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Food Preparation Habits among College Students: An Exploration and Culinary Intervention

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FOOD PREPARATION HABITS AMONG COLLEGE STUDENTS: AN EXPLORATION AND CULINARY INTERVENTION

by
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ABSTRACT
MARY LINDSEY SIMPKINS: Food preparation habits among college students: An exploration and culinary intervention
(under the direction of Dr. Kathy Knight)

The obesity rate among Americans has been growing at an alarming rate in recent years; because of this, there has been much inquiry into the possible causes, interventions, and prevention methods for this problem. One major trend that appears to have an impact on this obesity epidemic is the large proportion of meals eaten outside the home—namely, at fast food or sit-down restaurants. This trend is especially prevalent among college students, whose lifestyle is generally marked by an abundance of stress coupled with a lack of time and money. Because of this lifestyle and a lack of food preparation knowledge college students, are much more likely to eat foods that are prepared away from the home and that are not as nutritious as foods prepared at home.

Because nutrition education has been shown to be effective intervention strategy on college campuses, this project aimed to create something that, based on the research done so far, would address these barriers in an educational way and encourage students to prepare more of their food from home. The result is a cookbook -- a compilation of recipes with a nutrition and food preparation education component. The recipes were designed specifically for a college lifestyle, namely using cheap ingredients, healthy substitutions, and that take little time to make. These characteristics will encourage students to make more of their meals rather than buying them, while giving them a basic nutrition education that many lack. The cookbook will be distributed to students at the University of Mississippi campus, and will hopefully prepare the way for healthier lifestyle habits as well as future research in this area.

TABLE OF CONTENTS

Chapter 1: Broad Trends in Americans' Health

Flegal, Carroll, Carroll, and Johnson (2002) reported that the percentage of Americans who are considered obese or overweight has been increasing during the last few decades. According to the National Center for Health Statistics, the obesity rate for 2010 was estimated at 35.7% of adults, with 66% of Americans considered obese or overweight.

Overweight is defined as a body mass index (BMI) of 25 or over and obesity as a BMI of greater than 30. These conditions are complex health issues associated with a multitude of factors, but fundamentally are caused by consuming more calories than are being burned. Both conditions have had major effects on the health of Americans, raising the risk for coronary heart disease, Type 2 diabetes, certain kinds of cancers, hypertension, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, osteoarthritis, and gynecological problems (National Institute of Health, 1998). Because of the costs associated with overweight and obesity, their prevalence also has enormous effects on the American economy (U.S. Department of Health and Human Services, 2001). Finkelstin, et al (2009) estimated the total medical care costs associated with obesity to be $147 billion.

Because of obesity's impact on Americans' health and economy, there has been much inquiry into the many factors that play a role in the development of this condition.

Obesity does tend to run in families, a trend that suggests a genetic cause; however, this could also occur from the sharing of similar lifestyle habits that occurs in families. Some illnesses such as hypothyroidism can also lead to weight gain (Centers for Disease Control, 2011).

Environmental factors such as food choice, physical activity, and sleep habits and social factors such as education and income levels have a strong association with overweight and obesity. They are also often intertwined. For example, individuals living in poverty may not be able to afford fresh fruits and vegetables, so they purchase higher-fat processed foods that tend to be cheaper. Access to healthy foods and locations for recreation is also a contributing factor in the prevention of overweight and obesity. Many Americans do not get recommended amount of physical activity, and the problem can be compounded by the consumption of high-fat foods and large portions when eating out (Centers for Disease Control, 2011).

Because obesity is a nutrition-related health issue, it is of utmost importance that the dietary trends that contribute to its cause be studied (National Institute of Health, 1998). One of the most notable and consequential dietary trends in recent decades has been the move away from home-prepared food toward restaurant foods and "convenience" meals purchased from a fast food restaurant or the grocery store (Bowers, 2000).

Chapter 2: Move Away From Home-Prepared Food

The change in the American diet caused by the move away from food prepared at home to food prepared in a restaurant is significant (Bowers, 2000). In 1999, Americans spent 47.5% of their food budget on food prepared away from home, the largest percentage to date (Clauson, 2000). In 2002, the United States Department of Agriculture examined trends in this area and found that the percentage of calories consumed from food prepared away from the home increased from 18% in from 1977-1978 to 32% in 1994-1996 (Guthrie, Lin, & Frazao, 2002).

This trend has continued in recent years. The "What We Eat in America" survey is the dietary intake component of the National Health and Nutrition Examination Survey (NHANES) conducted yearly by the USDA and the U.S. Department of Health and Human Service. The data from 2007-2008 is the most recent, and shows that the percentage of calories consumed from away-from-home foods increased to 35% for males and females combined. When asked the question in the 2005-2006 NHANES "How many meals per week do you get that were not prepared at home?", 36.9% of adults responded "3 to 7 meals", 33.5% responded "1 to 2 meals", and 12% responded "more than 7 times".

Americans are not only consuming more of their calories from away-from-home food; they are also spending more money on it. In 1970, 25% of total food spending was

on away-from-home food, and this number increased to 47.5% of total food spending in 1999 (Clauson, 2000; National Restaurant Assocation, 2007). From 1984 to 2010, the average amount spent on food away from home doubled (United States Department of Labor, 2010). Blisard, Lin, Cromartie, and Ballenger (2002) also predict that expenditures on away-from-home food will increase by 28% by the year 2020. This increased expenditure on food away from the home occurred in all ethnic groups and at all income levels (Life Sciences Research Office, Federation of American Societies for Experimental Biology, 1995).

Statistics from the National Restaurant Association (NRA) in 2012 are a clear indicator of this shift in eating patterns. According to the NRA, in 1970 the total annual sales for the food industry totaled $42.8 billion; in 2012, the projected annual sales are $638.1 billion. On a typical day in 2012, the food industry averages sales of $1.7 billion. It is evident that consumer spending on food away from home is on a rapid rise.

Causes of the shift toward away-from-home foods

Over the past few decades, several changes in society have led to this increased consumption of food prepared outside of the home. One of the more important of these factors has been the increase in women in the workplace. In 1975, 46% of women over the age of 16 worked outside of the home; in 1996, this percentage had increased to 59% (Hayge, 1997). Because this new work left limited time to spend on cooking, there was an increased demand for more convenient, pre-prepared food. Also, because more women are working and therefore contributing to overall household income, there is more discretionary money to spend on these convenient foods.

Another factor that influences individuals' food preparation habits is their ability to cook. Home economics, or "domestic education", courses were commonly taught in high schools until they began to be removed in the late 1960's. One of the basic principles of these courses was that future homemakers should be adequately prepared to cook and provide meals for their family. Although this is generally considered an antiquated and gender-stereotyped concept now, the lack of availability of homemakers "trained for the job" is important to be looked at as a possible precursor to the obesity epidemic. Currently, there is an interesting paradox in several geographic areas of America, the coexistence of both food insecurity and obesity in one community. This paradox stems from a lack of cost-effective alternatives to fast food, coupled with a lack of cooking skills and nutrition knowledge. This knowledge deficit hinders people from preparing healthy, cheap meals with inexpensive ingredients (Dolnick, 2010). Because of this removal of the home economics curriculum, many parents today might not have the adequate cooking skills to prepare foods at home as an alternative to eating out. They are therefore more likely to take their families to eat out, a habit which will most likely be carried on by their children.

Associated with (and possibly a root cause of) this shift toward cheap, convenient food prepared outside of the home is the increase in fast food consumption. The first fast food restaurant was a White Castle restaurant in Wichita, Kansas, that opened its doors in 1921. With the addition of speaker systems and drive-thru windows to restaurants in 1950's, it became much easier and more convenient for busy individuals to pick up food instead of preparing it themselves. The rapid expansion of fast food chains into more and more areas has also made this type of food more convenient. The number of fast food

establishments in the United States has increased from about 30,000 in 1970 to more than 233,000 establishments in the United States in 2004, leading to the fast food sector being named as the most rapidly expanding sector of the US food distribution system (National Restaurant Association, 2005; Jeffery, Baxter, McGuire, & Linde, 2006).

This increased intake in fast food consumption has naturally led to a greater proportion of calories being consumed from this sector. In 1977-78, adults gained around the same percentage of their calories at fast food restaurants as they did at other out-of-home establishments—cafeterias, restaurants, and other places. However, by 1994-96 adults consumed most of their out-of-home calories from fast food establishments. Out of all age and gender groups, males aged 18-39 consumed the greatest percentage of their calories from fast food restaurants, at 17% of total calories (Guthrie & Frazao, 2002).

Chapter 3: Consequences of Changes in Eating Patterns

Because of the increased frequency of dining out, Americans are getting more of their nutrients from away-from-home foods. This increased consumption of food away from home has had enormous impacts on the quality of the American diet. The Dietary Guidelines for Americans are developed by the USDA to provide nutrition information and advice for the optimal diet. These guidelines recommend that people eat a variety of fruits, vegetables, and grains daily to promote optimal health and prevent chronic diseases. It is also recommended that the diet be low in saturated fat, cholesterol, sugars, and sodium. Because a greater proportion of nutrients are being consumed from away-from-home foods, it is important to study the differences in nutrients between foods prepared at home and foods consumed away from home with reference to the recommendations by the Dietary Guidelines for Americans.

Caloric Intake and Energy Density

In 2003, the USDA Economic Research Service estimated that the average overall caloric intake for Americans was just less than 2,700 calories per day. This is a 24.5% increase since 1970 (USDA, 2003). There is strong evidence that suggests this increased caloric intake can be linked to increased consumption of food away from home, both in fast food restaurants as well as table service restaurants. Fast food meals are typically very calories dense and usually do not provide nutritional information at the point of purchase. Bassett, et al (2007) surveyed 7318 customers at different locations of fast food

chains to determine the amount of calories bought. The participants purchased meals with an average of 827 calories, and 34% of participants bought meals that contained over 1000 calories. Only 4% of participants (excluding Subway patrons) reported seeing this nutrition information provided. When compared to the average diet, fast food generally also has a higher energy density, which means the ratio of energy content (calories) to the weight of the food is very high. In a study from Great Britain, Prentice and Jebb (2003) proposed that this high energy density undermines the body's normal appetite control system and leads to overconsumption of calories. Foods with higher energy density should be eaten in smaller quantities, and foods with low energy density should be eaten in bulk, but people often do not compensate for these differences by consuming smaller amounts of foods with high energy density. This conclusion is supported by several physiological experiments that show how energy-dense diets can undermine this normal regulation. If this regulation system fails, an unintended positive energy balance can occur that is termed 'passive over-consumption' (Lawton, Burley, Wales, & Blundell, 1993; Poppitt, 1995; Prentice & Poppitt, 1996). Stubbs, Ritz, Coward, and Prentice (1995) conducted a feeding trial in which young men ate freely from diets that altered the fat content and energy density of the meals without altering the taste. They found that participants consumed more energy on the high-fat, high-energy dense diets and less energy on the low-fat, low-energy dense diets. The participants failed to compensate for the high energy density by eating a smaller portion, and instead consumed the same amount of food without reference to altered energy density.

This inability to regulate portions in reference to varying energy densities is especially concerning when looking at the energy densities of restaurant foods, and

particularly fast food restaurants. Prentice and Jebb (2003) found that the average energy density of the entire menu at fast-food outlets is typically about 1100 kJ per 100 g, which is 65% higher than the average British diet (about 670 kJ per 100 g). It is also more than twice the energy density of recommended healthy diets (about 525 kJ per 100 g).

Although fast food generally gets the majority of the blame for negative effects of away-from-home foods, increased caloric intake is not linked solely with fast food. Full-service restaurant foods are associated with greater energy amounts as well. Binkley (2008) examined differences in calories and weight of fast food items versus restaurant items. He found that while the energy density of fast foods was higher than that of table restaurant foods, adults tended to eat significantly higher amounts of food for breakfast, lunch, and dinner at table restaurants than at fast food restaurants. Adults also consumed more calories from table service restaurants at breakfast and dinner than at fast food restaurants. Both restaurant and home meals contained significantly higher grams and calories than foods prepared at home, an increase of 139g and 261 calories, and 43g and 206 calories, respectively. It was found, however, that adults did not compensate for excess calories in fast foods by adjusting their eating for the rest of the day, but they did so with table restaurant meals. This was attributed to the higher energy density of fast foods, and previous research that the "bulk" of foods with lower energy density make the consumer more likely to feel satisfied and eat less at other meals (Prentice & Jebb, 2003).

Part of the problem with higher calorie contents is that without strict nutrition labeling laws at restaurants, consumers can severely underestimate the amount of calories consumed. In a study conducted by Burton, Creyer, Kees, and Huggins (2006)

participants were given nine entrée items with descriptions similar to one that would appear on a restaurant menu, and were asked to estimate the levels of calories, fat, saturated fat, and sodium in each item. They found that almost all of the participants severely underestimated the amounts of these nutrients in many of the unhealthier items, sometimes underestimating by as much as 2000 calories or 44g fat. In another study at Cornell University, researchers stopped diners as they left either McDonald's or Subway and asked them to estimate how many calories their meal contained. The average McDonald's diner estimated 876 calories but actually ate 1,093, and the average Subway diner guessed 495 calories but actually ate 677, much more than expected. (A.G., 2007).

These findings indicate an inability on the consumer's part to correctly estimate calorie or fat contents of restaurant foods, which could lead to taking in extremely excessive amounts of energy without realizing it. These excess amounts of energy consumed can lead to overweight or obesity over time.

Fat

The *Dietary Guidelines for Americans* recommend that individuals consume 30% or less of their calories from fat, and only 10% from saturated fat. Consuming excessive amounts of saturated fat is associated with an increased risk for coronary heart disease. Although from the 1970's to 1995 Americans actually reduced the fat density of their diets from 41.2% to 33.6% of total calories, this is still above the recommended intake of 30% of total calories (Guthrie, Lin, & Frazao, 2002). It is also important to note that these statistics reflect the relative value of fat intake. While relative fat intake (the calories

from fat relative to total caloric intake) had declined by 9% in women in 2000, actual fat intake (the actual amount of fat consumed) had increased by 11%. This suggests that reduction in percentage of fat was not due to a decrease in actual fat intake, but instead because of the increasing number of calories consumed, largely from carbohydrates (National Center for Health Statistics, 2005). Average relative fat intake remained stable among all groups combined as of the 2007-2008 NHANES, although there was increased fat intake in non-Hispanic black men and women (increasing from 30.5% kcals to 33.7% kcals, and from 32.1% kcals to 34.4%, respectively) (Wright & Wang, 2010).

It should also be noted that there has been a difference between the reduction of fat density in home foods and that of away-from-home foods. Home foods' fat density dropped to 31.5% by 1995, while away-from-home foods dropped to 37.6%. Also, in 1995 restaurant foods had a higher energy density (40.1%) than either school foods or fast foods. So, while the fat density of the American diet is declining, the fat density of away-from-home foods is making slower progress than that of home foods.

Also, the period from 1977-78 to 1994-95 saw a decrease in calories from saturated fat in the American diet, but the average of 11.3% of total calories from saturated fat was still above the Dietary Guidelines' recommendation. The average of saturated fat calories in home food was 10.7%, while the saturated fat calories in all away-from-home food were 12.4%. Food from fast food restaurants averaged the highest saturated fat percentage of total calories, at 13.8% (Guthrie, Lin, & Frazao, 2002). By 2007-2008, data from the NHANES showed similar findings. Saturated fat intake remained relatively stable at 11%, although there was an increase in saturated fat intake in the subgroups of non-Hispanic black men and non-Hispanic white women. None of the

groups examined met the 10% recommendation by the Dietary Guidelines (Wright & Wang, 2010).

Another type of fat associated with convenience foods is *trans* fat, which was first brought to the public's attention in 2006 when stricter nutrition labeling laws required food manufacturers to list this type of fat on food labels. *Trans* fats are created during a process called hydrogenation, when liquid fats are converted into a more solid fat. This creates partially hydrogenated oils that allow the food to have a longer shelf life. However, the consumption of these partially hydrogenated oils raises bad cholesterol (LDL) and lowers good cholesterol levels (LDL), a combination that raises the risk for heart disease, according to the Center for Disease Control and Prevention (2012). It is for this reason that in 2008 the American Medical Association announced its support of any legislation to ban the use of *trans* fats in restaurants and food manufactories nationwide (Reuters, 2008). Fortunately, some manufacturers have moved toward healthier ways of processing foods without creating *trans* fats. Certain foods such as commercially-prepared cookies, crackers, microwaved popcorn, and pies may still contain them, however (CDCP, 2012). In addition, although many fast food restaurants have moved away from using partially hydrogenated oils, several still continue to do so. At the popular fast food seafood chain Long John Silver's, the amount of *trans* fat in menu items ranged from 1g *trans* fat in the breadsticks to 7g *trans* fats in the breaded clam strips (Long John Silver's, 2012). The USDA recommends keeping *trans* fat consumption as low as possible, so it is clear that these fast foods containing high levels of *trans* fat are detrimental to the health of consumers.

Cholesterol

The American Heart Association recommends that individuals consume no more than 300mg of cholesterol per day. Intake higher than this leads to high levels of blood cholesterol that put one at risk for coronary heart disease. In the 1994-95 NHANES survey, away-from-home foods had higher cholesterol densities than foods prepared at home. The average cholesterol density from food prepared at home was 128 mg cholesterol/1000 calories, while the average for away foods was 140 mg cholesterol/1000 calories. Restaurant foods had the highest cholesterol density at 185mg cholesterol/1000 calories (Guthrie, Lin, & Frazao, 2002).

Sodium

The Dietary Guidelines for Americans recommend that individuals do not consume more than 2,400 mg of sodium each day, regardless of age and gender (National Research Council, 1989). Many studies have shown that salt intake is associated with higher blood pressure (Eliott et al, 1966; National Heart, Lung, and Blood Institute, 1997; Stamler, Stamler, & Neaton, 1993; United States Department of Agriculture, U.S. Department of Health and Human Services, 2000). Data from the NHANES in 2005-2006 shows that most Americans consume more than the recommended amount of sodium, with the estimated average daily intake for individuals 2 years or older at 3400 mg (United States Department of Agriculture, Center for Disease Control and Prevention, United States Department of Health and Human Services, 2007). Only 30% of females over the age of 20 and 6% of males over the age of 20 actually consume less than the recommended 2,400 mg of sodium per day.

Data from the CSFII shows that both foods prepared at home as well as food prepared away from home contain excessive amounts of sodium (Lin, Guthrie, & Frazao, 1999). Although sodium is found naturally in foods, most of the sodium consumed in the American diet is added to the food during processing or preparation (James, Ralph, & Sanchez-Castillo, 1987; Mattes & Donnelly, 1991). This is why the average sodium density of away foods is higher (at 1698 mg/1000 calories) than the sodium density of foods prepared at home (at 1644 mg/1000 calories). Restaurant foods have the highest sodium density of all foods (at 1894 mg/1000 calories) (Guthrie, Lin, & Frazao, 2002). Because of these dangerously high levels, even the Dietary Guidelines for Americans make the following suggestion to lower sodium intake: "Eat more home-prepared foods, where you have more control over sodium (United States Department of Agriculture, Center for Disease Control and Prevention, United States Department of Health and Human Services, 2007)".

Fiber

Dietary fiber is described as the part of plant foods that the body cannot digest. It is mainly found in fruits, vegetables, beans, legumes, and whole grain foods. The Dietary Guidelines for Americans recommends that individuals consume 14 grams of fiber for every 1000 calories. High-fiber diets tend to be lower in fat and energy density, so meeting these recommendations for fiber intake can play a huge role in the prevention and treatment of obesity, heart disease, and hypertension. Despite these health benefits, only around half of Americans get the recommended amount of fiber (National Fiber Council, 2006).

There is a difference in the levels of fiber in foods prepared at the home versus away-from-home. In 1994-96, home foods had a higher fiber density (at 8.6 g/1000 calories) than away-from-home foods (at 6.4 g/1000 calories). Fast food was especially low in fiber at 5.7 g/1000 calories (Guthrie, Lin, & Frazao, 2002).

Fruits and Vegetables

The Dietary Guidelines for Americans recommend that individuals consuming a 2,000 calorie diet consume 2 cups of fruit and 2 ½ cups of vegetables each day (U.S. Department of Agriculture, U.S. Department of Health and Human Services, 2010). However, data shows that Americans' consumption of these food groups does not come anywhere close to recommendations. In 1994-96, only 28% of Americans over the age of 2 consumed at least two daily servings of fruit (USDA, 1996). In the age group of 20 to 39 years, 23% of males and 20% of females consumed two or more daily servings of fruit. Only 3% of males aged 20 to 39 years and 4% of females aged 20 to 39 years met the Dietary Guidelines' recommendations for servings of vegetables per day (USDA, 1996). More recent data from the Behavioral Risk Factor Surveillance System (BRFSS) in 2005 shows that Americans' fruit and vegetable consumption has even declined slightly since 1995. Overall, only 24.7% of Americans met the recommendations for five servings of fruits and vegetables per day (Blanck, Gillespie, Kimmons, Seymour, & Serdula, 2008). In addition, according to the 2009 State Indicator Report on Fruits and Vegetables published by the Centers for Disease Control, Mississippi ranked last on the list for fruit and vegetable consumption, with less than 10% of individuals over the age of 18 consuming at least two servings of fruit and three servings of vegetables per day

(Center for Disease Control, 2009b). These statistics show that Americans are not meeting the recommendations for optimal health and disease prevention put forth by the government.

David, Kylie, Gita, Jo, and Anna (2007) studied a group of women in Australia to determine which food related behaviors were associated with higher fruit and vegetable intake. They found that women who planned out what they were going to eat for specific meals, sometimes cooked meals ahead of time, and enjoyed cooking were more likely to consume more than two vegetables each day. On the contrary, women who found cooking to be a chore, ate on the run, bought food from fast food restaurants, or got takeout food from restaurants were less likely to eat two or more servings of vegetables daily. Data analyzed from the "What We Eat in America" conducted by the USDA shows a similar finding: boys and girls who consumed higher amounts of fast food were less likely to meet the vegetable recommendations for MyPyramid, and girls were less likely to meet fruit recommendations when consuming higher amounts of fast foods (Sebastian, Wilkinson, Enns, & Goldman, 2009).

Portion Size

It is well established that the larger the portion sizes provided, the more individuals will consume (Diliberti, Bordi, Conklin, Roe, & Rolls, 2004). As far back as 1968, there have been studies examining this eating pattern. Nisbett (1968) found that obese human subjects, when presented with three sandwiches, ate more than normal subjects. When the sandwiches were available but out of sight, the obese participants consumed less. There are also several recent short-term studies that have demonstrated

this concept. Rolls, Morris, and Roe (2002) measured the calorie intake of individuals when presented with four different portion sizes on different days, and they found that people ate as many as 30% more calories when presented when the largest portion size. They also found that there was a similar degree of fullness after each meal, despite the portion size given to the individual. A study conducted more recently by Rolls, Roe, and Meengs (2007) tracked the intake of individuals when provided with both normal size meals and larger portioned meals. They found that the participants ate the larger portioned meals, which included an average of 423 extra calories per day. Over the eleven day research period, the participants consumed in excess of 4,636 calories. These excessive caloric intakes occurred in all food groups except, interestingly, fruits and vegetables. Another study by Dilibert, Bordi, Corklin, Roe, and Rolls (2004) examined caloric intake in restaurants. The participants were separated into two groups and given a standard size portion of pasta or a larger portion of pasta. As expected, the individuals given the larger portion consumed 43% more calories from the pasta than those with the smaller size. Because the fundamental principle of weight gain is excessive caloric intake, portion size is very relevant to the obesity and overweight epidemic.

This concept of overeating when served a larger portion is especially relevant because over the past 50 years, portion sizes of burgers, fried potatoes, pizzas, and soft drinks at fast-food outlets have all increased two to five-fold (Nielsen & Popkin, 2003). These large portions contribute to the obesity problem in several ways: they provide more calories than smaller portions (Young & Nestle, 2002; Young & Nestle, 2003), and they encourage people to greatly underestimate the amount of calories eaten by confusing portion size with servings size (Diliberti, Bordi, Conklin, Roe, & Rolls, 2004; Rolls,

Morris, & Roe, 2002; Wansink & Chandon, 2006; Wansink, Painter, & North, 2005). Portion size is the amount of food one is served in a restaurant or what can be purchased as pre-prepared food, such as a bowl of pasta or a pizza. Serving size, on the contrary, is the standard measure used to designate an amount of food, such as a cup or an ounce. A portion of a food can have more than one serving in it, which can lead to confusion on the consumer's part in trying to estimate correct or appropriate portion sizes.

There are clear examples of the increases in portion sizes in the fast food industry. In the 1950s the standard size burger was 2.8 oz; in 2002 the standard size burger had increased by 1.5 oz (Alpert, 2012). Now, the sizes of the largest hamburger offered at Wendy's, McDonald's, and Burger King fast food restaurants all exceed the 5.5 oz of meat/day recommendation by the USDA (U.S. Department of Health and Human Services, U.S. Department of Agriculture, 2005). In another example, a standard serving size of soda in 1916 was 6 oz; in 1996 the standard soda had increased to a serving size of 21 oz. Today, carbonated beverages can even be purchased in a 64 oz size (Alpert, 2012).

Away-From-Home Foods and Weight Gain

Several studies have examined the association between fast food consumption and weight gain. The CARDIA study, funded by the National Heart, Lung, and Blood Institute of the National Institutes of Health, examined fast food intake over a period of 15 years, and the researchers found that fast food intake was associated with both weight gain and increased insulin resistance. Individuals who ate meals at fast food restaurants

more than twice a week gained 4.5 kg more and had 104% increase in insulin resistance than participants who ate fast food less than once a week (Pereira et al, 2005). Another study, conducted in 2000, examined data from the Continuing Survey of Food Intake by Individuals (from the USDA) to determine the relationship between certain variables and increased obesity. Researchers found that food sources did have significant associations with BMI. Men who ate out at restaurants were, on average, 0.9 kg heavier than men who did not. Women who ate at restaurants were, on average, 0.2 kg heavier. Men who ate at fast food establishments were 0.8 kg heavier than men who did not, while women who ate fast food were 1.0 kg heavier than those who did not. In fact, in this study the consumption of fast food was the most significant determinant of BMI over every other variable (Binkley, Eales, & Jekanowski, 2000). An Economic Research Service report in 2010 analyzed dietary intake data and found that eating one meal away from home each week roughly translates to two pounds gained each year. One extra meal purchased away from home added an average of 134 excess calories per meal, an amount that can accumulate over time (Todd, Mancino, & Lin, 2010). McCrory, et al (1999) examined a possible link between frequency of eating out and body fatness in men and women aged 19-80. They found that the frequency of eating restaurant foods was positively associated with body fatness. While all of these associations do not prove causation, they do indicate that obesity is in some way connected to increased consumption of away-from-home foods, a trend that should be examined further.

Despite the negative impacts of the fast food industry on consumer health, it must be noted that some restaurants are moving toward having healthier options on their menus. Having access to accurate nutritional information at restaurants is important in

consumers' ability to select healthy options. Many chains do provide nutrition information at the restaurant or on their websites; however, the average consumer might not have the time or knowledge to use this information to make an informed healthy decision.

Health Consequences

Chronic diseases such as obesity, heart disease, diabetes, and hypertension have been linked with diets high in saturated fat, cholesterol, and sodium, and low in fiber (CDCP, 2011). The Dietary Guidelines for Americans report statistics that show how Americans are complying with recommendations of foods to consume more of: they consume only 15% of the goal for whole grains, 59% of the goal for vegetables, 42% of the goal for fruits, 52% of the goal for dairy, and 40% of the goal for fiber. They also consume more of the foods that the guidelines recommend to limit: 280% of the goal for calories from solid fats and added sugars, 200% of the goal for refined grains, 149% of the goal for sodium, and 110% of the goal for sodium intake (USDA, CDCP, & USDHHS, 2007).

As shown in the previous sections, these characteristics are all attributes associated with away from home foods. Research demonstrates that away-from-home foods contains more of the nutrients such as saturated fat and sodium that Americans are over-consuming, and less of the nutrients that Americans need to consume more of (Contribution of Away-From-Home Foods to American Diet Quality, 1999). These shifts

toward these processed, convenient foods are having enormous consequences for the health of Americans.

Dall et al, (2009) created a "Nutrition Impacts Model" to estimate the potential medical savings if the amounts of calories, saturated fat, and sodium were reduced in the American diet. Data was analyzed from national food surveys, peer-reviewed studies, and government reports to create this model. They found that a permanent 100 calorie reduction in daily caloric intake would reduce the cases of obesity and overweight by approximately 71.2 million, resulting in a $58 billion decrease in annual medical spending. If sodium were reduced by 400 mg/day in people with hypertension, 1.5 million cases would be eliminated and save $2.3 billion in medical expenses each year. Finally, a long-term decrease of 5g of saturated fat per day for people with high cholesterol would eliminate 3.9 million cases of dyslipidemia, resulting in savings of $2.0 billion annually. With these modest diet changes, Americans could save billions of dollars on healthcare each year while promoting optimum health.

Because away-from-home foods typically contain more calories, sodium, and saturated fat than foods prepared at home, it is possible that a shift back toward home-prepared foods and away from restaurant foods could have a great impact on the overweight and obesity crisis in the U.S.

Chapter 4: Food Preparation and College

The college years are a time of important transition for many young adults. Most students have just moved out of their parents' homes and are living independently for the first time. These new living arrangements can influence lifestyle factors such as food choices, nutritional status of the diet, and physical activity patterns (Brevard & Ricketts, 1996). College students as a group are also especially vulnerable to the consumption of "convenience" foods. There is evidence that a marked decrease of physical activity occurs between the ages of 18 and 24, and eating habits tend to become unhealthier during these years (Grace, 1997; Stephens, Jacobs, & White, 1985). Several studies have shown that many young adults in college are not meeting the current recommendations for physical activity levels or dietary intakes (Centers for Disease Control and Prevention, 1997; Cotugna & Vickery, 1994; Dinger & Waigandt, 1997; Douglas et al, 1997; Patrick, Covin, Fulop, Calfas, & Lovato, 1997; Wiley et al, 1996).

The nutrition data from *Healthy People 2010* shows that college students are consuming foods that contain excessive fat but not enough of the suggested servings of foods containing calcium, whole grains, fruits, or green vegetables (US Department of Health and Human Services, 2000). Only 7% of college students reported that they ate the recommended 5 or more servings of fruits and vegetables daily (American College Health Association, 2006). Although these transitional years can be a powerful opportunity for establishing healthy eating behaviors, poor diet choices and lifestyle factors can have negative impacts on health that will last well into adulthood.

There is a commonly referenced phenomenon that occurs during the first year of college known as the "Freshman 15". The moniker refers to the tendency of students to gain weight during the first years of college. This idea is very well-known around college campuses; however, it does not have much substantial support in research. A study conducted at Rutgers University examined the changes in body weight and body composition that occurred in freshman students during their first year of college. The average change in body weight was 2.86 pounds, and the average change in percentage body fat was 0.7%. For students who gained weight, the average increase was 6.82 pounds (Hoffman, Policastro, Quick, & Soo-Kyung, 2006). While these increases are not close to the "15" pound weight gain commonly cited, they do indicate that the first year of college is a time when weight gain and body fat increases might occur. Other studies have shown similar increases in BMI and body weight during the first year of college, again reporting weight gain of less than 7 pounds (Anderson, Shapiro, & Lundgren, 2003; Gropper et al, 2009).

Besides the weight gain of freshman year, the failure to consume the recommended amounts of nutrients among all college students, regardless of year, is of concern. This phenomenon could be linked to a number of habits that have been associated with these years -- frequent meal skipping, inadequate variety of foods, frequent consumption of fast food, lack of understanding of food recommendations, and low self-efficacy in making healthy food decisions (Cotugna & Vickery, 1994; Cusatis & Shannon, 1996; Hertzler & Frary, 1989; Sax, 1997; Schuette, Song, & Hoerr, 1996; Task Force on National Health Objectives in Higher Education, 1991). One of the most significant of these lifestyle habits is the lack of food preparation at home.

Barriers to home-prepared meals

Because of the link between home-prepared foods and better diet quality, it is important to study the food preparation habits of college students. There are many factors that go into college students' food preparation habits. One of these is expediency. It is documented that ease and convenience are strongly valued by young adults (Hertzler & Frary, 1992). Data from the NHANES in 2007-2008 shows that males and females aged 20-29 consume 40% and 39%, respectively, of their total calories from away-from-home foods. This is higher than the average for all age groups (U.S. Department of Agriculture, Agricultural Research Service, 2010).

Lack of time to prepare food can be a common barrier to preparing meals at home (Hertzler & Frary, 1992). The American College Health Association National College Health Assessment (ACHA-NCHA) in 2005 showed that 18% of students worked for pay between 1 and 9 hours per week; 18.8% worked between 10 and 19 hours/week; and 22.3% worked 20 hours or more per week. In addition, 31.1% volunteered for 1 to 9 hours each week; 2.7% volunteer between 10 and 19 hours per week; and 1.3% volunteered for 20 or more hours per week (American College Health Association., 2006). This data suggests that work hours, combined with hours for studying and class time, can leave students with a lack of time to prepare healthy meals. Dr. Richard P. Keeling summed up the issue in an editorial in 2001 in the *Journal of College Health*:

> For most students, we are not talking about preventing scurvy. Hypertension, obesity, cardiovascular disease, and cancer are the most important concerts, and their probability, although acknowledged, may seem less pressing than the hot,

> salty, crunch of those just-perfect fries. Especially when getting healthier foods--even in many college dining facilities, where the convenience and variety of the food court now reigns-- is not easy when preparing them yourself makes too much time and effort. (p. 153).

A study in the *College Student Journal* was conducted to assess the reasons for not preparing certain foods, quantify the food preparation knowledge and skills of college women, and to examine the frequency of eating outside the home. This is one of the only studies to actually examine the practical component of food preparation, actual food preparation ability. The researchers found that if a food was classified as requiring low preparation ability, students were more likely to prepare it with high frequency. Also, if the women knew how to prepare a food, it was more likely that they would prepare it. The most frequent reasons given for inability to prepare certain foods were never being taught, no interest in learning, and lack of time. The two least frequent reasons given were insufficient kitchen resources and no money. The researchers also found that 59% of the participants ate out 1-3 times per week, while 41% ate out 4 or more times per week (Soliah, Walter, & Antosh, 2006).

One of the most frequently cited reasons for not preparing certain foods in the previous study was having never been taught. As mentioned previously, the removal of the home economics curriculum from high schools has left many young adults without adequate cooking skills, and some with none at all. If young men and women were taught basic principles of healthy cooking, they might view home-prepared meals as less of a chore and more as a manageable activity. Because many parents were not taught these same skills, they cannot be relied on to pass these techniques on to their children. Instead

of growing up enjoying home-cooked meals, many children now grow up with a reliance on frozen dinners and restaurant food, a reliance that has been perpetuated by their parents' lack of food preparation skills. If young adults grow up feeling uncomfortable in a kitchen setting, they will be at a disadvantage when faced with college life and a lack of time (Dolnick, 2010). By 2030, the ideal preparation time for a meal is predicted to be less than 15 minutes (Sloan, 1998). It is imperative that a curriculum be designed with a combination of demonstrations and practical education that will give students the basic skills to prepare meals that are quick, healthy, and delicious (Dolnick, 2010).

Larson, Perry, Story, and Neumark-Sztainer (2006) conducted a large study to determine if food preparation skill by young adults is associated with better diet quality. The participants were asked to report how often they performed specific behaviors over the past year such as buying fresh vegetables, preparing a green salad, preparing an entire dinner for two or more people, or writing a grocery list. They were also asked to report the adequacy of several factors such as their cooking skills, amount of money they have to buy food, appliances for food preparation, food selection in local stores, and time available to prepare food. A food frequency questionnaire was also filled out to assess diet quality.

The researchers found that the majority of young adults did not perform food-preparation behaviors even weekly, although women were more likely to prepare a dinner with chicken, fish, or vegetables at least once a week than men were. The most common barrier to food preparation, reported by 36% of participants, was lack of time. More than a third of both females and males reported that they did not have adequate time to prepare food. Another barrier was the lack of ability to prepare food, although most participants

in the study perceived their food preparation skills as adequate. Inadequate cooking skills were reported by 23% of males and 18% of females. In addition, 25% of participants reported that not having money to buy food was an obstacle to food preparation. Approximately 90% of participants reported that they had adequate appliances for food preparation as well as adequate selection of food at local stores. Many of the resources for preparing food are present; it is the lack of skill, time, and money that create the barriers.

Importance of home-prepared meals

The benefits of home-prepared food are clear. Participants in the Larson, Perry, Story, and Neumark-Sztainer (2006) study who reported frequent food preparation were associated with less frequent fast food consumption and were more likely to meet the recommendations for fat, calcium, fruit, vegetable, and whole grain intakes. Of the participants who reported frequent food preparation, 31% consumed five servings of fruits or vegetables daily. Only 3% of those reporting minimal food preparation consumed the same amount. Similar to fruit intake, deep-yellow or green vegetable intake was also associated with frequency of food preparation. Of those who reported frequent food preparation, 18% met the guidelines for these vegetables; only 2% of those who reported low preparation did (Larson, Perry, Story, & Neumark-Sztainer, 2006). The data from this study shows that young adults who participate in food preparation on a frequent basis are more likely to meet the national dietary recommendations.

In addition to numerous health benefits, there can also be cost benefits to preparing food at home. In the documentary *Food Inc.*, a scene depicts a family being forced to order a meal at a drive-thru fast food restaurant because they can't afford "real" food (Kenner et al, 2009). Although popular belief holds that fast food is much cheaper than home-cooked meals, reinforced by scenes like this, often home-cooked meals can be much cheaper. This is not universally true for every food item purchased and can vary with food price fluctuations, but there can be potential cost savings if thrifty spending tactics are used.

No peer-reviewed, comparative cost-analysis of home prepared food and away foods was found. However the *New York Times* published an informative piece that compared the cost of a meal for four at McDonald's to the cost of a similar meal prepared at home, using data from a McDonald's, a grocery store in Brooklyn, and nutrition analyses by the USDA. As discussed in the article, the price of two Big Macs, one cheeseburger, one six-piece Chicken McNuggets, two medium fries, two small fires, two medium Cokes, and two small Cokes amounts to approximately $28. This can be compared to roasted chicken, potatoes, and salad cooked at home for four people at a cost of $14. If a meal is made using staples such as rice and beans instead, the cost drops to around $10 for four people (Bittman, 2011).

Two registered dietitians at the Mayo Clinic also conducted a cost-per-serving analysis using prices from the 2009 USDA Consumer Price Index to determine the difference between a restaurant-bought burger and a homemade one. The differences can be seen in Table 1:

Table 1. Difference in calories, fat, and price per ounce of burgers.

	Calories	Fat	Price
Fast Food Burger: Ground beef on white bun, with ketchup, mustard, pickles and onion.	71 calories per ounce	2.6 grams per ounce	$0.29 per ounce
Homemade Burger: Lean ground beef on wheat bun, with your choice of condiments	67 calories per ounce	2.8 grams per ounce	$0.25 per ounce

*Serving size: 4.5 oz sandwich

**USDA National Nutrient Database for Standard Reference; McDonald's Web Site; Bureau of Labor Consumer Price Index. Accessed Jan. 8, 2009.

As shown in the table above, the cost per ounce of a homemade burger is actually somewhat less than that of a fast food hamburger, contrary to popular belief (Nelson & Zeratsky, 2009). The price differences become even more pronounced when comparing home cooked food to that from full service restaurants. A cobb salad with chicken at a California Pizza Kitchen costs $13.75, while a homemade cobb salad with chicken from a *Cooking Light* recipe costs just $5.11 (Nelson & Zeratsky, 2009). Besides actual price, there are also many other factors that add up to the real "cost" of a meal: gas (to restaurants or the grocery store), tips, time and opportunity costs, and potential long-term health costs. These all can factor into the actual "cost" of a meal, depending on which aspects are more valued by the consumer.

Chapter 5: Rationale for Cookbook

Although this generation has grown up under the guidelines of the Food Guide Pyramid, Dietary Guidelines of Americans and the new food label laws young adults continue to have poor diets lacking in important nutrients (Munoz, Krebs-Smith, Ballard-Barbash, & Cleveland, 1997), and more than 35% of college students are overweight or obese (Lowry, Galuska, Hulton, Wechsler, & Kahn, 2000). The research suggests that the time period between the end of high school and the end of college are critical in in the prevention of many chronic diseases such as obesity, type 2 diabetes, cardiovascular disease, and bone complications. Because the years of college are transitional in many different areas, they are a crucial time to intervene and educate young adults on healthy behaviors, as the lifestyle habits that are established during these years will last well into adulthood (Centers for Disease Control and Prevention, 2009a).

While there is a general consensus that weight gain and lifestyle factors that lead to obesity are becoming a problem on college campuses, there seems to be a lack of research on how to fix or address this problem. If the lack of home-prepared meals seems to be a contributing factor to unhealthy diets, then an intervention strategy aimed at increasing the ability and willingness to make home-prepared meals seems to be a promising strategy. "Nutrition self-efficacy" refers to beliefs about the ability to perform certain health behaviors, and research indicates that increased self-efficacy can play a role in reducing obstacles to healthful behaviors (Von Ah, Ebert, Ngamvitroj,

Park, & Duck-Hee, 2004). This is very similar to the previously mentioned findings of Soliah, Walter, and Antosh (2006): If the women in their study knew how to make a certain food item, they were more likely to prepare it.

Glanz, Basil, Maibach, Goldberg, and Snyder (2008) determined that after taste, cost was the most important factor for individuals when choosing foods. French (2003) also found that cost was a huge determinant of food choice. In this study, price reduction strategies were used to promote target foods in vending machines both in workplaces and at schools. When the prices of low-fat vending options were decreased by 10%, 25%, and 50%, sales increased by 9%, 39%, and 93%, respectively. When the price of fresh fruit and baby carrots in high school cafeterias was decreased by 50%, there was a four-fold increase in fruit sales and a two-fold increase in baby carrot sales. The researchers determined that pricing strategies were an extremely effective way of promoting more healthful food choices in the community. These same principles can be applied to successful interventions in a college setting. If students can be shown through education that food costs can be reduced by cooking meals at home (and without sacrificing good taste), they might be more likely to cook their meals rather than eating out.

Research indicates that nutrition education is an effective way of increasing dietary knowledge and preventing weight gain. Matvienko, Lewis, and Schafer (2001) showed that nutrition education through a general nutrition course was an effective strategy to prevent weight gain in college freshmen, and other studies have shown similar results through web-based education interventions (Franko et al, 2008; Long, & Stevens, 2004). Recently, alternative, cost-effective types of nutrition education have been examined. In a study by Richards, Kattelmann, and Ren (2006), newsletters promoting

fruit and vegetable consumption were distributed in a college setting. Students who participated in this intervention subsequently increased their fruit and vegetable intake by one serving. This type of cost-effective education intervention could possibly be successfully applied to the University of Mississippi campus in a slightly different format.

Trying to design the most effective nutrition intervention possible,Cousineau, Goldstein, and Franko (2004) held focus groups at two large university sites to determine the nutrition information that college students wanted to see, as well as the concepts that nutrition staff felt were most important. They asked focus group participants to discuss the major themes, concerns, and barriers to maintaining a healthy diet during the college years, and also what would be the most helpful in promoting healthier eating habits. Both students and nutrition faculty rated "healthy eating on a budget" as the number one area of concern. This was followed by the areas of healthy meal planning, personalization features, and basic nutrition facts, all listed in the same order of importance by both students and faculty. These principles should be integrated into the design of nutrition education on the college campus.

Again, the institution of a curriculum that promotes cooking skills into schools would most likely be a very beneficial investment in the prevention of many health problems facing Americans today (Dolnick, 2010). Because it is too late for current college students to benefit from such a curriculum, a form of nutrition education combined with education for food preparation skills is warranted. A cookbook specifically designed to incorporate the principles of nutrition and food preparation education could an effective and interactive intervention strategy in this area. With the

majority of students at the University of Mississippi living off-campus and therefore with the capacities to prepare food themselves, a cookbook aimed at encouraging home preparation of foods could have a healthy impact on a great number of people. A cookbook that directly addresses the common barriers to eating healthy home-cooked meals (lack of time, convenience, money, and skill) would likely be the most well-received among this age group. This cookbook should focus on the areas listed as the most important by both college students and nutrition faculty: healthy meal planning, personalization features, and basic nutrition facts (Cousineau, Goldstein, & Franko, 2004).

Because many students lack basic food preparation skills, the cookbook will have an education component. Part of the education component is founded on a study that determined the effectiveness of nutrition education among college students. In this study, students who were shown a PowerPoint presentation reported that they gained new knowledge, and that the most effective aspects of the module were the visuals and the food models (Kicklighter, Koonce, Rosenbloom, & Commander, 2010). Based on this principle of visual learning, the cookbook includes colored photographs and other nutrition education components. Hopefully this approach will provide an adequate, cost-effective substitution for a live demonstration.

The nutrition education component of this book is contained in the introductory chapters and throughout the book itself. It includes information on the macronutrients, vitamins and minerals, healthy substitutions, and how cooking techniques affect nutrition. There are also definitions of common cooking techniques that appear alongside the recipes. All of the information is presented in an easy-to-read manner targeted at the

education level of most college students. The education component contains simple concepts that would be learned in an introductory nutrition course.

It has been documented that American consumers want food choices that are delicious, nutritious, convenient, and quick to prepare (Hales, 2003). Therefore, the recipes in this cookbook are designed to meet these characteristics. Several have been cost-calculated and compared to their commercial counterparts. All of the recipes are designed and tested to be prepared in a short amount of time, and they contain as few (and as basic) ingredients as possible. To address the nutrition component of recipes, I conducted a nutrition analysis for each item using a nutrition calculator online at the domain www.caloriecount.com. The information for recipes is shown in Table 2.

It has been shown that this type of nutrition education can be effective in college settings when distributed, and I hope for the same for the University of Mississippi campus. College is a crucial time period for the establishment of habits and health characteristics that will last a lifetime, and I believe this type of education will be both effective and enjoyable for my peers.

Table 2. Nutrient Analysis of Recipes

Recipe	Number of Servings	Calories	Fat	Saturated Fat	Cholesterol	Sodium	Total Carbohydrates	Dietary Fiber	Sugars	Protein
Spicy Bean Dip	2	36	0.4 g	0.0 g	3 mg	192 mg	6.4 g	2.1 g	0.7 g	2.1 g
Turkey Sausage Balls	50 balls	97	6.6 g	3.0 g	17 mg	212 mg	4.5 g	0.0 g	0.9 g	4.6 g
Crab Cakes	8	110	3.6 g	0.7 g	29 mg	610 mg	14.2 g	0.6 g	2.8 g	4.9 g
Homemade Hummus	6	118	3.2 g	0.0 g	0.0 mg	240 mg	19.0 g	3.6 g	0.0 g	4.1 g
Chicken Salad	3 (1 cup each)	279	9.2 g	1.9 g	112 mg	202 mg	6.0 g	0.0 g	2.0 g	41.0 g
Pasta Salad	7	311	4.1 g	0.8 g	1 mg	1397 mg	56.0 g	6.6 g	9.2 g	9.4 g
Spring Salad	2 (3 cups each)	194	8.2 g	0.8 g	0.0 mg	200 mg	30.5 g	6.2 g	22.0 g	4.4 g
Black Bean Soup	2 (2 cups each)	288	1.5 g	0.0 g	0.0 mg	977 mg	47.7 g	13.4 g	2.4 g	20.0 g
Chicken Noodle Soup	4 (2 cups each)	233	5.6 g	1.4 g	68 mg	217 mg	20.4 g	2.0 g	2.1 g	23.1 g
Easy Chili	4	400	19.2	4.6	116 mg	1105 mg	19.1 g	5.5 g	7.4 g	37.7 g
Vegetable Soup	4 (1 cup each)	70	0.1 g	0.0 g	0.0 g	228 mg	13.0 g	3.7 g	4.9 g	3.7 g
Chicken Parmesan	8 (half of breast)	374	18.9 g	6.6 g	103 mg	494 mg	17.4 g	2.6 g	6.8 g	32.3 g
Fish Tacos	4 tacos	208	1.9 g	0.6 g	55 mg	471 mg	26.6 g	1.9 g	1 g	24.1 g

Peppery Roasted Pork Loin	6	331	8.1 g	2.8 g	166 mg	130 mg	1.5 g	0.6 g	0.0 g	59.6 g
Spicy Grilled Cheese	1	357	19.2 g	11.3 g	59 mg	720 mg	24.7 g	4.2 g	4.1 g	18.5 g
Oven-fried Chicken	4	340	7.7 g	2.0 g	90 mg	136 mg	26.8 g	0.8 g	3.0 g	38.1 g
Beef Stir-Fry	4	332	14.1 g	3.7 g	101 mg	1115 mg	13.3 g	2.7 g	8.9 g	37.0 g
Pasta Primavera	2	377	6.8 g	2.8 g	5.4 mg	967 mg	61.5 g	7.4 g	5.6 g	15.9 g
Turkey-Pesto Panini	1	527	22.6 g	7.3 g	78 mg	2090 mg	44.0 g	2.6 g	6.8 g	35.9 g
BBQ Chicken Pizza	8	322	18.9 g	8.6 g	56 mg	901 mg	17.7 g	1.2 g	4.8 g	15.3 g
Cajun Shrimp and Grits	4	311	7.0 g	3.6 g	238 mg	811 mg	25.8 g	1.0 g	0.9 g	34.7 g
Over-fried Anything (information for onion rings)	6	213	3.2 g	1.0 g	29 mg	284 mg	37.7 g	2.5 g	4.4 g	7.8 g
Creamy Spinach	2	128	6.9 g	4.1 g	18 mg	180 mg	12.2 g	3.4 g	4.1 g	6.8 g
Corn Pudding	8	244	7.8 g	4.0 g	19 mg	460 mg	39.2 g	3.4 g	5.6 g	8.3 g
Garlic Mashed Potatoes	4	180	6.0 g	3.7 g	16 mg	60 mg	28.8 g	4.2 g	3.3 g	3.8 g
Brown Sugar Glazed Carrots	4	137	5.9 g	3.7 g	15 mg	133 mg	21.2 g	3.3 g	17.1 g	0.8 g
Roasted Asparagus	4	61	4.5 g	0.7 g	2 mg	3 mg	4.3 g	2.1 g	2.2 g	2.2 g
Sweet Potato Bites	4	192	6.9 g	1.0 g	0.0 mg	592 mg	31.4 g	4.6 g	0.6 g	1.7 g

Whole-wheat Blueberry Muffins	12	133	0.6 g	0.0 g	14 mg	110 mg	29.1 g	1.1 g	11.9 g	3.3 g
Easy Spinach and Bacon Omelet	1	141	5.6 g	1.4 g	184 mg	435 mg	1.9 g	0.7 g	0.9 g	19.6 g
4-Berry Maple Waffles	2	222	8.5 g	1.7 g	0.0 mg	4.1 mg	33.8 g	4.2 g	8.8 g	4.5 g
Black Bean Breakfast Burrito	1	362	15.0 g	5.0 g	179 mg	820 mg	36.4 g	6.5 g	2.4 g	24.2 g
Dark Chocolate Covered Strawberries	6	155	8.2 g	5.0 g	0 mg	0 mg	21.7 g	2.5 g	18.3 g	0.3 g
Peanut Butter Cookies	25	129	5.3 g	1.2 g	0.0 mg	174 mg	17.3	0.7 g	11.8 g	4.3 g
Fruit Partfait	2	122	1.1	0.0 g	0.0 mg	2.0 mg	29.1 g	10.0 g	17.5 g	2.6 g
Yogurt "Icebox" Pie	8	155	8.5 g	6.7 g	2.0 mg	40 mg	18.2 g	1.5 g	16.0 g	2.4 g

Source: "Food and Recipe Database," www.caloriecount.com, Accessed May 2012.

Chapter 6: The Cookbook, *The College Chef's Companion*

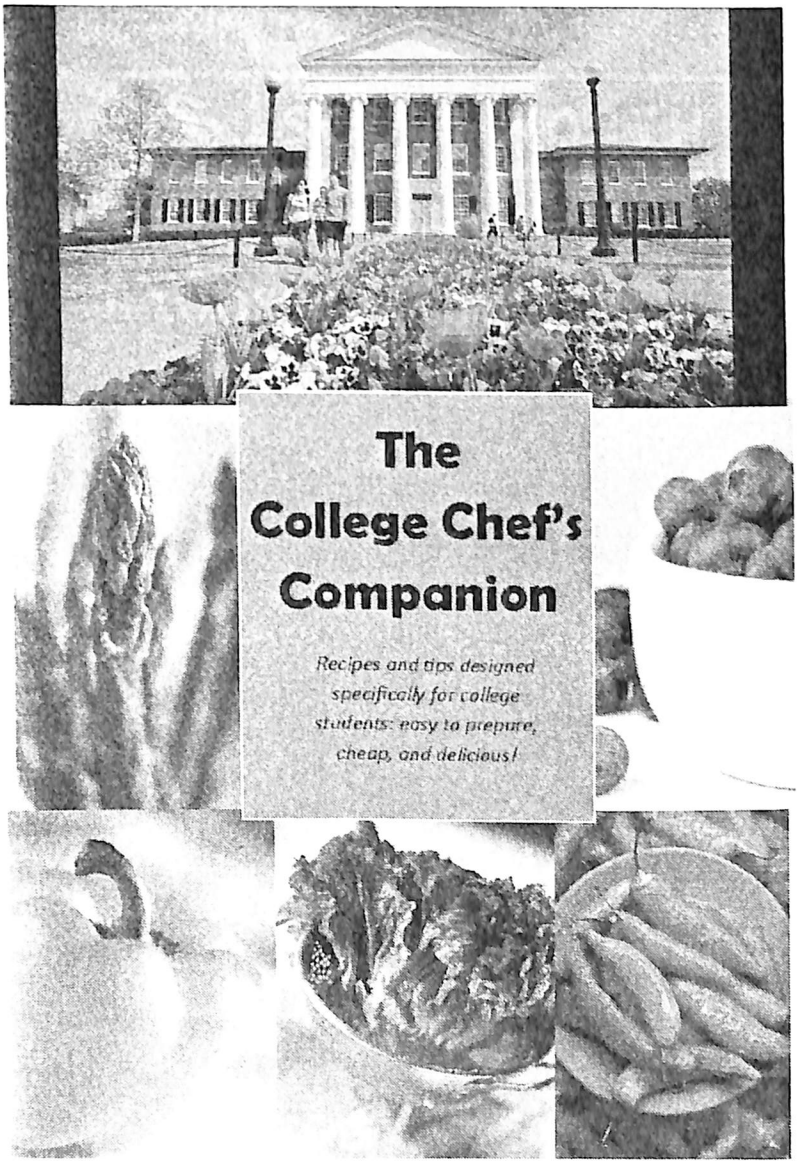
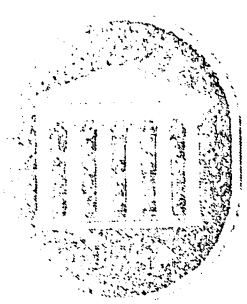


Table of Contents



Introduction

College is a difficult time for many students to eat healthy. The dreaded "Freshman 15" can be a reality due to erratic schedules, stress eating, and the availability of late night food. Americans have a hard enough time meeting the recommendations of the Dietary Guidelines for Americans, and adding a stressful college lifestyle on top of that can cause some students to neglect their diet.

Although a somewhat of a lost art, preparing food from scratch has been shown by research to be generally the healthier way to eat. Home-prepared foods tend to be lower in fat, calories, sodium, and higher in fiber than foods purchased away from home[1]. However, cooking food at home can be very time consuming and costly, and long ingredient lists in recipes can be intimidating and overwhelming.

That is why this book is prepared specifically for college students- and even more specifically for college students at Ole Miss. It has everything you need to know, from cooking techniques and vitamins, to all the recipes that combines all of these areas into delicious, healthy meals. All of the recipes are geared toward college students who have little time to spend on cooking and even less money to spend on pricey ingredients. Some of the ingredients might be familiar; some might not. That is the exciting thing about healthy eating-- there is so much variety and excitement in trying new foods!

Everyone can find easy, healthy recipes in here -- from an athlete trying to get a lot of protein, to girls trying to slim down for a date party, to a student just simply trying to lead a healthy lifestyle. All of these recipes were designed by a college student for college students, so feel confident in trying them all! Also, feel free to experiment along the way. College is a time for expressing yourself in creative ways, and cooking should be no different. With all that being said, let's get cooking!

Basic Nutrition

Many people don t really stop to think about what their food is made of and the ways that food can have an impact on their body. Food has many purposes—from helping your body to grow, to giving you energy, to preventing diseases. To understand the importance of a healthy diet, it is important to understand what is in the food you eat.

The building blocks of the food you eat are separated into six class of nutrients: carbohydrates, proteins, fats, vitamins, minerals, and water.

Carbohydrates

- Carbohydrates = Energy
- There are two types of carbohydrates: simple and complex. Simple carbohydrates are absorbed quickly by your body and give you immediate energy. Complex carbohydrates take longer to digest, and give you longer and more sustained energy.
- Where carbohydrates are found:

  Simple: fruit, milk products, foods and drinks with added sugar.

  Complex: potatoes, beans, whole grains, rice

Proteins

- Proteins are part of every cell, tissue, and muscle in our body. They are especially important for building and repairing muscles.
- There are two types of proteins: complete and incomplete. Complete proteins have all of the amino acids we need, while incomplete proteins only have some.
- Where proteins are found:

  Complete: Beef, poultry, seafood

  Incomplete: Beans, nuts, soy

Fats

- The word "fat" tends to have negative connotation in today's society. However, fats are necessary for normal body function.
- There are several types of fats, and some are better than others.
- Saturated fats and trans fats should be limited. They are found in things like processed foods, fried fast foods, or red meat.
- Unsaturated fats can have enormous health benefits. They can be found in foods like avocados, olive oil, salmon, and nuts.

Vitamins/Minerals

- Vitamins and minerals are nutrients that your body needs to grow and develop normally. To get all of the vitamins and minerals that your body needs, it's very important to eat a wide variety of foods, especially fresh fruits and vegetables. These groups of food contain nutritious vitamins:

  - Citrus fruits: vitamin C, many B vitamins, potassium, folate
  - Dark green leafy vegetables: vitamin A, vitamin C, vitamin K, folate, iron, calcium
  - Yellow/orange vegetables: Vitamin A, potassium
  - Meat: B vitamins, iron, phosphorus, zinc, potassium
  - Enriched grains: folate, some B vitamins
  - Dairy Products: Vitamin D, calcium, zinc, magnesium

Antioxidants

- Antioxidants protect your cells from damage by free radicals (molecules produced when your body breaks down food, or by environmental exposures like tobacco smoke and radiation).
- These are found in many whole foods — fruits (especially berries) and vegetables, nuts, grains, and some meats, poultry and fish.

Water

- Most of your body is made of water, therefore, getting enough water each day is extremely important.
- Try to aim for 9-12 cups of fluids each day

9

Dietary Guidelines for Americans

The United States Department of Agriculture publishes the *Dietary Guidelines for Americans* every five years to give recommendations for food choices that promote good health, help prevent disease, and promote a healthy weight. These are some of the important recommendations taken from the report:

1 **Control your total calorie intake** to manage body weight.

Reduce daily sodium intake to less than 2,300 milligrams (mg) per day.

Consume less than 10 percent of calories from saturated fats by replacing them with monounsaturated and polyunsaturated fats.

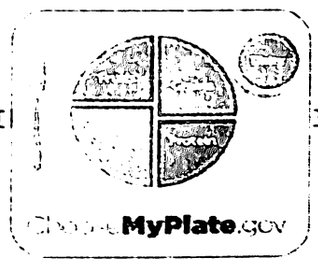
4 **Consume less than 300 mg per day of dietary cholesterol**—cholesterol is found in foods from animal sources like beef, eggs, and dairy.

5 **Limit your *trans* fats.** These are found in foods that contain partially hydrogenated oils and other solid fats.

6 **Limit refined grains**, especially refined grain foods that contain solid fats, added sugars, and sodium.

7 **Consume alcohol in moderation**—up to one drink per day for women and two drinks per day for men—and only by adults of legal drinking age.

Increase vegetable and fruit intake.



9 **Eat a variety of vegetables**, especially dark-green and red and orange vegetables and beans and peas.

10 **Make half your grains whole.**

11 **Increase intake of fat-free or low-fat milk** and milk products, such as milk, yogurt, cheese, or fortified soy beverages.

12 **Choose a variety of protein foods**, which include seafood, lean meat and poultry, eggs, beans and peas, soy products, and unsalted nuts and seeds.

13 **Increase the amount and variety of seafood consumed** by choosing seafood in place of some meat and poultry.

Use oils to replace solid fats where possible.

15 **Choose foods that provide more potassium, dietary fiber, calcium, and vitamin D.** These foods include vegetables, fruits, whole grains, and milk and milk products.

11

A Guide to Eating Out — and Still Eating Healthily

When eating out, it is easy to consume more calories and fat than you plan to. If you are going to eat out, use these guidelines to find the healthiest items on the menu.

- It's all about **balance**: if you buy a hamburger, get a side of apple slices instead of fries.
- Try eating a **smaller portion**. Just because the restaurant gives you a pound of pasta doesn't mean you have to eat it all. Eat half, and bring the rest home to eat later (this also saves you having to buy another meal!)
- **Substitute** high-fat sides for lower-fat ones (ex: baked potato or cup of soup instead of French fries, side salad instead of potato chips)
- If it's **creamy**, it's most likely high in fat.
- **Be careful about items that are fried**. Some common words that indicate an item is fried are: Breaded, batter-dipped, and tempura. Instead, look for the words grilled, broiled, baked, steamed, poached, roasted, or flame-cooked.
- Bread: Be careful about ordering croissants, biscuits, potpies, quiches, and pastries. These are all **high in fat.** Instead, choose hard rolls, bread sticks, French bread, or whole-wheat buns.
- Salads: Avoid **creamy** salad dressings (one ladle of salad dressing can have around 300 calories!). Try to order a vinaigrette or oil-based dressing, and skip the cheese and croutons.
- Pizza: Try to get one with a lot of vegetable toppings, or half the cheese. Be careful about fatty meat toppings like sausage or pepperoni.
- Choose entrees with **large portions of vegetables**.

12

Eating Out — by Ethnic Cuisine

Navigating your way around a restaurant menu to find healthy options can be quite a daunting task, especially if some of the words are unfamiliar. Use this guide to find healthy options no matter what type of restaurant you dine at.

Type	Be Careful Of:	Healthy Choices:
Fast Food	Fried, "jumbo", French fries, milkshake, cheeseburger	Grilled chicken, sliced meats, small hamburger, baked potato, milk
Mexican	Deep-fried, flour tortillas, nachos, carnitas, refried beans, chimichangas, flautas	Grilled shrimp, chicken, or beef, rice and black beans, salsa, corn tortillas, pico de gallo, chicken fajitas, enchiladas with red sauce
Chinese	Fried rice, egg rolls, fried wontons, fried entrees, soy sauce	Wonton soup, steamed dumplings, steamed rice, sweet and sour sauce, lightly stir fried entrees, dishes with lots of vegetables
Japanese	Vegetable or shrimp tempura	Steamed vegetables, sushi, chicken or beef teriyaki, sukiyaki , su udon, miso soup
Italian	Fried calaman, meat/ cheese filled pasta, butter or cream sauces (Alfredo, ex.), scallopine or parmigiano dishes	Pasta with red sauces (marinara), pasta primavera, minestrone soup, marsala or piccata dishes
Greek	Falafel, phyllo dough, baklava	Hummus, couscous, tzatziki sauce, lamb or fish with steamed vegetables, dolmades

13

Grocery Basics

These are the basics to keep stocked in your pantry or refrigerator at all times. After the initial investment of buying the basics, the cost of buying food for recipes becomes very cheap and is only a matter of getting a few ingredients. All 22 of the following ingredients can help you make the recipes in this book:

- baking powder
- breadcrumbs
- broth, chicken or vegetable
- butter
- canned beans: black beans, red kidney beans
- chocolate, semisweet chips
- cooking spray
- cornmeal
- crackers
- eggs
- flour, all-purpose and whole wheat
- frozen vegetables
- garlic, minced
- lemons
- low-fat milk
- milk
- mayo, low-fat
- nuts (peanuts, almonds, pecans)
- oil, vegetable and olive
- onions (red and yellow)
- pasta, dried
- sugar

Seasonings to keep on hand:

- Salt
- Black pepper
- Garlic powder
- Italian seasoning
- Creole seasoning (Tony's)
- Cumin

Cooking Equipment to Keep in Your Kitchen

A lot of college students don't have a lot of cooking equipment or even know what types of equipment to buy when stocking their kitchen. Buy these basics, and you're ready to make a variety of different meals. As you start cooking, you will quickly realize what you need.

Utensils:

- small paring knife
- 8-10 inch Chef's knife
- measuring cups and spoons
- wooden spoon
- metal spoon
- wire whisk
- rubber spatula
- can opener
- steel or plastic colander
- small and large saucepans (pots)
- small and large skillet
- 12 cup muffin tin
- cooling rack
- cookie sheets
- baking pan
- potato peeler
- rolling pin
- kitchen scissors

Useful Small Appliances:

- Mini food processor
- Blender
- Toaster/toaster oven
- Crockpot
- Small grill

Tips to Keep Cooking Cheap

- Buy fresh fruits and vegetables in season and locally. Because they don't have to be shipped far away, fruits and veggies are often sold at a cheaper price. Visit the local farmer's market to find great deals on fresh fruits and vegetables. In-season produce has higher levels of nutrients, too.

- When you go to the grocery store, plan ahead and have a list of what you need for the week. You will end up spending more and buying things you don't actually need if you just walk up and down the aisles picking things out.

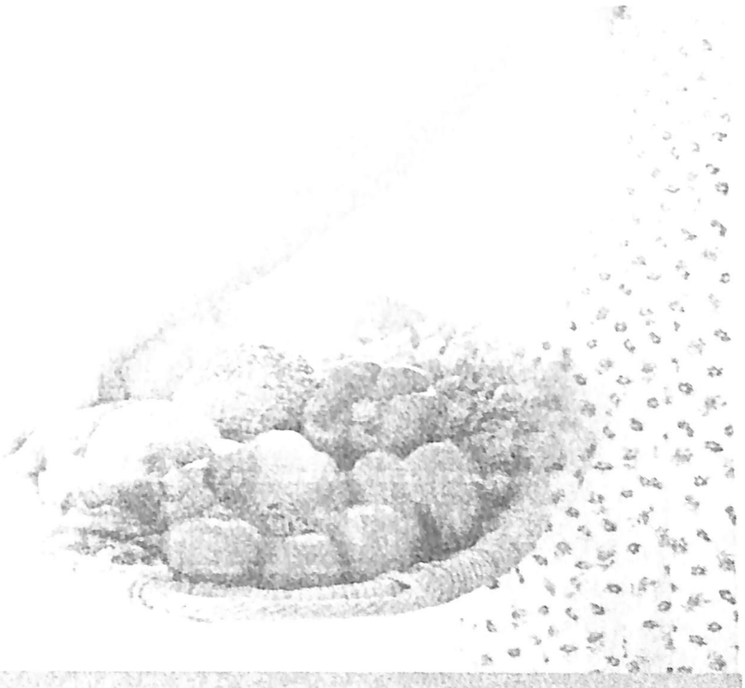
- Invest in a good herb collection. These can add lots of flavor (without calories too!), and in the long run are much cheaper than buying jars of pre-made sauces.

- Eat leftovers. A casserole or pot of soup (or almost any meal) can be refrigerated and eaten several more times.

- Buy generic brands rather than expensive brand names. The products are usually very similar, but figure out your personal preference.

How to Save Time Cooking

- Buy frozen vegetables rather than fresh or canned.
- Do some of the prep work (chopping vegetables, etc) either on a Sunday night and keep in a reusable container.
- Place a sheet of newspaper down on the counter underneath the cooking area. This makes clean-up much easier!



Recipes

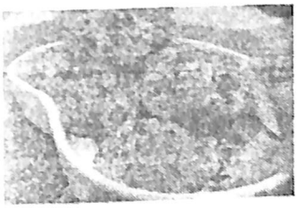
Appetizers

Spicy Bean Dip

- 1/4 cup fat-free canned refried beans
- 2 tablespoons medium salsa
- 1 1/2 teaspoons chopped fresh cilantro
- 1 chopped green onion (optional)

Tortilla chips

Combine all ingredients in a bowl, and serve with the tortilla chips.



Turkey Sausage Balls

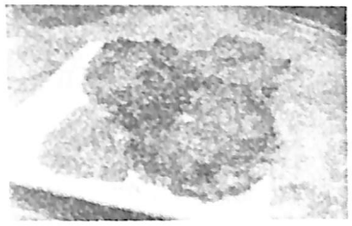
- 1 pound turkey sausage
- 3 cups Bisquick
- 1 cup water

1 pound low-fat cheddar or pepper jack cheese

**Optional: barbecue sauce for dipping

Preheat oven to 325 degrees. Brown sausage in a skillet, and set aside. In a bowl, combine the Bisquick, water, and cheese; add the sausage when cooled. Roll mixture into small balls, and bake for 10-15 minutes until golden brown.

Crab Cakes

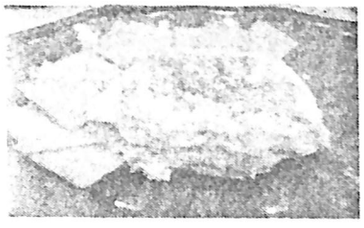


- 2 cans of crabmeat, drained
- 8 saltine crackers, crushed
- 1 egg, lightly beaten
- ¼ cup chopped green onions
- 1 tablespoon light mayo
2 teaspoons Tony's Cajun blend

In a bowl, combine the crab, saltine crackers, egg, onion, mayo, and spice blend. Shape mixture into small patties. Heat butter in a skillet, and cook crab cakes for 3 or 4 minutes on each side until golden brown. Serve with mustard or comeback sauce as a dip.

Homemade Hummus

- 1 can garbanzo beans (drain the liquid but set it aside)
- 2 tablespoons lemon juice
- 1 tablespoon olive oil
- 3 teaspoons minced garlic
**Optional, pinch of cumin



Combine the first four ingredients in a food processor. Blend until smooth, scraping down the sides occasionally. Add some of the garbanzo bean liquid if needed to make it smoother. Sprinkle cumin on top, and serve with chips, veggies, or pita bread.

19

Salads

Chicken Salad

- 3 cups chicken, cooked
- 1 1/4 cup celery, chopped
- 1 Tablespoon lemon juice
- 1/2 Vidalia or sweet onion
- 3 Tablespoons low fat mayonnaise
- Salt and pepper to taste

Chop up the chicken into small pieces, or place chicken into a food processor to chop very finely. Repeat with the onion – chop very small or place into a food processor to chop very finely. Mix all ingredients together in bowl, add salt and pepper to taste, and refrigerate. Serve as a sandwich or with crackers.

To make a creamy pasta salad, omit the Italian salad dressing and add this mixture: 1/3 cup low fat mayo, 1/3 cup skim milk, 2 tsp lemon juice, 1.5 tablespoons of garlic or other seasoning.

Pasta Salad

- 1 package uncooked rotini pasta (whole-wheat if desired)
- 1 bottle of low-fat Italian salad dressing
- 2 cucumbers, chopped,
- 2 tomatoes, chopped
- 2 Tablespoons of parmesan cheese

Bring a pot of lightly salted water to a boil, add the pasta, and cook for 8-10 minutes. Drain pasta in a colander or strainer. Mix all ingredients together in a large bowl and refrigerate until chilled.

20

Spring Strawberry Salad

- 5 cups of lettuce (Romaine, iceberg, spinach, or any desired type)
- 2 cups fresh strawberries, chopped
- 1 can mandarin oranges, drained
- ¼ cup chopped nuts (sunflower seeds, pecans, or almonds)
- Balsamic vinaigrette dressing

Combine all ingredients in a large bowl and mix well. Drizzle with desired type of dressing and serve. Optional: sprinkle 2 tablespoons feta cheese over the top, or top with grilled chicken.

21

Soups

Black Bean Soup

- 2 cans of black beans, undrained (low-sodium variety if possible)
- 1 cup vegetable broth
- ½ cup salsa
- 1 tablespoon chili powder or cumin

Optional toppings: sour cream, cilantro, chopped red onion

Mash one can of beans with a fork or potato masher. Pour both cans of beans into a medium-sized pot. Add the rest of the ingredients, stir, and bring to a boil. Serve in bowls with optional toppings.

Simmering refers to the technique of cooking something in water that is just almost boiling. The surface of the water should quiver slightly, and an occasional bubble might break the surface.

Chicken Noodle Soup

- 7 cups chicken broth
- 1 5 cups egg noodles
- ½ pound boneless skinless chicken breast, cubed
- 1 cup sliced carrots
- 1 cup chopped celery
- Pepper

Combine all ingredients in a pot, bring to a boil, reduce the heat and simmer for 20 minutes.

Easy Chili

- 1 tablespoon vegetable oil
- 1 pound ground turkey or lean ground beef
- Chili seasoning
- 1 jar salsa
- 1 can (15 oz) diced tomatoes
- 1 can (16 oz) kidney beans

**Optional topping: cheddar cheese, green onion

In a pan over medium-high heat, brown the beef in the vegetable oil until fully cooked (no more pink). Add the salsa and chili seasoning and cook for 1 or 2 minutes. Transfer to a large pot and add the rest of the ingredients. Bring to a boil, then reduce the heat and simmer for about 20 minutes. Serve with tortilla chips or over rice.

Vegetable Soup

- 1 can (14 oz) chicken broth
- 1 can (11 oz) V8 or tomato-based juice
- 1 cup water
- 1 bag frozen vegetable mix (potatos, carrots, celery, corn etc.)
- Salt and pepper to taste

Combine all ingredients in a large pot. Bring to a boil, then reduce the heat and simmer for 30 minutes (or until vegetables are tender).

23

Main Dishes

Chicken Parmesan

- 4 boneless chicken breasts, pounded to 1/2 inch thickness
- 1 egg
- ½ cup milk
- Seasoned bread crumbs (can use whole wheat)
- 2 to 3 tablespoons olive oil
- 8 oz shredded mozzarella cheese
- 1 jar spaghetti sauce

Preheat oven to 350 degrees. Whisk together egg and milk in a bowl. Dip the chicken breast into this mixture, then roll in bread crumbs to coat. Heat olive oil in skillet over medium-high heat, and add the chicken breasts. Cook about 3-4 minutes on either side, until golden color. Put chicken into a baking dish, pour desired amount of spaghetti sauce on top, then top with mozzarella cheese. Bake for 25 to 30 minutes.

Compare this recipe to a chicken parmesan dinner at an Italian restaurant[2]:

Restaurant Dinner Portion:

1090 kcal

49g fat

3380mg of sodium

24

Fish Tacos

- 1 pound tilapia fillets
- ½ cup flour
- 1 tablespoon taco seasoning
- 5 small flour tortillas

Toppings (lettuce, chopped avocado, salsa, black beans, lime juice)

Heat 1 tablespoon olive oil in a skillet over medium-high heat. Mix the flour and seasonings in a bowl, and dredge the fish fillets through the mixtures to coat. Place fish in skillet and cook about 5 minutes on each side, until fish flakes easily. Place fish in tortillas (can break apart or keep whole) and add desired toppings. Serve with salsa or hot sauce for dipping.

Peppery Roasted Pork Loin

- 3 lbs pork tenderloins
- 2 tablespoons lemon pepper
- 1 teaspoons cayenne pepper

Preheat the oven to 425 degrees Fahrenheit. Trim any excess fat off of the pork tenderloins. Rub the spices all over the tenderloin, and place it in a shallow baking dish. Bake for 45-55 minutes, or until the internal temperature is 155 degrees Fahrenheit. Let the tenderloin sit for 5 more minutes before slicing.

Variation: To spice up the recipe, mix the seasonings and combine 1/2 cup maple syrup with 3 tablespoons of spicy mustard. Brush the mixture over the pork loin before cooking and again after 30 minutes. Heat the remaining mixture and serve as a sauce.

Spicy Grilled Cheese

- 2 slices whole wheat bread (or bread of your choice)
- 2 slices low-fat cheddar cheese
- 2 slices pepperjack cheese
- 2 slices tomato
- Jalapeno Ranch

Brush slices of bread with olive oil or melted butter. Heat a skillet to medium high heat. Add a slice of bread and top with both cheese and tomato slices. Add the other bread slice on top. Cook the sandwich on each side about 5 minutes, or until a golden brown color.

***Optional: Serve with jalapeno ranch sauce. 1/2 cup ranch dressing with 1 tablespoon of jalapeno juice (from the jar).*

Oven Fried Chicken

Compare this "fried" chicken to the fried chicken commonly found at a fast food restaurant[3]

Fried Chicken Breast:
510 calories
33g fat
1010mg sodium

- 1 pound of chicken pieces (legs, wings, breasts, whatever you want)
- 1 cup of buttermilk
- 1 cup flour
- Salt and pepper
- Creole seasoning (Tony's)
- Vegetable oil

Preheat oven to 400 degrees. Mix flour, salt, pepper, and creole seasoning in a bowl. Dip the chicken piece into the buttermilk to coat; then roll in flour mix. Place onto a baking sheet and spray with vegetable oil spray. Bake the chicken about 40-50 minutes, or until golden brown (internal temperature should be 185 degrees Fahrenheit).

Beef Stir-Fry

- 1 pound top sirloin or chuck steaks, about 1/2 inch thickness
- Salt and pepper
- 1 teaspoon minced garlic
- 2 tablespoons olive oil
- 1 to 2 bell peppers, cut into strips
- 1 small onion, chopped
- 2 cups broccoli florets
- 2 tablespoons soy sauce or stir-fry sauce
- 2 tablespoons brown sugar

To speed up the preparation process, use a bag of frozen stir-fry vegetables in place of fresh vegetables. They have the same nutrient content.

Rub the steaks with salt, pepper, and garlic, and place between two sheets of plastic wrap. Pound the steaks to about 1/4 inch thickness, and let them sit for about 10 minutes. Meanwhile, sauté the vegetables in oil over medium high heat until tender, about 5-7 minutes. Set these aside in a bowl. Add the beef to the pan with a little more oil, and once it has browned on one side, stir for another minute or so until cooked all the way through. Add the vegetables back in with the soy sauce and brown sugar, and cook for another minute. Serve over rice or noodles.

Pasta Primavera

- 1/2 package spaghetti noodles, cooked and drained
- Salt and pepper
- 2 teaspoons minced garlic
- 1 10-oz can cream of mushroom soup, fat-free
- 1 1/2 cup water
- 1 bag frozen vegetables (usually peas, broccoli, onions, carrots, and peppers)
- 3 tablespoons grated parmesan cheese

Sauté the vegetables in a little oil over medium-high heat until tender, about 8 minutes. Add the soup, water, garlic, salt, pepper, and cheese. Reduce the heat to medium-low and cook for about 3 minutes. Stir in spaghetti noodles and serve.

Turkey-Pesto Panini

To add even more nutrients, try adding a few slices of avocado, some spinach leaves or sliced tomatoes to the sandwich.

- 2 slices ciabatta, sourdough, or French bread
- 1/4 pound thinly sliced turkey breast
- 2 slices provolone cheese
- 1 tablespoon pesto sauce
- 1-2 tablespoons low-fat mayo
- Olive oil

If you're using a Panini press or George Foreman grill, preheat it. Brush olive oil on the outside of the bread slices. Mix the pesto and mayo together, and spread the mixture on the inside of both slices. Layer the turkey and provolone slices between the bread slices, and press on the grill. If not using a grill, heat sandwich in a pan over

BBQ Chicken Pizza

- 1 small onion, chopped
- 1/2 bell pepper, chopped
- 1 can refrigerated pizza dough
- 1/2 cup barbecue sauce
- 12 oz package boneless, skinless, grilled chicken breast strips
- 2 cups pepper jack cheese

Preheat oven to 400 degrees F. Saute the vegetables in a small amount of oil over medium high heat until tender, about 3 minutes. Unroll pizza crust and pat onto a greased pan. Bake crust for 12 minutes, then spread barbecue sauce over crust. Top with chicken, then vegetables, and then cheese. Bake for another 10 minutes or until cheese melts.

Cajun Shrimp and Grits

- 1 14-oz can reduced-sodium chicken broth
- 3/4 cup quick grits
- 1 1/2 cups water
- 1/4 cup parmesan cheese
- 1 pound raw shrimp, peeled and deveined
- 1 tablespoon cajun seasoning
- 1 teaspoon garlic powder
- 1/4 cup green onions, chopped

Heat the broth and water in a pot over medium-high heat until boiling. Slowly whisk in the grits and a little pepper. Reduce the heat to medium-low, cover the pot, and cook about 5 minutes until thickened. Remove from heat and stir in cheese and half the Cajun seasoning.

Meanwhile, toss the shrimp in a little oil, garlic powder, and the rest of the Cajun seasoning. Cook the shrimp in a pan with a tablespoon of oil over medium-high heat until they are pink. Serve over the grits, and top with green onions.

Zucchini Rice Casserole

- 1 1 2 cups long-grain brown rice
- 3 cups reduced-sodium chicken broth
- 4 cups diced zucchini and squash
- 2 red or green bell peppers, chopped
- 1 large onion, diced
- 3/4 teaspoon salt
- 1 1/2 cups low-fat milk
- 3 tablespoons all-purpose flour
- 2 cups shredded pepper Jack cheese, divided
- 2 teaspoons olive oil

Preheat oven to 375°F.

Pour uncooked rice into a medium baking dish. Bring the chicken broth to a simmer in a small saucepan, then stir it into into the rice along with zucchini, bell peppers, onion and salt. Cover with aluminum foil and bake for 45 minutes. Remove foil and continue baking until the rice is tender and most of the liquid is absorbed, about another 35 to 45 minutes.

Meanwhile, whisk milk and flour in a small saucepan while cooking over medium heat until bubbling and thickened, about 3 to 4 minutes. Reduce heat to low. Add 1 1/2 cups Jack cheese and cook, stirring, until the cheese is melted. Set aside.

When the rice is done, stir in the cheese sauce. Sprinkle the remaining 1/2 cup cheese on top. Return the casserole to the oven and bake until the cheese is melted, about 10 minutes.

Spicy Buffalo Wings

- 1 pound chicken wings
- 1 tablespoons cayenne pepper
- 1 tablespoon red pepper flakes
- 1/2 cup Louisiana hot sauce
- 1 tablespoon butter

Boil the chicken wings for 15 minutes in a large pot of water with the cayenne pepper and red pepper flakes. Place the wings on a pan coated with cooking spray, and broil for 15 minutes on each side, or until crispy. Meanwhile, combine the hot sauce and butter, and heat in the microwave until melted (cook longer to thicken the sauce). When wings are cooked, toss in the hot sauce and serve.

Baking the buffalo wings instead of frying them saves almost 9 g fat per wing (multiplied by a typical order of 6 wings -- that's 56 g fat and 624 calories saved!)

Tomato, Pesto, and Feta Pizza

- 1 can refrigerated pizza dough, preferably whole-wheat
- 1/2 cup prepared pesto
- 4 ripe plum tomatoes, sliced thinly
- 1/2 cup crumbled feta cheese
- 1/4 cup fresh basil leaves, chopped
- Black pepper, to taste

Preheat oven to 400 degrees Fahrenheit. Separate the pizza dough into four sections and roll out to make 4 8-inch crusts (about 1/4 inch thick). Spread pesto over crust, then top with tomatoes and sprinkle with feta and black pepper. Bake approximately 20 minutes (depending on package instructions), and sprinkle with basil before serving.

Sides

Oven-Fried Anything (onion rings, pickles, zucchini, you name it)

- 1 large sweet onion (sliced and separated into rings), or 1 jar of pickles
- 1 egg
- ½ cup milk
- ½ cup flour
- 2 cups Panko bread crumbs or crushed potato chips
- 2 teaspoons pepper or Cajun seasoning

Preheat the oven to 450 degrees Fahrenheit. Whisk the egg, milk, and seasoning together in one bowl; in another, put the breadcrumbs or potato chips. Dust the onion slices or pickles with flour. Then, take turns dipping each piece into the egg mixture and then the breadcrumbs to coat. Place the coated pieces onto a baking sheet and then drizzle with vegetable oil or spray with vegetable oil. Bake for 12-15 minutes, turning once, until the pieces reach a golden-brown color. Serve with ranch or alone.

Creamy Spinach

- 1 tablespoon butter
- 1 tablespoon all-purpose flour
- 1/4 cup low-fat milk
- 1 (10 ounce) package frozen chopped spinach, thawed and squeezed dry
- 1 teaspoon garlic powder or salt

This recipe is a slimmed down version of the classic creamed spinach side dish. It substitutes low fat milk for heavy cream, which cuts out much of the fat.

Melt the butter in a small saucepan over medium-high heat, then stir in the flour and seasonings. Add the milk, stirring, and bring to simmering. Reduce the heat to low and let it sit, stirring constantly, for 1 minute. Add the spinach to the sauce and heat 1 to 2 minutes until warm.

Corn Pudding

- 2 cups frozen corn
- 1 can (14 ounces) cream-style corn
- 1 cup (8 ounces) reduced-fat sour cream
- 1 package (8-1/2 ounces) corn bread/muffin mix
- 1/2 cup egg substitute or whisked eggs
- 2 tablespoons butter, melted

Preheat oven to 350 degrees. In a large bowl, combine all ingredients and mix well. Pour into a greased casserole dish. Bake for 45 minutes, or until golden brown.

Garlic Mashed Potatoes

- 1 ½ pounds of Yukon or russet potatoes
- 1 3 cup skim milk
- 2 tablespoons butter
- 2 teaspoons garlic powder
- *Salt and pepper to taste

Peel the potatoes and cut them into big pieces. Put the pieces into a large pot, and pour in enough water to cover the potatoes. Bring to a boil and simmer for 15 to 20 minutes (until largest pieces are soft enough to mash with fork).
Drain the potatoes and put them back in the pot. Heat the milk in the microwave just to warm it up (about 20 seconds). Add this and the butter and garlic powder; then mash everything with a potato masher or fork.
Serve hot.

Brown Sugar Glazed Carrots

- 1 bag (16 ounces) of baby carrots
- 2 tablespoons butter, cut into small pieces
- 1/3 cup brown sugar

Preheat oven to 425 degrees Fahrenheit. Spread out carrots on a baking sheet and place the butter pieces all over. Bake in oven for 15 minutes. Take the carrots out, sprinkle with the brown sugar, and bake for another 15 minutes.

34

Roasted Asparagus

- 1 bunch fresh asparagus
- 1 tablespoon olive or vegetable oil
- 1 to 2 tablespoons Italian seasoning

Preheat oven to 425 degrees Fahrenheit. Mix all the ingredients together in a large bowl. Spread out on baking sheet and bake for 10 to 12 minutes, shaking the pan once.

Sweet Potato Bites

- 3 medium sweet potatoes
- 2 tablespoons olive oil
- Salt and pepper

Preheat oven to 400 degrees. Peel sweet potatoes and cut into small cubes (about ½ inch). Spread out potatoes onto a baking sheet and toss with olive oil to completely coat. Sprinkle with salt and pepper. Bake for 25-30 minutes, shaking occasionally to flip potatoes.

33

Breakfast

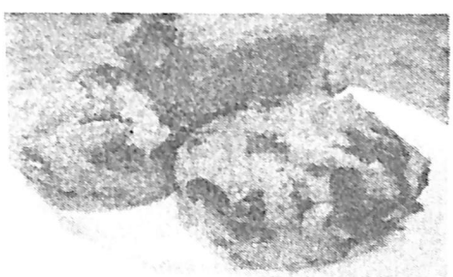
Whole-wheat Blueberry Muffins

- ¾ cup skim milk
- ¾ cup unsweetened applesauce
- ½ cup sugar
- 1 egg
- 1 cup all purpose flour
- 1 cup whole wheat flour
- 3 teaspoons baking powder
- ½ teaspoon salt
- 1 cup frozen blueberries

Preheat oven to 400 degrees. Grease 12 muffin cups. Whisk the liquid ingredients (milk, applesauce, egg) together, then stir into a mixture of the dry ingredients (flour, baking powder, salt). Add the blueberries. Spoon the batter into the muffin tins, about 2/3 full. Bake about 20 minutes, until muffins are brown on top.

**Optional: Sprinkle brown sugar on top of batter before baking.

The applesauce in this recipe replaces the oil that is usually added to muffins. This cuts out fat and calories.



34

Easy Spinach and Bacon Omelet

- One egg + 2 egg whites
- 1 cup spinach leaves
- 2 slices turkey bacon (or regular)

Omelets are healthy and delicious way to start off the day. The eggs and turkey bacon provide protein, while the spinach has important minerals. This will keep you full until lunch!

Coat a cooking pan with vegetable cooking spray. Mix all ingredients together in a bowl, then pour mixture into cooking pan. Cook for 2 minutes on one side, then flip and continue cooking until egg is cooking all the way through.

Variations: Add ½ cup low-fat cheese. Make a vegetable version with bell peppers and onions, serve with salsa.

4-Berry Maple Waffles

- 2 whole-grain waffles
- 1/3 cup frozen berry mixture
- 2 teaspoons maple syrup
- 1 tablespoon pecans

Microwave the berries and syrup together for 2 minutes (until blueberries have thawed out). Toast the waffles and drizzle with syrup. Sprinkle pecans on top.

Black Bean Breakfast Burrito

- 1 egg + 2 egg whites
- 1/4 cup canned black beans, rinsed and drained
- 2 tablespoons salsa

2 tablespoons shredded low-fat cheddar cheese

- 1 small whole-wheat tortilla
- 1 tablespoon olive oil

In a skillet, heat the olive oil. Add the eggs, stirring while they cook to scramble them. Add in the beans, salsa, and cheese. Fill tortilla with egg mixture.

Dessert

Dark Chocolate Covered Strawberries

- 1 container fresh strawberries
- ¾ cup semi-sweet chocolate chips

Melt the chocolate chips in a small bowl in the microwave (20 to 30 second intervals, stirring in between). Dip the strawberries in the melted chocolate and placed onto a baking sheet covered in wax paper. Refrigerate until chocolate has hardened.

Peanut Butter Cookies

- 14 ounces fat-free sweetened condensed milk
- ¾ cup creamy peanut butter
- 2 cups Bisquick baking mix
- 1 teaspoon vanilla extract
- Splenda sugar substitute

Preheat the oven to 375 degrees. Beat the condensed milk and peanut butter until smooth. Add in the bisquick mix and vanilla. Shape into small balls, roll lightly in Splenda, and place onto a baking sheet. Lightly press with a fork to flatten. Bake for 6-8 minutes.

37

Fruit Parfait

- 2 small containers nonfat peach yogurt
- 2 cups fresh raspberries
- 1 1/2 cups fresh, frozen or canned pineapple chunks

In small cups or bowls, layer the ingredients: yogurt, raspberries, pineapple, repeat.

Yogurt "Icebox" Pie

- 2 cups crushed pecan shortbread cookies
- 1/2 cup butter, melted
- 1/2 gallon frozen peach yogurt (or desired flavor)

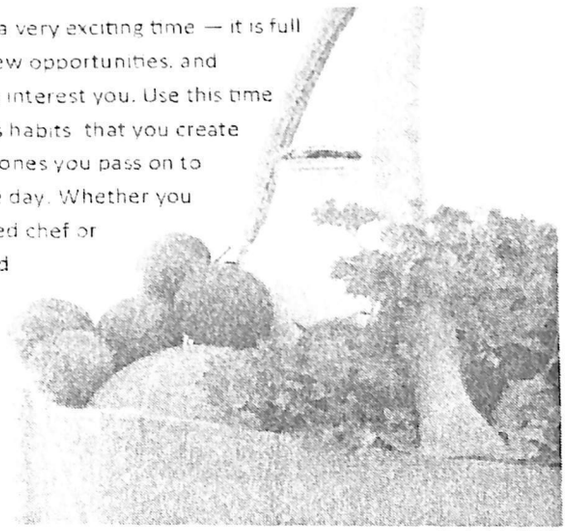
Combine the crushed cookies and butter, and press into bottom and sides of a pie pan to make a crust. Freeze for 30 minutes. Fill with softened peach yogurt, cover with wax paper or tin foil, and freeze for another 2-3 hours. Top with light cool whip.

In Conclusion...

There are few things more relaxing than sitting down to a home-cooked meal after a long day, and eating food that you have prepared yourself makes it that much more satisfying. Although rewarding, preparing meals from scratch has become somewhat of an antiquated notion among college students. Many other things get in the way —time, school, money— and often home-cooked meals get placed on the backburner.

Despite these barriers, research has shown that preparing food yourself is healthier than buying food prepared away from home. College is a crucial time for establishing habits that will last a lifetime, and your future health is an area that you can have a great impact on right now. It is hoped that you, armed with the recipes and information in this cookbook, will be able to explore the kitchen in new ways and set the foundation for a future healthy lifestyle. The recipes are designed to accommodate the specific obstacles that college students face in their diets, so feel confident in trying them out.

College is a very exciting time — it is full of new friends, new opportunities, and finding areas that interest you. Use this time wisely though, as habits that you create today will be the ones you pass on to your children one day. Whether you are an experienced chef or have never picked up a skillet, it's never too late to start cooking.



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For More Information:

Dietary Guidelines for Americans

http://www.cnpp.usda.gov/DietaryGuidelines.htm

United States Department of Agriculture

www.usda.gov

Academy of Nutrition and Dietetics

www.eatright.org

MyPlate, healthy eating tips

http://www.choosemyplate.gov/

Ole Miss Dining Services, including nutrition information

http://www.campusdish.com/en-US/CSS/OleMiss

Oxford Farmer's Market, information and updates

http://www.mtfarmersmarket.com/

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41

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