high-cholesterol foods contain: saturated fat, this type of fat found mostly in animal products but also packaged and fried food, which is consumed and seen mainly in younger adults' diet (United Kingdom n.pg) The second is just cholesterol which comes from animals as well. Understanding fats are very important to lowering cholesterol; saturated fats raise your LDL cholesterol level more than anything else in the diet. Eating too much saturated fat is the main reason for high-cholesterol levels and a high rate of heart attacks (United Kingdom). Cholesterol comes from meat, poultry, fish, and dairy products. Organ meats, such as liver, are especially high in cholesterol content while foods of plant origin contain no cholesterol. After eating, dietary cholesterol is absorbed from the intestine and stored within the liver. The liver regulates cholesterol levels in the blood stream and secretes cholesterol if it is needed by the body. Therefore, LDL is deposited along the inside of artery walls causing the formation of a hard and thick substance called cholesterol plaque. Cholesterol plaque causes thickening of the artery walls and narrowing of the arteries, a process called atherosclerosis, which decreases blood flow through the narrowed area of arteries (United Kingdom). Another factor is Triglyceride which is a fatty substance that is composed of three fatty acids. Like cholesterol, triglyceride in the blood either comes from the diet or the liver. Also, like cholesterol, triglyceride cannot dissolve and circulate in the blood without combining with a lipoprotein.

The liver removes triglyceride from the blood, and packages it into VLDL (very low-density lipoprotein, which also includes LDL and HDL) particles and releases them back into the blood circulation. Research has shown that lowering LDL cholesterol reduces the risk of heart attacks, strokes, and peripheral artery disease (“High cholesterol” 1). Factors that affect blood cholesterol levels include diet, body weight, exercise, age and gender, diabetes, heredity, and other causes, including underlying medical conditions. The liver produces four times the amount of cholesterol from diet. This makes saturated fat much more harmful than dietary cholesterol and renders dietary cholesterol as a negligible factor for high-cholesterol levels, or cardiovascular disease risk factor (Potier). Saturated fat also raises triglyceride levels and thickens the blood. The cholesterol content that makes food detrimental is not directly the cholesterol. It is the fat, or better the saturated fats, which come mainly from meats, nuts and dairy foods and causes the liver to produce more harmful cholesterol. Cholesterol and fats are just some of the ingredients on the food label the population needs to worry about.

The food label is a map for the population to follow on what the food contains. Younger adults and the general population do not know how to read food labels and even if one does, most are still unaware of what the ingredients are. College students need to pay attention to food package labels to check fat and cholesterol levels. Many younger adults eat processed and prepared foods. Although convenient, cookies, pastries, and muffins, which contain sugar and packaged foods, are very high in cholesterol and high in saturated fats. For example, when reading a food label the population has been warned to stay away from trans-fat. Trans-fat is another type of fat that raises LDL and has been misunderstood when people decipher a food label. In July 2003, the Food and Drug Administration (FDA) issued a regulation requiring manufacturers to list trans-fat on the Nutrition Facts panel of foods and some dietary

supplements (Food and Drug 41059). The new labeling rule became mandatory across the board, even for companies that petitioned for extensions, on January 1, 2008. However, unlike in other countries, Trans-fat levels of less than 0.5 grams per serving can be listed as 0 grams trans-fat on the food label (Food and Drug 41059).

High cholesterol levels increase strain on the heart. Consuming foods with high levels of triglycerides in the blood (high cholesterol levels) also known as saturate fats, leads to a deposition of lipids in the arteries. This results in coronary thrombosis which leads to myocardial infarction and strokes (United Kingdom).

Tips for Changes in Diet

Since obesity can be controlled, I argue that changes in a college students' diet and behavioral practices can lead to a healthier lifestyle. First, students should always check the nutrition fact labels on boxes, bags, and canned goods. They should then begin preparing portion sizes when adding up their calories and begin adjusting to new portions in relation to the number of calories they need to stay within their calorie level (louisvilleky.gov). To keep fat in check, they will also need to choose foods that have less than one-third of the calories from fat (louisvilleky.gov). Oils and soft margarines may be used in moderation and saturated fat should make up no more than one-third of their total fat grams daily (louisvilleky.gov). They should limit trans-fat to a minimum of 2 grams per day and select food that has sufficient dietary fiber to get a minimum of 25 grams of fiber daily for regularity, colon health, and lower cholesterol levels (louisvilleky.gov). For example: a student should purchase a nutrition guide and learn how to prepare weekly meal plans and a food journal (see guide at end of this manuscript and Appendices A and B). As indicated in Appendix A, the student can lay out meal plans. This change also calls for smaller but more frequent meals. By doing so, they can start by planning

and journaling what they eat on a daily basis (morning, noon, evening) and track and compare their progress on a monthly basis (Appendix B). This will ensure they eat frequent smaller meals while staying on track. Moreover, this practice can help students understand their eating patterns and see how this affects weight loss and maintenance.

Losing weight seems can be a daunting task to an obese person but small changes in the lifestyle can help. In a study published by *Pediatrics Magazine* in 2007, researchers found that simply cutting 100 calories a day and increasing activity levels by 2000 steps each day, families could work together to lower their BMI levels. Falkner argues that by losing just 5 percent to 10 percent of your body weight can delay or prevent the onset of obesity-triggered diseases (247). The U.S. Department of Agriculture (USDA) Center for Nutrition Policy and Promotion says with all the food options available to students on college campuses, it's easy not to notice how much they are eating if they are not paying attention. There's so much socialization that goes on around food in college that they eat with friends and learn certain patterns. Patterns of healthy eating and adequate exercise are important in achieving and maintaining optimal weight. Teaching students in wellness behaviors of the fundamentals of nutrition is a demonstration of knowledge of physiological, psychological, and environmental determinants of eating behaviors that are some recommended methods (American College 204). Prevention strategies must be thoughtfully created and implemented to avoid the escalation of the obesity epidemic (Bouchard 53).

The major reason why students gain the pounds during their first year of college is because they are not guided by any nutrition plan. Many college students have regularly relied on their parents to make sure they eat healthy, and when they are left to make their own meal choices, they sometimes take the wrong path (Frary 353). Usually, this is the first extended period of time

when they are on their own. With this freedom to make their own selections, they may be exposed to unhealthy choices for the first time.

College students, when deciding on how they should spend their money, use poor judgment and exercise unlimited freedom of choice. They use this freedom to decide how to spend money on clothes and food. They go shopping and then end up eating ramen noodles or spend it on fast food that is cheaper. Of course, college students do not constantly eat healthy because the unhealthy meal choices are often much cheaper than healthier options. In elementary school, they all learned about balanced diets and selected foods from the various food groups is important for keeping their bodies and minds functioning the easiest way. They did this by thinking about eating a rainbow (Frary 349). The more colors they put on their plates, the better off they were. These colors such as the reds, oranges, yellows, and greens came from vegetables and fruits. Fruits and vegetables are the main way to stay healthy. They provide nutrients, antioxidants and chemicals in fighting diseases, and can help students maintain a healthy weight (Frary 351). Dark pigmented foods that are brown are fibrous foods; fiber helps with glucose levels, digestion, cholesterol, among other benefits. White foods are usually processed and refined, as they are stripped of their health properties and do not have enough fiber. The processed foods marked bleached or enriched have added chemicals and little to no healthy properties (Frary 353). College students live on these foods because they are cheaper, packaged, and are not required to be cooked.

Many students living in college dorms have no access to a kitchen (Gates 96). They automatically assume they cannot choose to eat healthy. The option for a campus meal plan is typically not healthy. Students need to choose wisely in order to eat healthy with the choices available to them, cutting back on meal portions to avoid consuming excess calories is

recommended (Frary 354). Students also regularly eat a fourth meal or a midnight snack. When eating an extra meal, they have to be careful that they build it into their diet and pay close attention to the calories and ingredients in foods they eat. They also need to pay close attention to careful the amount of snack foods, such as cookies, candies, and chips, which they keep in their dorm rooms. However, healthy eating tips for snack foods include whole-grain crackers, dried fruits and fruits in snack packs, unsweetened apple sauce, yogurts, fresh fruit, and fresh vegetables on hand for snacking. When students were asked about their food shopping habits, I asked them whether they make a concise effort to look at the ingredients and calories or just make choices on price. Some said:

- “I make a choice depending on ingredients because I believe whole grain foods are natural foods are better for my body, so I don’t mind paying more.”
- “No. I do not look at calories or anything even though I should.”
- I look at both prices and ingredients. If it is an item that's healthy and inexpensive, I'm more likely to buy that item.”
- “I'm not concern about the ingredients; I just choose what is random or what is preferred.
- “I try to do both; I try to eat healthy and because I'm a poor college student I try to choose affordable foods.”
- “I tend to look at the price tag because we are in a bit of a financial pinch at this time.”
- “I look at the ingredients; you are what you eat.”
- “. . . The ingredient charts confuse me and I don't know what most of it means so I don't look.”
- “No, not really concerned about calories and ingredients.”
- “I look at the price. Junk food is usually the cheapest.”
- “Yes. I started buying organic and I pay attention with foods that have HFCS (won't buy) and I try to keep grains gluten free.”
- “I do not because I hate giving up my favorite foods like cookies and other delicious snacks. I know if I'd pay attention to the ingredients/ calories I will force myself to stop eating those foods.”

- “. . . I am very active and healthy and don't have time to look at everything.
- “For some foods I pay attention to calories but not always.”

As you can see, from these statements, students do not always look at the ingredients in the foods they choose or how many calories the food contains. They are more motivated by the cost of the items than calories and ingredients. It is extremely important for students to maintain a regular eating schedule (Frery 356). As their bodies have to adjust every time they change their eating habits, when one does not eat since the morning, they get sluggish halfway through morning classes. By the time they get to lunch, they are starving. Then during lunch, they over eat foods that are high in carbs, sugar, and fat. When they eat foods high in carbs, sugar, and fats, they are quickly released into their blood and give them energy. However, they are soon stuffed and fall asleep in their afternoon class.

Students who live in apartments and do not have a campus meal plan have better options. They have access to a kitchen and can make their own foods. The easiest thing is for students to write out a menu for a week of foods they are planning to make or know they are going to eat. This helps avoid those impulse buys that can wreck their budget and food spurges (Parham 196). In order to both eat healthy and save money at the grocery store, students can use canned or frozen fruits and vegetables as an alternative to fresh ones. Frozen vegetables and fruits are picked at their ripest and usually do not have added salt and sugar like the canned variety. When selecting the canned option, they should look for no salt added or reduced-sodium. Another solution is to rinse the canned variety in water to reduce the sodium by four percent. If students plan out their meals in advance, they can strike a balance between eating foods they like and foods that have the nutrients they need (Parham 195). This would not only benefit them health wise but also it can them money so they can afford a "treat." In order to eat healthy, suggesting

to college students to use the USDA My plate model that replaced the food pyramid could be a recommendation. This new model looks at food intake and physical activity under new guidelines.

After 19 years, My Plate replaced the pyramid guide in June 2011 (Neuman 1). My Plate is divided into sections that look like a dinner plate. The plate is made of 30 percent grains, 30 percent vegetables, 20 percent fruits, and 20 percent protein. The My Plate model also has a smaller circle representing dairy, such as a glass of low-fat/nonfat milk or a cup of yogurt. In addition, My Plate has recommendations such as "Make half your plate fruits and vegetables," "Switch to 1 percent or skim milk," "Make at least half your grains whole." The guidelines and model also recommend portion control; this helps with the physical display of a plate (Neuman 1). The model also recommends physical activity. Physical activity is very important to prevent disease, but to also manage weight and stress. Regular physical activity that is performed on most days during the week reduces the risk of developing or dying from some of the leading causes of illness: heart disease, diabetes, and high blood and reduces the risk of developing cancer (Parker-Pope 8).

The schedules of college students include classes, homework, studying, exams, extracurricular activities, social obligations, and a part-time job. Consequently, they are prone to stress, which naturally comes when one attends college. Finding time to exercise in a hectic life can improve focus and concentration and prevent disease and weight gain (Reed and Allen 286). Exercise also has been proven to help with mood and brain function. Exercise reduces levels of Cortisol, which are released in stressful situations and causes many health problems, both physical and mental (Cohen and Williamson 11). A 2008 study on the brain concluded that physical activity, aerobic exercise, in particular, enhances cognitive function and diseases

associated with the brain (Hertzog et al. 527). Not only does physical activity decrease brain disease, but also it increases blood and oxygen flow to the brain; this increases growth and creates new nerve cells (Parker 8). The brain then releases "the runner's high" feeling; these are chemicals in the brain that help cognition, such as endorphins, dopamine, glutamate, norepinephrine, and serotonin (Parker-Pope 8). They make one feel less depressed and stressed. Most colleges have a fitness center, indoor track, and swimming pool available on campus.

College students tend to get overwhelmed, depressed, and angry in which physical activity can relieve. When stressed college students will also binge eat and lose sleep (Buman 29). Sleep is another positive side effect of exercise, and college students tend to get little of it. A 2010 study suggested that exercise improves sleep more than most people realize, and helps sleep disorders such as insomnia (Buman 35). Students who cannot sleep will not academically perform well and have poor attendance and grades and suffer from sickness. Sleep as well as walking to class and to the parking lot or walking up and down stairs helps. A 2005 study from the "Archives of Internal Medicine" showed that exercise levels directly relate to years lived without cardiovascular disease (Moore 1299). Just 30 minutes of exercise a day adds 1.3 years to a person's life, taking other factors into consideration.

The Use of a Nutritional Guidebook

The purpose of using a nutritional guidebook is to help one select food that is holistic in nutrition. A nutritional guidebook can help college students live a healthy lifestyle, set health goals, provide healthy weight loss tips, and practice wellness. Most important, students can live a healthier lifestyle that reflects good choices that can free them from diseases. When students were asked if they would use a nutrition/fitness manual aimed at college students, if it were available, some of the interviewees said:

- “No. Everybody has at their means of fitness that works for them, but doesn’t work for others.
- Probably not, I just run and cut out beer to lose weight.”
- “I’d be interested in reading it and possibly using the information.”
- “I would use because that is a way to work out effectively.”
- “I would like that to educate me on nutrition/fitness information I don’t know.”
- “I might use such a manual if I found it suited needs with time, and cost to prepare.”
- “Yes, because it would be based off my lifestyle as a college student.”
- “Yes, because most of unhealthy college students eat unhealthy.”
- “If it weren’t an extreme manual I would use it. If it were too extreme such as cutting out a lot of foods and extreme exercising I wouldn’t use it.”
- “I would probably try it out”
- “Yes, I’m kind of lost in the fitness world so any kind of guidance is great.”
- “Yes, it would help me lay down a pattern to go by.”
- “No, I believe when you start using those guides you become dependent on them instead of just being sensible about proper diet and exercise. “
- “Yes, but again health foods are expensive and many of us don’t have time or money to eat that much healthier.”
- “Probably not.”
- “No, I already know how to shop and cook and eat healthy”
- I wouldn’t body building is a whole different animal.”
- “No, I have a high metabolism. This is not a problem for me.”
- “Yes, if it were free the Internet already has a lot on this topic.”
- “Yes, most definitely! I love weight watchers but having a manual aimed directly at college students would great.”
- “Yes, if it doesn’t mess up my daily schedule. If I can know what I putting in my body and make a set time for fitness, and it not be a conflict of interest, I am all for it.”

As we can see from the interviews, some students would use a nutritional guide and others would not. However, it must be noted that majority of the interviewees would rely on a nutritional guide to help them make wise decision for healthy living (see *Darin Dillinger’s Nutritional Guidebook*

on beginning on page 28).

CONCLUSION

Reviewing the evidence, the obesity epidemic is only going to get worse in colleges and universities. The health crisis we see in the family will soon creep into higher education. If the obesity epidemic escalates, students will have the financial problem to get medical treatment and prescriptions. As many college students are uninsured, this will create a bigger problem. Costs of tuition are already high, and universities have only so many resources for an effective program to be created to help and teach students a healthy lifestyle (Strout 1). However, all is not lost in the effort to fight obesity, and the chronic diseases associated with it. Some colleges are using funds from tuition to provide more healthy food options, dietitians, new walking trails, better gym facilities, classes, and even private trainers. The next step is to find a way to get students to use what their college offers. Nutrition classes teach students to understand how the psychological and medical aspects relate to their food, weight behaviors, and support a gradual implementation of change (Gates and Kennedy 95).

Furman University in Greenville, North Carolina, makes its students take a wellness course which includes one lecture and two or three days of exercise each week. The course teaches about cardiovascular disease, cancer prevention, stress management, nutrition, and the value of physical activity. Students have their cholesterol checked as part to the class-- a screening that has caught several potential health risks, professors say (Strout 1). Helping students lead a healthy, active life is part of Furman's mission. Physical activity is also a part of Furman University's plan on helping their students to be healthy. The university does not offer campus transportation. They encourage students to walk by building paths instead of roads to increase physical activity. Reed, the professor in the health course that reinforces this action says, "By

doing these things, we're saying that good health is part of who we are and we'll put our money where our mouths are" (Strout 1).

Another method, peer-education, to nutrition education has become a popular way to provide information to students. Health professionals train peer educators in the essential knowledge and information-sharing skills (Gates and Kennedy 95). The peer educators in turn pass knowledge on to students through workshops and health promotion activities. Methods like these have worked in college housing and required incoming freshman classes. All these provide nutrition education and promotion to students through programs and activities related to human nutrition and fitness in order to maximize their health and well-being while in school and to lower the risks associated with poor nutrition throughout their lifetime. Nutrition programs help students make food and activity choices, according to the Dietary Guidelines for Americans and exercise guidelines of the American College of Sports Medicine (Hermann 534).

Nutrition programs are a step in the right direction and may even show a better effect on college students if a dietitian was brought onto campus. They can be responsible for providing students with this information to help them reach and maintain optimal weight and to use effective treatment plans based upon current research (Hermann 536). Students are suggested by the dietitian to use or do regular aerobic exercise, record food intake, and count calories as the three behavior practices used most often to aid weight loss (Hermann 535). If a nutrition program is not used or implemented in a university setting soon, a majority of students will be too sick with major diseases to attend college and achieve a degree.

At the rate the obesity epidemic is growing, there will be huge increases in chronic illness in terms of coronary heart disease, heart failure, strokes, and kidney disease. This will be occurring at an earlier stage of adult hood. Exposure to high blood pressure at a younger age means that the

adverse health consequences will be occurring earlier in life (Strout 1). The effects of nutrition and physical activity clearly correlate with high performing college students. Universities can only benefit from taking steps in this obesity epidemic. If the model of Furman University is taken into mainstream higher educational settings, then universities can impact on students' lives. This will also prevent a larger obesity epidemic as students begin to have children of their own. As my guide can help college students decrease the stressors in their lives that lead to bad eating habits and obesity, it is created to provide a nutrition guide to help them maintain a healthy lifestyle for a lifetime. Virginia Wolfe (1882-1941), a British author, said: “One cannot think well, love well, and sleep well, if one has not dined well.”

Darin Dillinger's

**NUTRITION AND
FITNESS GUIDEBOOK
FOR COLLEGE
STUDENTS**

Wright State University
June 2012

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INTRODUCTION

Healthy habits are cumulative; if you form the habits early on, you are more likely to continue them throughout your life... The younger we are, the easier it is to form and change these habits. College is a very important and exciting period in your life. During these years you are going to experience a lot of new things, meet new friends and do a lot of the things that will help define who you are and more importantly, who you are going to be for the rest of your life. As with all big things in life however, college offers, it also brings stress, mistakes, challenges and learning who you are and want to be as an individual. College costs thousands of dollars a year. Then there are the text books, housing fees, and outings with friends. I've been there and know how it feels to save money and eat nothing but fast food every day. There will be pressures from parents, teachers, new friends and even financial responsibility. Even just moving out of home and having to cook and look after your health can be stressful. Being healthy in college is NOT HARD! It may seem hard and difficult to do but it actually is really easy. Simply following a few guidelines and avoiding some really unhealthy foods can keep you in shape, give you energy for class and even help you lose some weight. This manual is intended to aid you with dealing with nutrition and fitness under this new change. These are only recommendations and before starting any new venture, please check with your primary doctor or care provider.

OBESITY

Data from the National Health and Nutrition Examination Survey indicates that approximately 32.7 percent of U.S. adults 20 years and older are overweight, 34.3 percent are obese and 5.9 percent are extremely obese. The cause of the epidemic is multifaceted, but eating and exercise are major contributors. Exercise aside, diet can have a significant impact on weight gain. No single food or nutrient is the cause of weight gain. Rather, the most common foods comprising an "energy-dense, nutrient-poor diet" are blamed. This kind of diet includes foods that are high in calories and low in nutritive value, such as processed foods, concentrated sugars, refined carbohydrates, saturated fats, Trans-fats, and minimal fiber. Categorizing foods based on their energy density and nutrient content is an excellent tool for restructuring your diet to prevent weight gain.

AVOID WEIGHT GAIN

When maintaining your weight in college it is best to remember, what you eat is just as important as how much you eat.

Sometimes you hear the words "empty calories", these are Foods high in calories, fat, and sugar, and with low nutrient value. *Empty calories act like slowing your body's ability to function properly. These foods cause fat-weight gain, water-weight gain, bloat, and are bad for your overall health. Anything with added sugars which are high in calories but provide few or no vitamins and minerals. These are in packages foods such as

- candy
- cakes

- cookies
- desserts
- juices
- sodas

Foods containing added sugars can lead to weight gain, or even obesity, which are bad for your heart. So limit your intake as much as possible. Names of added sugars:

- brown sugar
- dextrose
- fructose
- fruit juice concentrates
- corn sweetener
- corn syrup
- glucose
- high-fructose corn syrup
- honey (invert)
- sugar
- lactose
- maltose
- malt syrup
- molasses
- raw sugar
- sucrose
- syrup

DIABETES

Diabetic should avoid these foods that breakdown into sugar spiking their insulin. Any foods that list the ingredients ending -Ouse and syrup are sugars and need to be avoided. Simple carbohydrates like potatoes, white rice, pasta, sugar added juice, cereal, sodas will give you a "sugar high" and increase energy for only a short period leaving your body hungry again.

Recommended foods diabetics are of the following.

WHOLE GRAINS

Consume grains high in fiber, which benefits the heart and stabilizes blood sugar:

- Brown rice,
- whole grain bread/pasta,
- barley
- Light buttered popcorn
- oatmeal

FRUITS AND VEGETABLES

Eat a variety of fruits and vegetables with emphasis on dark green and orange vegetables, such as

- broccoli,
- carrots
- bell peppers
- leafy greens (kale, spinach, lettuce
- Be careful and limit fruits and starchy vegetables like
- peas
- corn
- potato
- sweet potato
- pumpkin

All these contain higher levels of carbohydrates that elevate blood sugar and so these should be carefully portioned.

LEAN MEATS AND LOW-FAT DAIRY PRODUCTS

Consume lean meats such as fish, seafood, eggs, beans, nuts and low-fat or non-fat dairy products.

- Skinless chicken (preferably the breast)-grilled , poached, baked or steamed
- any kind of beans (canned, dry and thoroughly rinse reduce sodium)
- -tuna, shrimp or any of other type of seafood
- Greek yogurt/regular yogurt(plain)
- almonds, peanuts, or any
- other nuts (unsalted)
- -eggs or egg white substitutes

HEALTHY FATS/ OILS

Consume a moderate intake of heart-healthy unsaturated fats from olive oil, vegetable oils, avocado, fish and nuts.

- Limit saturated and Trans fats like
- butter
- lard
- pork fat
- partially hydrogenated oil (aka Trans-fat)

ALCOHOL

Alcohol may increase the risk of hypoglycemia (low blood sugar) if an individual uses insulin however moderate alcohol intake is okay if blood sugar is well controlled. Women should limit

themselves to one drink a day, and men should limit themselves to two drinks a day. Remember to consume it with food and water to minimize side effects and prevent sudden changes in blood sugar.

MEAL PLAN FOR DIABETICS with Options

Here's a sample diabetic meal and Remember to drink two 8-ounce glasses of water with each meal.

Breakfast

1st option

1 slice toasted whole wheat bread (option of one squirt of a vegetable spray)
1 small apple
2 strips of turkey bacon
1/4 cup egg substitute

2nd Option

1/2 cup oatmeal
1 tsp. cinnamon
1/2 cup skim/soy milk
1/2 small banana

3rd option

1 plain Greek yogurt
1/2. Cup of berries
6 almonds

4th option

3/4 cup of cereal (Cheerios, Bran flakes, whole grain unsweetened cereal like KASHI)
1 orange
1 cup of tea or coffee (black)

5th Option

Blueberry smoothie
1/2 whole wheat English muffin
1 tsp. non sugar added fruit preserve

Snack

1st option

10 carrot sticks/celery
1 sliced bell pepper
2 tbsps. of hummus/salsa

2nd option

12 almonds
1 sliced apple (small)

3rd option

Microwave fat free popcorn
2 sprays of vegetable spray

Lunch

1st option

1 cup vegetable soup with 4-6 crackers
1 pear

2nd option

1 turkey/chicken sandwich (2 slices whole wheat bread, 1 ounce turkey and 1 ounce low-fat cheese)
1 small apple

3rd option

1 cup whole wheat pasta
1/2 cup of pasta
1 cup of vegetables (broccoli, peppers, etc.)

4th option

1 cup brown rice
10 pieces of shrimp
2 cups stir fry vegetables
1 peach
2 tbsps. of soy sauce
1 tbsp. added spice

Snack

1st option

1/2 cup dry cereal
1/2 raisins

2nd option

1 canned tuna, rinsed
12 grapes

3rd Option

1/2 banana
1 tsp. honey
2 tbsps. of nut butter (almond, peanut butter)
1 sliced whole grain bread
Added option cinnamon

Dinner

1st Option

4 ounces broiled chicken breast with basil and oregano sprinkled on top
2/3 cup cooked brown rice
1/2 cup cooked carrots
Tossed salad with 2 tablespoons olive oil/red wine vinegar
4 unsweetened canned apricot halves or 1 small slice of angel food cake

2nd Option

2 corn taco shells
1 cup of beans or 2 oz. of chicken
1 oz. nonfat cheese
1 tsp. nonfat sour cream
2 cups of salad
1 cup pineapple

3rd Option

1 slice of whole wheat thin veggie pizza
2 cups salad
1 cup yogurt with 1/2 cup raspberries

4th Option

4 ounces salmon with lemon juice
1 cup of brown rice
1 cup of steamed asparagus
1 cup of sugar free Jell-O

5th Option

4 ounces turkey
1/2 sweet potato with cinnamon
1 cup salad
1 whole wheat bread

CHOLESTROL

The better the foods taste, the higher the chance that they're high cholesterol foods. There are two main nutrients in the foods that make cholesterol high. The high cholesterol foods contain: saturated fat, this type of fat found mostly in animal products but also packaged and fried foods, which is consumed and seen mainly in younger adult's diet. The second is just cholesterol, which comes from animals as well. Understanding fats are very important to lowering cholesterol; saturated fats raise your LDL cholesterol level more than anything else in the diet. Eating too much saturated fat is the main reason for high cholesterol levels and a high rate of heart attacks.

OATS AND NUTS

Oats and nuts are both rich in fiber, which helps cleanse the body and sweep out toxins and cholesterol deposits. The Mayo Clinic recommends getting 5 to 10 g of soluble fiber per day, and just one bowl of oatmeal can have as many as 2 g of soluble fiber.

Nuts such as walnuts, peanuts, almonds, and hazelnuts

FRUITS, VEGETABLES, AND PLANT STEROLS

Fruits and vegetables are rich in pectin, a form of soluble fiber, such as in apples, strawberries, grapes, Citrus fruit, avocados, and artichokes

* Plant sterols naturally block the absorption of cholesterol and can be found in many sterol-fortified foods such as orange juice and yogurts

FATTY FISH

These reduce cholesterol due to the high levels of omega-3 fatty acids they carry, as omega-3s have been shown to reduce both cholesterol and triglyceride levels. The American Heart Association recommends getting at least two servings per week of fatty fish such as salmon, tuna, lake trout, halibut and mackerel, Tilapia, and Pollock. Beans are good, and the best to choose from for lowering cholesterol are Pinto, Kidney or Black beans

OLIVE OIL

Olive oil is packed with antioxidants and monounsaturated fats that work to reduce blood cholesterol levels. The FDA recommends getting 23 g of olive oil a day to help control cholesterol. Healthy uses for olive oil are as a substitute for butter used to sauté vegetables, or in place of a rich dipping sauce for breads. Olive oil can also be mixed with vinegar and used in place of creamy salad dressings.

REMEMBER: When reducing dietary cholesterol these products such as eggs, whole-fat dairy and red meat are sources that are high in cholesterol. Just by watching your intake of these cholesterol-rich foods should help keep you under the 200 mg/dl level recommended by the American Heart Association. A great way is to write it down or plan your meals ahead.

MEAL PLAN: Cholesterol and High Blood Pressure with Options

Breakfast

1st option

1 cup of bran cereal

1/2 berries

1 cup of low-fat milk

1 slice of whole wheat bread

1 spray of nonstick cooking spray
1 cup of orange juice

2nd option

1/2 cup of oatmeal
1/2 diced apple
6 almonds
2 tbsps. of cinnamon

3rd option

1 small whole wheat bagel
1 tbsp. of peanut butter
1/2 banana
1 tsp. of honey

4th option

A cup of fat-free Greek yogurt,
1 medium peach
1/2 cup of tea
1 rice cake

Lunch

1st option

Grilled tuna in mixed greens with low-fat salad dressing,
1/2 cup cranberries, walnuts
1 whole-grain roll

2nd option

1 cup low-sodium chicken noodle soup or vegetable
6 whole-grain crackers, a
3 cups tossed salad with low-fat salad dressing
1 fresh apple

3rd option

1 whole wheat pita stuffed with
2 tbsps. hummus, lettuce and tomato, red onion and 2 slices of peppers
1 cup fresh fruit salad
10 almonds

4th option

1 cup of low-fat yogurt with a teaspoon of ground flaxseed
1/2 cup of peach halves,
5 pieces of Melba toast
2 tablespoons of low-fat cream cheese

Dinner

1st Option

4 oz. grilled chicken breast
1 roasted sweet potato
1 cup roasted Brussels sprouts
1 peach/ apple

2nd Option

4 oz. broiled salmon with
1 cup wild and brown rice,
1 1/2 cup green beans and a
Tossed salad with 2 tbsps. of low-fat salad dressing or olive oil
1 cup mix berries

3rd Option

3 oz. lean pork chop
1 cup beans
1 cup applesauce
2 cup steamed broccoli/ carrots

4th Option

1 cup whole wheat pasta
1 slice garlic pita bread
1/2 cup pasta sauce
1 cup cooked mushrooms, onions
2 cups spinach salad mix
1 orange

Snacks

1/3 unsalted almonds
1/4 apricots
1 cup of low-fat yogurt with a tablespoon of sunflower seeds or 1/4 cup of raisins
3 graham cracker squares
1 cup of fat-free frozen yogurt
20 baked tortilla chips with 1/4 cup salsa
6 ounces of light yogurt with 1/4 cup of high-fiber cereal,
4 cups of low-fat microwave popcorn
1 cup Sugar free pudding

Vegetarian Meal Plan: Vegetarian Diet

Breakfast

1st option

½ frozen whole grain bagel
2 Tablespoon peanut butter
½ medium of banana

2nd option

Fruit smoothie made with:
½ frozen banana
1 cup soy milk
1 cup frozen strawberries

3rd option

1 cup/package oatmeal
10 almonds
1/3 cup raisins (12)

4th option

1 cooked apple
2 tsp of cinnamon
3/4 cup cereal (Kashi, Cheerios, BARBRA'S Puffins)
1 cup soy milk

5th option

2 Ounces of tofu
1/4 cup of mushrooms
2 tbsps. of chopped onion
2 tbsps. of crushed red pepper
4 tbsps. of mustard
1 whole wheat pita
1 small orange

Snack

10 whole wheat crackers
2 tbsps. of Hummus
15 carrot/ celery sticks
4 tbsps. salsa
12 almonds
1 cup soy yogurt
15 grapes
2 rice cakes with 2 tbsps. of peanut butter

Lunch:1st Option

Tofu and veggie Thai noodles made with:

1/5-block tofu

1 cup frozen mixed vegetables

¼ cup chunky peanut butter

1 cup whole wheat pasta

2nd Option

1 soy burger (Boca, Yves, Morningstar)

2 slice tomato

1 sliced pickle

3rd Option

Lentil soup (health valley sodium free, Amy low sodium)

1 peach

10 whole wheat crackers

4th Option

1 cup whole wheat macaroni

2 tbsps. of nutritional yeast (cheese flavor taste)

2 cups broccoli

2 cups salad with vinegar dressing

Dessert

½ cup canned peaches (1 cup peaches for males)

1 crushed ginger snap (2 crushed ginger snaps for males) to sprinkle over peaches

(Add 4 ounces soymilk for males.)

FITNESS

Eating right is only one way to maintain a healthy weight. Exercise also helps not only maintain weight but in college setting can help build friendships, relieve stress, and challenge you to really know how much you can achieve something. Exercising is a very powerful tool that you be used for weight loss and keeping yourself thin. BUT...you simply don't have the time or energy to do it all the time.

If you exercise a few days a week, following simple techniques like taking the stairs, walking to class or taking an exercise course, you could reap all the benefits without having to work out hours at a time. It is recommended to do cardio and weights 3 times a week for 30-60 minutes. College students will make excuses because time, class, and social obligations. The truth is just small things like walking to class, parking farther away, stairs not elevators help. Think about your text books as weights even. Most college and universities have one or even two fitness centers; they offer aerobic classes or weight training. Recently some even offer personal training for a small fee. The fitness center also is a place to meet other people on campus, or take a roommate or friend too. Cardio machines usually have a book rack where you can study while

you exercise. Your brain grows new cells and increases grey matter with exercise so studying while doing it will improve your studying habits. Universities also offer classes that count as credit for college in fitness classes they are usually HPR labeled. This is another way of not only getting your workouts in but getting an actual credit to do it.

Get a bicycle. If you go to school somewhere with a decent climate, travel around campus on a bike. Just remember: get a bike helmet and protective gear too, and ride with caution. Most college students ride bikes responsibly, but there's always a few that make drivers question the future of the species.

*** Here are some tips and items for you to begin or maintain a fitness regime. *****

- Schedule a work out time and write in your calendar, when it fits into your schedule and to see it you're likely to stick with it.
- Look for those classes that count as credit, if you have a hard time committing this is the way to go
- Invite friends, a workout goes quicker with a buddy
- Get a radio/MP3/ iPod : music helps the brain be distracted
- Pack gym attire, water bottles, hand towels, good shoes, and clothes along with a positive attitude

REMEMBER: Every little thing can count walking to class, taking stairs and playing sports all count. Every bit counts as long as you try.

PROCESSED FOODS

Of course Processed, pre-packaged, and fast food are convenient, when you are college student but are high in calories, fat, and sugar --AKA weight gain and obesity. These foods lack vital nutrients, and contribute to slower metabolism and a sluggish digestive system.

The last are hidden fats, just know that not all fats are bad, Monounsaturated and polyunsaturated fats are important for proper body function. In comparison Saturated and Trans fats raise bad cholesterol levels in your blood. Trans fat also leads to weight gain even if your caloric intake is low. A study published in the "Journal for Diabetes Care," found that eating four to five servings of monounsaturated fats daily will actually decrease fat in the abdominal region. When deciding which fats to eat, avoid saturated and Trans fats found in processed and fried foods. Instead, choose polyunsaturated and monounsaturated fats, found in foods like avocados, nuts, seeds, olives, oils, and dark chocolate.

If the sugar content listed on a food label is less than 8 grams, or if the ingredients list contains "high fructose corn syrup," respect your waistline, and pass on it. Some examples of foods with both concentrated sugars and unhealthy fats include doughnuts and other pastries, French fries, cookies, and crackers. American Journal of Clinical Nutrition, Dr. Julia Ello-Martin proposed that the energy-dense diet promotes loss of control of portion size, resulting in even greater weight gain potential due to over-consumption of energy dense food. Identify these foods by looking for high saturated fat content on the Nutrition Facts Panel of food labels, and the words

"partially hydrogenated oil" in the ingredients list, which indicates the presence of Trans fats. Then, leave these products on the shelf.

Processed foods are a final category of food to avoid when watching the waistline. These foods contain refined grains, which are concentrated sugars, and highly saturated fats and Trans fats. Excellent examples include meat-containing breakfast sandwiches, deep-fried appetizers with dressings, batter-dipped selections, and all fried fast foods.

The Dietary Guidelines for Americans, 2010, released on January 31, 2011, emphasize three major goals for Americans:

- Balance calories with physical activity to manage weight
- Consume more of certain foods and nutrients such as fruits, vegetables, whole grains, fat-free and low-fat dairy products, and seafood
- Consume fewer foods with sodium (salt), saturated fats, Trans fats, cholesterol, added sugars, and refined grains
- According to my plate.gov these guidelines have be approved for college students:
- Build a healthy plate with foods like vegetables, fruits, whole grains, low-fat dairy products, and lean protein foods contain the nutrients you need without too many calories.
- Make half your plate fruits and vegetables.
- Switch to skim or 1% milk.
- Make at least half your grains whole.
- Vary your protein food choices.
- Cut back on foods high in solid fats, added sugars, and salt
- Many people eat foods with too many solid fats, added sugars, and salt (sodium). Added sugars and fats load foods with extra calories you don't need. Too much sodium may increase your blood pressure.
- Choose foods and drinks with little or no added sugars.
- Look out for salt (sodium) in foods you buy - it all adds up.
- Eat fewer foods that are high in solid fats.
- Eat the right amount of calories for you
- Everyone has a personal calorie limit. Staying within yours can help you get to or maintain a healthy weight. People who are successful at managing their weight have found ways to keep track of how much they eat in a day, even if they don't count every calorie.
- Enjoy your food, but eat less.
- Cook more often at home, where you are in control of what's in your food.
- When eating out, choose lower calorie menu options.
- Write down what you eat to keep track of how much you eat.
- If you drink alcoholic beverages, do so sensibly - limit to 1 drink a day for women or to 2 drinks a day for men.
- Be physically active your way

- Pick activities that you like and start by doing what you can, at least 10 minutes at a time. Every bit adds up, and the health benefits increase as you spend more time being active.

MYPLATE

The simple way to eat healthy is the new USDA plate method which was the replacement for the food pyramid. MyPlate is divided into sections of approximately 20 percent grains, 30 percent vegetables, 30 percent fruits and 20 percent protein, accompanied by a smaller circle representing dairy, such as a glass of low-fat/nonfat milk or a yogurt cup.

SERVING SIZES

Some may not have measuring cups or can carry them everywhere so here are some visual tricks to use.

Vegetables or fruit is about the size of your fist.

A 3-oz portion of meat, fish, tofu or poultry is about the size of a deck of cards

A bagel or English muffin is about the size of a Hockey pick

A pancake serving is a CD size

A small serving of a side dish of coleslaw or cottage cheese is about the size of a computer mouse.

A cup of rice or pasta is about the size of a tennis ball.

A potato is about as long as a light bulb.

Cheese is the size of a pair of dice or the size of your whole thumb

Another source I found used your hand as a guideline:

Your fist = 1 cup

Your thumb (tip to base) = 1 oz. of meat or cheese

Your thumb tip (tip to first joint) = 1 Tbsp.

Your fingertip (tip to first joint) = 1 tsp.

Your index finger (first to second joint) = 1 inch

Your cupped hand = 1 to 2 oz. of nuts or pretzels

Your palm (minus fingers) = 3 ounces of fish or poultry

Decoding and understanding Packaged and Process Foods

The food label was designed to help people choose foods for a healthy diet. The Dietary Guidelines for Americans Developed by the United States Department of Agriculture (USDA) in 1980, and is updated every five years the update reflects the most recent scientific research about nutrition and health. By using the food label, we can compare the nutrients and understand the relationship between certain nutrients and diseases.

When looking at ingredients list. If the list is super long the food item is packed with all kinds of junk ingredients, like preservatives, additives and chemicals for it to add flavor, self-life or

appearance. This allows people to avoid substances to which they are allergic or sensitive, or for religious or cultural reasons.

Another thing to look at are the words. If you can't pronounce the terms or know them, then it is yet another clue that there are chemical additives that might be harmful to your health. Pay attention to the serving size, including how many servings there are in the food package, and compare it to how much YOU actually eat. The size of the serving on the food package influences all the nutrient amounts listed on the top part of the label. If you ate the whole package, you would eat all the servings. That doubles or more (depending how many servings are in a package) the calories and other nutrient numbers, including the %Daily Values. The Food labels do not show Nutrients that Have No %DV: Trans Fats, Sugars, and Protein. To limit nutrients that have no %DV, like trans-fat and sugars, compare the labels of similar products and choose the food with the lowest amount. Finally the main thing is pay attention to the first three ingredients listed. Manufacturers list ingredients in order from most to least, meaning the first few ingredients usually make up the bulk of the food item.

On a side note if the food claims to be "Trans fat" free the FDA(Food and Drug Administration) says as long as it is .5 grams or less they can claim it. Look for anything "partially hydrated" as the clue. Ingredients for all foods must be listed on the food label, including standardized foods. The label must also list the FDA-certified color additives by name. Ingredients are listed in descending order by weight. Specific ingredient information, such as the source of the protein, also is included. This allows people to avoid substances to which they are allergic or sensitive, or for religious or cultural reasons.

As of January 2006, food manufacturers also must disclose in plain language whether products contain any of the allergens: milk, eggs, fish, crustacean shellfish, peanuts, tree nuts, wheat and soy. Manufacturers have two options for declaring the presence of these food substances in foods. One option is to provide a "contains" statement next to the ingredient list that identifies the types of allergenic ingredients contained in the product; for example, "contains milk and wheat." The second option is to place the food source in parentheses next to ingredients derived from one of the eight potential offending foods classes, such as sodium caseinate (milk) and albumin (egg). However, Gluten has not been included.

Additionally, a column labeled "% Daily Value" helps us determine how each nutrient fits into an average daily diet. "Daily Value" is used to refer to two separate sets of reference values. The Reference Daily Intakes (RDIs) are reference values for 19 vitamins and minerals, based on the Dietary Reference Intakes (DRIs). Daily Reference Values (DRVs) also are provided for eight additional nutrients based on dietary guidelines. The "%DVs are based on recommendations for a 2,000 calorie diet" so if you are eating anything more or less the DV% will vary. Ingredients for all foods must be listed on the food label, including standardized foods. The label must also list the FDA-certified color additives by name. Ingredients are listed in descending order by weight. Specific ingredient information, such as the source of the protein, also is included. This allows people to avoid substances to which they are allergic or sensitive, or for religious or cultural reasons.

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FAST FOODS

College students are always on the go. Fast food becomes convenient and cheaper but at the cost of your health over time. To say avoid it at all cost is practically impossible with both on and off campus places. However, you can make smart choices if you have to. Below are recommendations.

Moderation and balance are the key. It's OK to indulge a craving for French fries every now and then, but to stay healthy you can't make it a regular habit. Making healthier choices at fast food restaurants is easier if you prepare ahead by checking guides that show you the nutritional content of meal choices at your favorite restaurants. Free downloadable apps help evaluate your options.

Burger Plates

- A grilled chicken salad with no cheese, mayo or sauce.
- Single patty hamburger with no cheese, sauce or ketchup
- Aside salad
- Baked potato
- Soup
- Egg muffins
- Fruit parfait
- Grilled chicken patties

Avoid or Ask for Smaller Portions

- French/ curly fries
- Deep fried chicken strips/nuggets
- Heavy dressing
- Ketchup
- Milkshakes/blizzards
- Morning biscuits
- Mayo

Chicken Plates

- Grilled chicken
- Barbecue chicken
- Sides with vegetables (corn, mashed potatoes, beans)

Avoid or Ask for Smaller Portions

- Fried or breaded foods
- Sides with butter, made with mayo, and oil
- Fries/ potato wedges

Sub/Sandwich

- 6 inch whole wheat/multigrain
- Lean meats (chicken, turkey and roast beef)
- Any vegetables and dark greens (tomato, peppers, onions, cucumbers, olives, spinach, lettuce)
- Avoid the high fat options (meatballs, tuna salad, and ham)
- Swiss or Mozzarella cheese
- mustard or light dressing

Avoid or Ask in Smaller Portions

- Salami, Philly cheese steak, meatball, Tina salads
- Bacon
- Go light on cold cuts due to high sodium
- Heavy dressings
- Cookies
- Breads that a white or with cheese added

Mexican

- Fajitas made with grilled or sautéed vegetables and lean meat
- Quesadillas made with a small amount of cheese and lean protein such as chicken or shrimp
- Burritos made with shredded lettuce, lean beef, and a small amount of cheese
- Enchiladas made with chicken (avoid if made with lots of cheese and heavy cream)
- Salsa and one small spoon of guacamole

Avoid or Ask for Smaller Portions

- Choices to watch
- Sides of sour cream and deep-fried tortilla chips
- Refried beans
- Chimichangas (deep-fried burrito served with guacamole, cheese, and sour cream)
- Enchiladas, if softened in a lot of oil
- Quesadillas stuffed with cheese
- A lot of guacamole, and sour cream
- Pitchers of margaritas or beer

Asian

- Stir-fried shrimp/tofu(bean curd)/chicken or vegetables
- Steamed vegetables
- Steamed brown rice
- Miso soup/ tom yum soups
- Edamame
- Steamed chicken/shrimp/ bean curd
- Sauce on the side

Avoid or Ask for Smaller Portions

- Fried rice, especially eaten as a main course
- Orange Crispy Beef (if coated in batter, try peeling the batter before eating)
- Szechuan Shrimp (breaded or deep-fried)
- Fried egg rolls
- Beef or pork dishes if made with fattier cuts
- Sweet and sour dishes thickly battered and with a thick, sugary sauce
- Lo Mein
- Chow Mein
- Dumplings (especially deep-fried)
- Chinese spare ribs

Italian

- Thin whole wheat pizza crust
- Light cheese and light sauce
- Toppings to veggies and grilled chicken.
- Whole wheat pasta
- Chicken Marsala (go light on the sauce)
- Pasta e Fagioli
- Vegetable Antipasto (ask for a small portion and dressing on the side)
- Minestrone soup
- Fish, chicken, or meat with two vegetables rather than with pasta
- Salad

Avoid or Ask for Smaller Portions

- Breadsticks
- Lasagna (eat a very small portion)
- Fettuccine Alfredo
- Linguine with Italian sausages
- Spaghetti Carbonara
- Frito Misto (a plate of deep-fried mixed seafood)
- Deep dish/stuffed crust. pizza
- Buffalo wings
- Cheesy bread
- Calzone and cannelloni - when stuffed with a lot of cheese

Seafood

- Any grilled, blackened, broiled, baked fish
- or shellfish
- Salad
- steamed vegetables
- soup that is broth based

Avoid or ask smaller portions

- Anything in sauce that is creamed or seafood
- The breads that are offered
- Pasta dishes made with cream

Sushi

- Sashimi
- Brown rice rolls
- Steamed seaweed
- Miso soup
- Edamame
- Ginger salad

Avoid or Ask for Smaller Portions

- Fried or battered rolls
- Tempura, spider, California
- or Philly rolls
- Cream cheese and mayo

Be careful of the fast food movement to sell you on "healthy" options. They still aren't good with portion control and you could be getting less calories but with more fat or sugar than you want. Stick to the basics above and you will successfully survive.

How to Shop, Eat on the Go, and Budget

When making your grocery list, keep in mind what you have in your dorm or apartment. Also for the healthiest food shop the perimeter of the store the isles you find more unhealthy foods, limit your purchases in them. If you have access to a refrigerator with a freezer, you can buy frozen vegetables and chicken. If you use a microwave, you can cook potatoes, eggs, oatmeal and noodles. With a toaster, you can toast English muffins. Some things that you can buy are blenders for smoothies or dip, George Foreman grill for meats and grilled veggies, a rice cooker or slow cooker will steam rice and veggies, and slow cookers can make many meals like soups and casseroles for a week's worth of meals. One of the most important appliances that will save you money is a coffee maker. Follow these tips:

- Buy store brands because they are also cheaper and usually made by the name brand companies
- When buying fruit and vegetables purchasing the ones fresh buy in season because they are cheaper.
- Buy canned/ frozen fruits vegetables to store longer and are usually cheaper than precut ones.
- When buying canned fruits, vegetables, and beans rinse them off which removes up to 40% of added salt and sugar.
- Look at coupons and weekly ads.
- Make a list and if you have roommates or friends ask to split cost on food items that you can divide up on.
- Buy bulk when it's necessary like brown rice, oatmeal, nuts, yogurt , and chicken/ fish. These will save you money and takes maybe an extra ten minutes to prepare
- Get Tupperware cook meals and plan your food so when rushed just portion control you can grab a meal/ snack and go.
- Shopping the perimeter of the store is the healthiest. The aisles are filled with products with preservatives, additives, and processed with sugars and salt.

Summary

As this guide helps college students decrease the stressors in their life that lead to bad eating habits and obesity, this guide offers college students an understanding of what obesity is, its causes and cures by creating a nutrition guide to help them maintain a healthy lifestyle for a lifetime. Virginia Wolfe (1882-1941), a British author, said: “One cannot think well, love well, and sleep well, if one has not dined well.” Proper lifestyle changes in college will benefit students after college. These changes will also benefit colleges as students will be less likely to be sick, tired and stressed, therefore students will be more astute and attend more classes. The key to all this is balance and moderation with a busy life and health it is my hope that this manual can be used add a tool to fight obesity and be used to achieve a balanced healthy life.

Appendix A

One Week Sample Meal Plans and Food Journal

	Breakfast	Mid-Morning Snack	Lunch	Afternoon Snack	Evening Meal
Day 1					
Day 2					
Day 3					
Day 4					
Day 5					
Day 6					
Day 7					

Appendix B

Long-term Weight Loss, Nutrition and fitness Goals: A Monthly Comparison

Month 1—January

Month 2—February

Month 3—March

Month 4—April

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