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## Nutritional Habits & Knowledge in the Division I Collegiate Football Player

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Nutritional Habits & Knowledge in the Division I Collegiate Football Player

By

Mallory Hale, ATC/LAT

A Plan B Project submitted in partial fulfillment of the requirements for the degree

of

MASTER OF SCIENCE

In

HEALTH AND HUMAN MOVEMENT

Approved:

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Logan, UT  
2013

## **Abstract**

**Objectives:** Athlete's nutritional habits and knowledge can directly affect their performance. The purpose of this study is to investigate the nutritional habits and knowledge of the Division I collegiate football player.

**Methods:** The participants of this study are male Division I college football players at Utah State University. The athletes included 45 players ranging from 18-26 and include freshman through seniors.

**Results:** Over eighty six percent of the athletes were unaware that a nutritionist was readily available to them. Sixty percent of the athletes were interested in meeting with the nutritionist. Forty percent of the athletes ate at a fast-food restaurant daily while 31.5% ate at these restaurants three to five days a week. Fifty one percent of the athletes answered "yes" to trying to "gain weight" while 40% answered "no". Over forty six percent of the athletes rely on "strength coaches" for guidance and 25.5% for teammates &/or friends & family.

**Conclusion:** Continued research on dietary interventions would be helpful to determine the ideal way to improve nutrition knowledge on an individual and team basis. Given the proper guidance, the team would be able to see the benefits of proper nutrition and dietary habits both on and off the field.

## Introduction

As the popularity of sports nutrition in collegiate settings grows, adequate nutrition knowledge among athletes and coaches becomes vital. Despite improvements, collegiate athletes across the country remain unaware of the effect their diets may have on present and future health. Athletes, depending on sport and gender, may have very diverse backgrounds regarding nutritional knowledge (Dunn, Turner, & Denny, 2007). Traditionally, sports such as track & field or women's gymnastics have a strong emphasis on diet & weight restrictions. On the other hand, football has a large emphasis on weight gain, resulting in poor eating habits. Any given athlete may be told they need to gain 20 pounds before he may be allowed on the first string. For a football athlete the easiest way to get that done often leads high caloric fast food meals several times a day. Although, the meal meets the caloric requirement for weight gain, it is not a healthy option for a collegiate athlete.

The average athletes' diet is inadequate in terms of both general and sport specific nutritional requirements. Athletes who eat larger than average quantities of food are more likely to meet their specific nutrient requirements simply due to increased portion size (Burke, Cox, Cummings, & Desbrow, 2001). Simple carbohydrate and protein requirements may be met, yet the fat and sodium quantities dangerously exceed the recommended amount. Proper guidance from a sport nutritionist would enable an athlete to make better choices, while maintaining his or her goal weight. These poor food choices are not only made by athletes, but they can be made by coaching staff as well. For example, during football pre-season athlete's received daily meals that consisted of high calorie and high fat foods. These foods were primarily purchased from Arby's, McDonald's and Burger King. The meals assist in weight gain for many players, yet they are low in vital nutrients needed for a Division I

football player. Not only is this a poor choice of food, these meals are being provided and therefore endorsed by the coaching staff and university. Providing an athlete fast food before a practice can only hinder the athlete's performance and recovery, especially in two-a-day pre-season sessions. These eating habits directly affect an athlete's health and performance during college, but can lead to health problems as an athlete ages. Following a diet high in fast food can eventually lead to Type II diabetes and obesity. Creating healthy habits early in life is crucial for longevity and a healthy adulthood. Research continues to investigate these unhealthy habits primarily in college students. College students are often the subjects of studies due to accessibility and willingness to participate. Most areas of nutritional research focus solely on female athletes or college students in general. Current research conducted on Division I football players illustrates a threatening increase of obesity among collegiate football players (Mathews & Wagner 2008). These obese athletes are on the path towards a future with risks of stroke and heart disease (Noel, VanHeest, Zaneteas, & Rodgers, 2003). Additional research regarding dietary habits would be helpful for this specific population of collegiate athletes.

The prevalence of overweight college athletes varies drastically by sport. Football continues to be one such sport where weight increases are commonly encouraged within specific positions. BMI has recently been determined an unreliable tool for measuring obesity levels in elite football player populations. Yet, research has continued to show an increase of body fat percentage in college football athletes (Mathews & Wagner 2008). Body size among these athletes continues to increase from one year to the next. Research conducted in 2008 at Utah State University supported the stereotype of obese football players. Sixteen percent of the 85 collegiate football players' studies were categorized as obese (Mathews & Wagner 2008). Based on both past research and current observations,

unhealthy habits have lead many Utah State University football athletes into the overweight or obese category. With the awareness of increased obesity levels in this specific college football program, a new study will be conducted to expose Utah State University football players' lack of nutritional knowledge. Continued research of these Division I football players may give more insight into the average athletes' dietary habits. Guidance from dietitians provided by the University may be one way to improve the diets and nutritional knowledge of these collegiate football players. An analysis of the dietary choices and habits of these student athletes can lead to further discussions regarding the nutritional education of collegiate athletes.

### **Review Of Literature**

#### *Nutritional Sources for the Collegiate Student-Athlete*

A study in 2001 determined that sufficient nutritional education positively affects an athlete's dietary intake. A direct correlation is seen between healthy food choices and an athlete's nutritional knowledge (Burke, Cox, Cummings, & Desbrow, 2001). Nutritional information is accessed by several main sources of nutritional information. These sources often include certified athletic trainers (ATC's), strength and conditioning staff, coaches and teammates. ATC's and strength staff are trained in basic nutrition and NCAA's supplement regulations. Coaches, family members, and teammates should not be considered an educated source for nutritional advice. Regardless of the ATC's and strength coaches knowledge, the best option is a certified dietician or sports nutritionist. In 2004, researchers found that athletic trainers served as the primary source for nutrition information in the collegiate setting. In Division I or II programs, the athletic trainer or strength staff is more accessible to an athlete than a sport nutritionist. Unfortunately, many athletes are unaware of the accessibility to dietician and sports nutritionists. The study concluded that 39% of athletes

received information from strength coaches, 23% from athletic trainers and 14% from dietitians (Burns, Schiller, Merrick, Wolf, 2004). Even among professionals, nutrition backgrounds vary based on education background and specifically continued education courses. One current study investigated nutritional knowledge of collegiate coaches, athletes, athletic trainers and strength and conditioning specialists. Nutrition knowledge was examined within each professional field. The highest nutritional scores were found among athletic trainers and strength and conditioning specialists. Athletes and coaches, not surprisingly, recorded drastically lower scores. Only nine percent of athletes and 35% of coaches were categorized as having “adequate nutrition knowledge.” Of the professional participants, 71% of athletic trainers, and 83% of strength and conditioning specialists had “adequate nutrition knowledge” (Torres-McGehee, Pritchett, Zippel, Minton, Cellamare, & Sibiliala, 2012). While seeking nutritional advice from professionals is highly recommended, many athletes seek other, less reliable sources. Other popular sources used among collegiate athletes include magazines and internet sites. When an athlete’s source is biased and unreliable, the outcome is demonstrated in poor food choice. The source an athlete may use also depends on gender. Another study found that only thirty nine percent of female athletes reported they never or seldom received information, while 50% of men never or seldom received nutritional information (Jacobson, Sobonya, & Ransone, 2001). Another growing source of nutritional information stems from the internet. While it is very easy to access, most of the information found through websites stems from highly unreliable and biased sources. Gender, has also been shown to affect an athlete’s nutritional knowledge. Female athletes were found to have greater knowledge in the field of nutrition as compared to males of similar ages in a systematic review of nutritional knowledge in athlete specific populations (Heaney, O’Connor, Naughton, & Gifford, 2008).

### *National Football League & Nutrition*

The amount of research on collegiate football players is limited in comparison to studies conducted on professional athletes in the NFL. Over the past thirty years, the body compositions of players in the league have begun to slowly change. The average height and weight of the professional football player remains fairly constant. However, changes in body mass of both offensive and defensive linemen have been observed since the 1970s (Kraemer et al., 2005). Unlike in the NFL, the average height and weight of Division I football player has increased (Evans & Sawyer-Morse, 2002). Similar to the NFL, most increases in body size were in the defensive and offensive linemen. In a study conducted on the Indianapolis Colts professional football team, players were divided based on position. Then, their body mass, height and percent body fat were recorded to determine a general profile of a NFL player. This study found that four positions fell into the obese category, while one position fell into the severely obese category. The obese positions included: running backs, tight ends, linebackers and defensive linemen. The offensive linemen were categorized as severely obese. While these positions were categorized as obese on the BMI scale, it was proven that the BMI is an unreliable tool when used with elite football players. As a result, the researchers used body fat percentage as the main tool of determining health status. While six positions were considered obese, only the offensive linemen had a “poor” health status due to their percentage of body fat. The offensive linemen may have higher percentages of body fat compared to defensive players due to varying requirements in the game. Based on past research (Kraemer et al., 2005) it can be concluded that both positions of linemen are hovering near unhealthy weights and body fat percentages. Pressures from coaches and the league may have caused this increase in body mass. As body mass increases in the NFL,

coaches at the collegiate level put an increasing focus on body size on their younger and often smaller college athletes. As a result, this can lead to unhealthy diet habits as an athlete attempts to gain weight at an unrealistic rate. A study conducted at Utah State University in 2008 recorded BMI measurements for 85 collegiate football athletes. The methods used to determine obesity levels included: height, weight, waist circumference, BMI and body fat percentage. Bioelectrical impedance measured body fat percentage. Using BMI, it was concluded that 35% of the athletes fell into the obese category. Based off of body fat percentage and waist circumference 17% of the athletes were categories as “high risk”. High risk was defined as being at a high-risk level for both metabolic and coronary heart disease. As proved in many studies, offensive linemen were at the highest risk with a mean body fat percentage of at least 25% (Mathews & Wagner, 2008).

### *The Importance of a Proper Diet*

Nutritional knowledge can be broken down into several categories. Nutrients and macronutrients are often studied in diet logs in various research studies. To simplify one such study focused on fruit & vegetable intake, protein, and fiber intake. In this study, collegiate athletes both male and female answered a questionnaire regarding food choices. Shockingly only 45% knew the recommended fruit servings. Fifty-six percent understood the daily protein and carbohydrate requirements. Seventy-five percent of the participants knew they needed decrease their sugar, salt and fat intake (Dunn, Turner, & Denny, 2007). While it seems as though collegiate athletes are generally aware of “healthy” guidelines, the majority continue to maintain nutrient poor diets. One must ask why these athletes continue to eat poorly. An increase in nutritional education is a clear option to improve the collegiate

athletes' dietary and nutritional habits. Clearly, one of the biggest problem areas for collegiate athletes lies in fruit and vegetable intake. For example a Big Mac meal may contain a serving of carbohydrate in the form of potatoes. Yet, once these potatoes are deep fried, they lose their nutrient content entirely. That one slice of tomato or piece of lettuce on top of the hamburger does not exactly cut it as a serving of vegetables. A study completed in 2008, involving 80 college students between the ages of 18 and 24, completed a three day course where they were taught basic nutrition skills. Following the course, an increase in both vegetable and fruit consumption was noticed. Prior to the intervention, 72% of the students had one cup or less of vegetables daily and 92% ate two cups or less of fruit daily. Following the intervention, 65% of the students ate more than one cup of vegetables per day, and 22% ate more than two cups of fruit daily. This study concluded that even with a short three day course, nutritional habits can be dramatically improved (Ha & Caine-Bish, 2009). A similar study which focused solely on Division I football players found similar results concerning fruit and vegetable intake. Twenty eight collegiate football players completed a three day diet record. These records displayed that on average, the athletes consumed less than the recommended three servings of vegetables daily (Cole et al., 2005). Currently, with the ever growing use of technology among college students, the internet can be a great educational tool if used properly. A study conducted in 2011 at Utah State University investigated the influence of nutritional education on one's diet in an undergraduate nutrition course. One hundred and eighty six students participated by completing an assessment of their nutrition knowledge. These students were then involved in various educational techniques including, course work, videos demonstrations. A follow-up assessment illustrated that the videos assisted with vegetable intake (Brown, Wengreen, Vitale, & Andersen, 2011). This study supports past research, proving that educational intervention is

successful in improving one's dietary habits. An internet-based program implemented in a 2008 study was successful in improving both physical activity and nutritional knowledge in students among six universities (Franko et al., 2008).

### *Factors That Influence Dietary Habits*

Sociocultural or socioeconomic factors can directly affect an athlete's ability to choose healthy food options. Athletes from a lower economic background may have been raised eating a much different diet than one from upper middle class. These nutritional habits are then transferred as the athlete moves from his family to the role of the collegiate student athlete. Rigorous schedules can also affect an athlete's food choices. Practice and classes may determine when or how often one is able to eat (Hinton, Sanford, Davidson, Yakushko, & Beck, 2004). Athletes have the option of bringing their lunches to class; nevertheless the majority would rather purchase food on campus for convenience. These quick and easy meals are often higher in calories and more processed which translates into poor nutrient sources. Morse & Driskell (2009) researched fast-food consumption among college students. The participants included 101 men and 158 women, ranging from the age of 19 to 24. Gender differences were clearly seen as a result of a questionnaire given to all participants. Women reported eating at fast-food restaurants far less than men, primarily at lunch and dinner time. A small amount of students recorded that they "never" ate at a fast-food restaurant: 7% of males, 12% of females. The common responses for why students chose fast-food were due to budgetary or time constraints. More than 50% of the students recorded they were aware they were not eating the daily recommending servings of fruits or vegetables (Morse & Driskell, 2009). A study from 2005 supported the findings in the previously cited research. Researchers concluded several factors that lead to a students' food

choices. Convenience was the most influential factor at 53.4%, followed by cost, 42.9% and health, 40.3%. The remaining factors included weight control at 23.5% and friends/family influence at 5.7% (Driskell, Young-Nam, & Goebel, 2005). Convenience and one's experience with cooking has a large impact on nutrition habits (Nestel et al., 1998; Obayashi, Bianchi, & Song, 2003). Class level may seem to affect diet choices, yet a study conducted in 2005 at a university found minor differences among upper and lower class levels. The authors compared a group of 144 freshman/sophomores (lower-level) to a group of 144 junior/seniors (upper-level). Ninety five percent of the lower-level students reported eating meals at fast-food restaurants, compared to a 91.9% of upper-level students (Driskell, Young-Nam, & Goebel, (2005).

#### *Division I Athletes & Dietary Needs*

Dietary needs of college athletes change drastically from one day to another. Many team sports training programs can be broken down into macro-cycles. These cycles include a pre-season, competition and an off-season. The nutritional requirements for each of these three cycles can vary drastically due to the training/rest ratio. Pre-season which can last anywhere from several weeks to a few months, consists of multiple training sessions a day. For example a football pre-season may consist of two-a-day or three-a-day training sessions. The amount of rest between sessions is minimal, requiring an athletes' body to recover quickly. As a result, the athletes' energy requires may be double that of an ordinary practice schedule (Clark et al., 2003). An increase in calories must be implemented in these pre-season sessions. These meals require specific planning from the coaching staff to ensure proper caloric and nutrient requirements. Collegiate athletes spend many days traveling, making it even more challenging to maintain healthy dietary habits. With large team sports

such as football, team meals must carefully planned well ahead of time. Pre-game meals are vital to an athlete's performance in a competition or game setting. Wagner (2009) suggests a meal with adequate fluid intake, 200-300 grams of carbohydrates, low in fat and contains a protein source. Holwaay & Spriet (2011) discovered that meal plans must have a balance of moderate fat, to prevent excessive snacking and moderate fruit and fiber intake to decrease the risk of GI issues. Athletes also responded positively to a routine set forth at the beginning of pre-season that included a "cheat" day or an incentive for completing a week of training (Holwaay & Spriet, 2011). Nutritional intake not only varies among macro-cycles but in competitive settings and training settings. Football is one such sport that traditionally plays one game a week, allowing for substantial recovery time. Therefore, during the week it is imperative that an athlete maintains proper nutrition to allow for full recovery. Carbohydrate intake must be increased accordingly preceding competition and for the day of competition (Holway & Spriet, 2011).

### **Purpose**

The purpose of this study was to investigate the nutritional habits and knowledge of the Division I collegiate football player. Through a literature review, the goal was to determine what affects athletes' eating habits and where they can receive vital nutritional information. Extensive research has been conducted in the field of nutrition in college students, however there is minimal research involving the specific population of collegiate football players. The survey was used as a tool for analyzing the nutritional habits of the college football athletes. A survey determined the types of restaurant frequently visited and their main sources of nutritional information. If athletes were guided towards healthier

options at meal times, would they in fact choose better option, or would they continue with their poor choices?

Along with an analysis of literature surrounding the nutritional knowledge and habits of athletes, a survey was conducted. The survey included eleven questions and investigated the athletes eating habits as well as their knowledge of nutrition. These questions addressed the types of restaurants they commonly visit, along with their knowledge of nutritional services available to them as a student athlete. A diet log was not included because of the necessary time commitments and possible non-compliance of the athletes.

### **Methods**

The survey was developed with the assistance of a registered dietician, who has experience providing nutritional information to Division I collegiate athletes at Utah State University. To increase reliability within the survey, the survey will be conducted in 10 minutes and all answers will be kept confidential. A shorter survey ensured the participants answer each question completely. This survey aimed to gain a better understanding of the types of meals the football players ingest on a regular basis. The athletes' responses fall into several designated categories depicting the frequency of their habits at fast food restaurants. Additionally, the survey determined the athletes' knowledge and use of nutritional sources such as dietitians, sports nutritionists and nutrition classes. Once all the surveys were collected, each was then reviewed and all answers were transcribed. The participants' responses were then categorized and depicted in a table. The table displayed the percentage of responses within each category for each individual question on the survey. This table showed responses through a bar graph for optimal visualization of the data.

The participants of this study are male Division I college football players at Utah State University. The athletes included 45 players ranging from 18-26 and include freshman through seniors. Athletes were chosen at random in order to decrease the chance of bias. Athletes from each position type were surveyed as well. The Utah State University football team was chosen due to the large number of athletes available and the large age range. This team was chosen due to poor nutritional habits exhibited from the players and because of past research conducted on the Utah State University football team in 2008.

## Nutritional Habits Survey

\*all answers will be anonymous

\*Please answer each question completely

	1-2 week	3-5 week	Daily	Twice a month	Never	
How often do you eat at fast-food restaurants?						
Examples: McDonalds, Arbys, Burger King, Chick-fil-a, Wendy's, Sonic, etc						
How often do you make your own dinner at home or with a friend?						

How often do you ask for a size larger than the regular size of any side or beverage?						
How often do you go a sit -down restaurant?						
Examples: Texas Roadhouse, Chilis, The Beehive, Angies, Golden Corral, Takara Sushi, etc						
	Taste	Budget	Easy/ Quick			
Why do you go to fast food restaurants? Check all that apply						
	Yes	No	Maybe			
Would you meet with a nutritionist to discuss proper nutrition for your position on the football team?						
Did you know there was a nutritionist available to student athletes at student health?						
	Yes	No	Maybe			

Are you currently trying to gain weight?						
Are you currently trying to lose weight?						
Are you currently trying to maintain weight?						
Are you being pressured by a coach to lose or gain weight?						
	Strength Coaches	Athletic Trainers	Football Coaches	Magazine and/or Internet	USU Nutrition Course	Team-mates and/or Friends/Family
What are your 2 main sources of nutritional information?						
* please only check two categories						

## Results

All 45 of the surveys were successfully completed by the participants within a two week period. By conducting a simple calculation, the percentages of athletes answering each question in each category were calculated. For example 29 of the 45 students chose the “easy/quick” category for why they visit fast-food restaurants. These 29 participants make up 64% of the athlete population that was surveyed. The most surprising finding from the survey showed that 86.8% of the athletes were unaware that a nutritionist was readily available to

them. More importantly, 60% of the athletes were interested in meeting with the nutritionist. When looking at daily eating habits it was found that 40% of the athletes ate at a fast-food restaurant daily, while 31.5% ate at these restaurants three to five days a week. This shows that over 70% of the surveyed athletes eat fast food at least three times a week. As previously discussed, 64% chose the “easy & quick” category for why they ingested fast-food. For a Division I student-athlete time can be very limited due to busy class and practice schedules. When looking at the survey for weight gain, 51.1% of the athletes answered “yes” to trying to “gain weight” while 40% answered “no”. Weight loss however was much lower, only 11.1% of the athletes answered “yes” to “trying to lose weight”. One surprising finding was found in reference to coaches pressuring athletes to either gain or lose weight. Athletes were evenly split on responses to this question with 88.8% responding in the “yes” or “no” categories and 11.1% in the “maybe” category. The final survey question looked at the two main nutritional sources that the football players relied on for their nutritional knowledge. As predicted, 46.6% of the athletes rely on “strength coaches” for guidance. The second highest source recorded was the teammates &/or friends & family” category at 25.5%. Teammates, friends and family cannot be considered an educated nutritional source, unlike strength coaches. The overall results found from the survey support the need for dietary improvements within the football team.

\* Table I displays results of the survey in percentages \*

### Nutritional Habits Survey Results

	1-2 week	3-5 week	Daily	Twice a month	Never
How often do you eat at fast-food restaurants?	40%	31.3%	15.5%	13.3%	0%
How often do you make your own dinner at home or with a friend?	11.1%	55.5%	28.8%	4.4%	0%
Do you often ask for a size larger than the regular of any side or beverage?	26.6%	15.5%	8.8%	15.5%	33.3%
How often do you go to a sit-down restaurant?	35.5%	8.8%	4.4%	46.6%	4.4%

	Taste	Price	Easy & Quick
What is the main reason you go to fast-food restaurants?	13.3%	22.2%	64.4%
	Yes	No	Maybe
Would you like to meet with a nutritionist?	60%	8.8%	31.3%
Were you aware a nutritionist is available to the student athletes in the USU Student Health Clinic?	8.8%	86.8%	4.4%
Are you currently trying to gain weight?	51.1%	40%	8.8%
Are you currently trying to lose weight?	11.1%	84.4%	4.4%
Are you currently trying to maintain weight?	57.5%	33.3%	8.8%

	Yes	No	Maybe
Are you being pressured by a coach to lose or gain weight?	44.4%	44.4%	11.1%

	Strength Coaches	Athletic Trainer	Football Coaches	Magazine &/or Internet	USU Nutrition Course	Teammates &/or Family & Friends
What are your 2 main sources of nutritional information?	46.6%	6.6%	11.1%	6.6%	3.3%	25.5%

### Discussion

Proper nutrition is a vital part of any athletes' performance, but it becomes increasingly important as a Division I collegiate athlete. Nutritional knowledge and dietary habits can either hinder or enhance an athlete's athletic potential. Therefore, an emphasis on nutrition guidance from reliable sources is imperative. This study found that the majority of nutritional information derived from strength coaches at nearly 47%. These results were similar to a study conducted in 2004, which found that 39% of athletes received information from strength coaches (Burns, Schiller, Merrick, Wolf, 2004). Both past and present research has shown that strength coaches are the primary nutrition source for athletes. Unfortunately, not all resources can be considered educated sources. As found in a recent study in 2012, only 71% of athletic trainers, and 83% of strength and conditioning specialists had "adequate nutrition knowledge" (Torres-McGehee, Pritchett, Zippel, Minton, Cellamare, & Sibilial, 2012). Coaches, athletic trainers and strength coaches must continue to work alongside sports

nutritionists to offer the best possible guidance for student athletes. This study aimed to gain insight on the nutritional habits of 45 Division I football players. Upon viewing survey results it becomes evident that the nutrition knowledge of these Division I football players must be improved. The results of the survey support the purpose of this study, showing that the participants indeed have poor nutritional knowledge and eating habits. The depth of an athlete's nutritional knowledge has been found to have a direct correlation to the food choices they make on a daily basis ((Burke, Cox, Cummings, & Desbrow, 2001). Several factors can determine why an athlete chooses to ingest fast-food. As found in a study conducted in 2005, convenience was the most influential factor at 53.4%, followed by cost at 42.9% (Driskell, Young-Nam, & Goebel, 2005. When surveying the football athletes it was found that 64.4% answered "quick & easy", while 22.2% answered "price". Additional research surrounding the athletes' nutritional habits would be useful to determine what steps must be taken to improve their knowledge. In order to improve the survey, the "maybe" category should be removed for the questions regarding weight loss and gain along with any weight pressures from the coaching staff. The "maybe" category seemed to confuse athletes who otherwise should have chosen a simple "yes" or "no". While 45 participants make up a large portion of the football team, it would be helpful to survey all of the athletes for more depth within the research. Also, a second survey could be conducted on the participants that included position along with weight and height to see if there are patterns between nutritional habits and position and body composition. One limitation of the study may have skewed the results in reference to fast-food restaurant visits. Participants that are on scholarship are given breakfast once a week from a fast-food restaurant. While not all athletes are offered this meal, it may have resulted in an increase in the recording of fast-food restaurants visits. Additionally, this survey was conducted in month of March which is off-season for the sport

of football. Athletes' dietary habits may differ drastically between off-season and in-season, therefore a follow-up study for in-season habits would be helpful. 86.8% of the athletes surveyed were unaware of the availability of the nutritionist on staff at Utah State University. With some planning, team meetings could be organized with a nutritionist to improve both coaches' and athletes' knowledge. Nutrition remains to be an overlooked tool in terms of team performance. Football teams traditionally focus on weight gain through strength training and supplements such as protein shakes and bars, but simple daily habits are left untouched. Given that 70% of the surveyed athletes consumed fast-food at least 3 times a week, a nutritional intervention would be very beneficial. In a previous study, 28 collegiate football players completed a three day diet record. On average, the athletes consumed less than the recommended three servings of vegetables daily (Cole et al., 2005). It is nearly impossible to consume a healthy percentage of fruits and vegetables when 70% of these athletes are consumed fast-food weekly, if not daily. Even the simplest forms of interventions have produced an improvement in one's diet. A three day course was successful in improving the consumption of both fruit and vegetable among college students. Following the intervention, 65% of the students ate more than one cup of vegetables per day, and 22% ate more than two cups of fruit daily (Ha & Caine-Bish, 2009). Continued research on dietary interventions would be helpful to determine the ideal way to improve nutrition knowledge on an individual and team basis. Given the proper guidance, the team would be able to see the benefits of proper nutrition and dietary habits both on and off the field.

## References

- American Dietetic Association, Dietitians of Canada, American College of Sports Medicine, Rodriguez, N.R., Marco, D.N., Langley, S. (2009) American College of Sports Medicine Position Stand Nutrition and Athletic Performance. *Med Sci Sports Exerc*, 41(3), 709-731. doi:10.1249/MSS.0b013e318190eb86
- Brown, K.N., Wengreen, H.J., Vitale, T.S., & Andersen, J.B. (2011) Increased self-efficacy of vegetable preparation following an online, skill-based intervention and in-class tasting experience as part of a general education college nutrition course. *American Journal of Health Promotion*, 26(1), 14-20. doi:10.4278/ajhp.091214-QUAN-389
- Burke, L.M., Cox, G.R., Cummings, N.K., & Desbro, B. (2001) Guidelines for carbohydrate intake: Do athletes achieve them? *Sports Medicine*, 31(4), 267-299.
- Burns, R.D., Schiller, M.R., Merrick, M.A., & Wolf, K.N. (2004) Intercollegiate student athlete use of nutritional supplements and the role of athletic trainers and dietitians in nutrition counseling. *Journal of The American Dietetic Association*, 104, 246-249. doi: 10.1016/j.jada. 2003.11.013
- Cole, R.C., Salvaterra, G.F., Davis, J.E., Borja, M.E., Powell, L.M. Dubbs, E.C. et. al. (2005) Evaluation of dietary practice of National Collegiate Athletic Association Division I football players. *Journal of Strength and Conditioning Research*, 19(3) 490-494.
- Driskell, J.A., Young-Nam, K. & Goebel, K.J. (2005) Few differences found in the typical eating and physical activity habits of lower-level and upper-level university students. *Journal of the American Dietician Association*, 105, 798-801. doi:10.1016/j.jada. 2005.02.004
- Dunn, D., Turner L.W., & Denny, G. (2007) Nutrition Knowledge and Attitudes of College Athletes. *The Sport Journal*, 10(4). ISSN: 1543-9518. <http://www.thesportjournal.org/article/nutrition-knowledge-and-attitudes-college-athletes>.
- Evans, A.E., & Sawyer-Morse M.K. (2002) The right bite program: A theory-based nutrition intervention at a minority college campus. *Journal of the American Dietician Association*, 102, 89-93.
- Franko, D.L., Cousineau, T.M., Trant, M., Green, T.C., Rancourt, D., Thompson, D., et al. (2008) Motivation, self-efficacy, physical activity and nutrition in college students: Randomize controlled trial of an internet-based education program. *Journal of Preventative Medicine*, 47, 369-377. doi: 10.1061/j.ypped.2008.06.014

- Ha E.J., & Caine-Bish, N. (2009). Effect of nutrition intervention using a general course for promoting fruit and vegetable consumption among college students. *Journal of Nutrition Education and Behavior*, 41(2) 103-109. doi:10.016/j.jneb.2008.07.001
- Harpe, J.B. (2005). Obesity in the National Football League. *The Journal of the American Medical Association*, 293(9), 1061-1062. doi:10.1001/jama.293.24.2999-a
- Heaney, S., O'Connor H., Michael, S., Gifford, J., & Naughton, G., (2011) Nutrition knowledge in athletes: A systematic review. *Journal of Sports Nutrition and Exercise Metabolism*, 21, 248-261.
- Heaney, S., O'Connor, H., Naughton, G., & Gifford, J. (2008) Towards an understanding of the barriers to good nutrition for elite athletes. *International Journal of Sports Science & Coaching*, 3(3) 391-401. doi:10.1260/174795408786238542
- Hinton, P.S., Sanford, T.C., Davidson, M.M., Yakushko, O.F., & Beck N.C. (2004) Nutrient intakes and dietary behaviors of male and female collegiate athletes. *International Journal of Sport Nutrition and Exercise Metabolism*, 14, 389-405.
- Holway, F.E., Spriet, L.L. Sport-specific nutrition: Practice strategies for team sports. *Journal of Sports Sciences*, 29(S1), 115-125. doi:10.1080/02640414.2011.60549
- Jacobson, B.T., Sobonya, C., & Ransone, J. (2001) Nutrition practices and knowledge of college varsity athletes: A Follow-up. *Journal of Strength and Conditioning Research*, 15(1), 63-68.
- Kraemer, W.J., Torine J.C., Silvestre R., French, D.N., Ratamess, N.A., Spiering, B.A., Hatfield, D.L. et. al. (2005) Body size and composition of National Football League players. *Journal of Strength and Conditioning Research*, 19(3), 485-489.
- Mathews, E.M., & Wagner, D.R. (2008) Prevalence of overweight and obesity in collegiate american football players, by position. *Journal of American College Health*, 57(1) 33-37.
- Morse, K.L., & Driskell, J.A. (2009) Observed sex differences in fast-food consumption and nutrition self-assessments and beliefs in college students. *Nutrition Research Journal*, 29. 173-179. doi:10.1016/j.nutres.2009.02.04
- Nestle, M., Wing, R., Birch, L., DiSogra, L., Drewnowski, A., Middleton S., et. al. (1998) Behavioral and Social Influences on food choice. *Nutritional Reviews*, 56 (5pt.2) S50-64; discussion S64-74.
- Noel, M.B., VanHeest, J.L., Zaneteas, P., & Rodgers C.D. (2003) Body composition in Division I football players. *Journal of Strength and Conditioning Research*, 17(2), 228-237.

- Obayashi, S., Bianchi, L.J., & Song, W.O. (2003) Reliability and validity of nutrition knowledge, social-psychological factors and food label use scales from the 1995 Diet and Health Knowledge Survey. *Journal of Nutritional Education and Behavior*, 35(2), 83-92.
- Torres-McGehee, T.M., Pritchett, K.L., Zippel, D., Minton D.M., Cellamare, A., & Sibilial, M. (2012) Sports nutrition knowledge among collegiate athletes, coaches, athletic trainers, and strength and conditioning specialists. *Journal of Athletic Training*, 47(2), 205-211.
- Turocy, P.S., DePalma, B.F., Horswill, C.A., Laquale, K.M., Martin, T.J., Perry, A.C., & et al. 2011. National Athletic Trainers' Association Position Statement: Safe Weight Loss and Maintenance Practices in Sport and Exercise. *Journal of Athletic Training*, 46(3), 322-336.
- Wagner, D.R. (2009) Eating on the road: Practical nutrition strategies for the traveling athlete. *Athletic Therapy Today*, 14(5) 1-4.