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SOCIAL MEDIA POSTS' INFLUENCE ON COLLEGE ATHLETES' PROTEIN KNOWLEDGE

KRISTON T. LOVE

48 Pages

This research aimed to examine how Instagram can be used as a means of education for collegiate athletes and their knowledge of protein. More specifically this research aimed to compare the prior knowledge about protein that collegiate athletes have to the knowledge they may have retained after being exposed to posts on Instagram about protein. It also aimed to determine the knowledge of protein collegiate athletes already had and if their sport and year in school influenced their protein knowledge. This study surveyed Division I collegiate athletes on their social media use and knowledge of protein before and after being exposed to protein related post on Instagram. The results of this study showed that there was no significant difference in participants knowledge of protein after being exposed to protein related posts on Instagram. It also showed college athletes' protein knowledge has no correlation with their sport or year in school, yet there was a correlation between Instagram post interaction and post-survey scores. This study concluded that athletes find Instagram nutrition posts helpful and felt they retained the information that was provided yet it is unclear if educational social media posts about protein can improve collegiate athletes' knowledge of protein. It also provides some evidence that collegiate athletes already have a fair understanding of protein. Nutrition educators and coaches can utilize these results as they explore new options for educating athletes about nutritional needs.

KEYWORDS: social media; protein; college athletes; knowledge; sports nutrition

SOCIAL MEDIA POSTS' INFLUENCE ON COLLEGE ATHLETES' PROTEIN
KNOWLEDGE

KRISTON T. LOVE

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of

MASTER OF SCIENCE

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SOCIAL MEDIA POSTS' INFLUENCE ON COLLEGE ATHLETES' PROTEIN
KNOWLEDGE

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CHAPTER I: SOCIAL MEDIA POSTS' INFLUENCE ON COLLEGE ATHLETES' PROTEIN KNOWLEDGE

Introduction

Protein is a macronutrient that plays an important role in athletes' diets. It is a popular topic among both casual exercisers and competitive athletes alike. According to a Board-Certified Specialist in Sports Dietetics, Clark (2013), many athletes are confused about how much protein they need, when they should eat it, and the best kinds of protein to choose. Along with protein, athletes may be confused about vitamins and minerals too; however, they have an adequate knowledge about the need for carbohydrates and the importance of fluid status on performance ("Differences in Collegiate Athlete Nutrition Knowledge," 2014). College athletes are among those who may be confused.

Further, collegiate athletes are a diverse and unique population requiring sufficient knowledge to ensure nutritional needs are met while positively impacting training capacity and performance ("Differences in Collegiate Athlete Nutrition Knowledge," 2014). In addition to the academic, financial, and social challenges of the collegiate environment, collegiate athletes must aim to meet nutrition needs with rigorous training regimens. Despite the greater need for nutrition knowledge, athletes tend to score in the 50% range on nutrition knowledge tests (Differences in Collegiate Athlete Nutrition Knowledge, 2014) which is similar to that of non-athlete peers.

It is well established that social media plays a role in influencing people's behaviors and mind sets. The rapid evolution of digital media has provided new opportunities for young adults to be connected and socially engaged and as of 2014, more than 74% of American adults used social media (Kim, Wang, & Oh, 2016). College students of this generation have always been in

the middle of living in a digital media environment. They use social media to express their identity and opinions and to build social relationships (Kim, Wang, & Oh, 2016). The main reasons that college students use social media are to stay in touch with their family and friends, to know about social activities, and to feel connected. They also use mobile phones to generate and maintain social relationships (Kim, Wang, & Oh, 2016). Among these students are college athletes. Little research has been done to observe the relationship between college athletes' use of social media and their nutrition knowledge specifically looking at college athletes' knowledge about protein intake for their specific sport and gender.

The purpose of this quantitative study is to determine the relationship between educational social media posts, specifically that of Instagram, and collegiate athletes' knowledge of protein and protein intake. The independent variable of posts made on social media will be defined as an image or piece of writing on a website or application will be shared for the viewing of collegiate athletes. The dependent variable of collegiate athletes' knowledge of protein intake will be defined as collegiate athletes' ability to accurately describe their protein needs intake based on their gender and specific sport type such as endurance or power. This study will aim to answer the research questions: 1. What nutrition knowledge related to protein do collegiate athletes have? 2. Do educational posts on social media about protein influence collegiate athletes' protein knowledge and knowledge related to intake? 3. Does collegiate athletes' year in school and sport relate to their knowledge of protein?

Review of Literature

Protein and College Athletes

The importance of protein for collegiate athletes has been a topic of discussion for years. There have been studies that specifically focus on collegiate athletes and their protein intake as well as their protein knowledge. Just as children have high protein needs during growth periods, endurance and strength athletes also have requirements higher than the recommended daily allowance (RDA) when building muscles (Clark, 2013). One study observed female collegiate athletes and their dietary intake habits. There were 52 Division I participants who completed anthropometric measurements and dietary assessment using a 3-day food recall. The results indicated that their protein intake did not differ significantly from the minimum protein recommendations of 1.2 g/kg/day for athletes yet frequency analyses showed that 74% and 50% of the participants failed to meet the carbohydrate and protein recommendation respectively (Shriver, Betts, & Wollenberg, 2013). The overall conclusion of this study showed that these female athletes failed to meet their minimum energy needs and failed to follow basic nutrition guidelines (Shriver, Betts, & Wollenberg, 2013).

Another study looked at the effects of sports nutrition education intervention on dietary intake, knowledge, body composition, and performance in NCAA Division I baseball players. Fifteen players received sports nutrition education intervention for 90 minutes encompassing energy intake, carbohydrate, protein, fat, food sources, and hydration. The results showed that protein intake increased and their knowledge was improved with the sports nutrition intervention. One study looked at the perceived protein needs and measured the intake in collegiate male athletes (Breitbach, McDaniel, Fox, & Weiss, 2011). The perceived protein needs were quantified in 42 strength trained collegiate male athletes by using a survey and actual

protein intake was measured by using 3-day food recall and nutrient analysis. The results of this study showed that 67% of the participants “do not know” their protein needs and their measured protein intake was greater than the recommended daily intake for protein. The conclusion of this study indicated that male collegiate athletes recognize that their protein needs are greater than that of the general population and consume more than the general population but they do not know exactly how much protein they should be consuming.

Andrews et al. (2016) examined Division I university athletes nutrition knowledge across sex, class level, team, and completion of prior nutrition coursework. The participants were required to complete a survey questionnaire to determine their sports nutrition knowledge. The results showed that 56.9% of student athletes had inadequate sports nutrition knowledge and only 12 of the 123 participants achieved adequate sports nutrition knowledge scores. Those who with inadequate sports nutrition knowledge were considered to possibly be at nutrition risk, at higher risk for impaired performance, and have effects on their lean body mass and energy levels.

Social Media

Social media is now considered to be one of the most effective and commonly used means of communicating with customers today (Coelho, Correia, & Medina, 2017). Research has been conducted on how social media has been used to influence people as well as their behaviors and also how it is used to reach certain audiences. One study looked at how social media influenced the consumption of chocolate milk as a post workout beverage (Lauricella & Koster, 2016). This particular study used Twitter as its social media platform to promote the consumption of chocolate milk as a post-workout recovery beverage. The researchers sent out tweets using hashtags and the twitter handle, then collected tweets they sent out as well as tweets that the hashtags and twitter handle were mentioned in. This study also examined how elite

athletes have become marketers being able to influence the public through social media. The results of this study showed the use of social media was an influential way to promote the consumption of chocolate milk as a post-workout recovery beverage and that the use of elite athletes produced a greater impact on the target audience. The overall conclusion showed that social media has its own reinforced power system when it comes to promoting products and reaching certain audiences to behave a certain way.

Raggatt et al, (2018) examined how social media influenced people's health and wellbeing. This study specifically looked at the social media platform of Instagram and how fitness accounts inspired people to partake in exercise behaviors. One hundred and eighty participants who were mostly female completed a cross-section online survey. The survey looked at the participants' psychological distress, eating behaviors, and compulsive exercise behaviors related to content they saw on Instagram. The results showed that 59.3% of the participants accessed content posted by personal trainers and athletes, 17.4% reported levels of high distress from seeing fitness posts, and 10.3% were at risk form addictive exercise behavior from seeing this type of content. There were reports of negative and positive influences of engaging with fitness content on Instagram. The overall conclusion from this study was that social media has benefits to influences behavior but also negative influences on well-being and perception of healthy goals.

A study done by Alssafi and Coccia, (2019) examined the feasibility of a 6-week intervention for weight prevention program using Instagram for Kingdom of Saudi Arabia college students. This study looked at the post intervention retention percentage and the number of likes and comments from post interactions. The results of this study showed that 60% of participants completed the post intervention assessment but only 27% remained at the final follow up. It also

showed that the number of likes declined over the 6 weeks, 100% of participants found the posts interesting and motivating and 95% reported the Instagram posts motivated them to eat healthier

Future Research Direction

Much of the previous research has focused on collegiate athletes overall dietary intake, and knowledge and how social media influences marketing and individuals' behaviors related to fitness. However, there is a gap in the literature regarding how social media posts can influence college athletes' protein knowledge which can influence their protein intake. While limited research has been done related to social media's influence on college athletes, it is important to determine if social media can influence the protein knowledge of collegiate athletes in a positive way. Therefore, examining the protein knowledge of collegiate athletes from social media posts can play an important role in future sports nutrition education intervention practices.

Methodology

Sampling Procedure

A convenience sample of Division I collegiate athletes who follow the sports nutrition Instagram social media page of a Midwestern university were recruited to participate. Participants of this study are student athletes at a university that has a sports nutrition program which allows athletes to have access to nutrition counseling and education. Permission from the sports nutrition supervisor was obtained to carry out this study using the sports nutrition Instagram page. Participants of the study were alerted through emails sent out to all athletes who attend the university and through the sports nutrition Instagram page. An incentive of the chance to receive a fifty dollar Amazon gift card for participation was used to increase participation. Only participants who completed both the pre-survey and post-survey qualified for the gift card.

Participating student athletes followed the sports nutrition Instagram page and agreed to participate after reading the online consent form. No minors participated in the study.

There were 16 Instagram posts about protein posted on Instagram. A series of three Instagram posts a week for four consecutive weeks was done. These posts were created by using the application Canva which is a graphic design tool. Graphics with informational captions were posted every Monday, Tuesday, Thursday, and Friday of the week and uploaded at 5:30 pm Central time. These posts were related to education about protein specific to athletes, protein intake for sport type such as endurance or power sports, protein intake related to gender, what a protein is, protein sources, types of proteins, when to consume protein, and so on. These posts were written by the researcher. The information from these posts were drawn from previous research studies, the Collegiate and Professional Sports Dietitians Association, and the Academy of Nutrition and Dietetics. Each post was reviewed by content experts who are registered dietitians.

Data Collection

Data was collected through a pre-survey and post-survey that was administered online using Qualtrics which is an online survey program. Athletes had access to the pre-survey and post survey by using a link that was available on the sports nutrition Instagram profile page. The participants had access to the pre-survey for approximately 12 days before the Instagram posts relating to protein will start to be shared. After the six weeks of posts, participants had access to the post-survey for approximately 12 days. The pre-survey and post-survey consisted of questions about protein related to the 16 posts that were uploaded to Instagram. To increase the chances that the athletes would see the posts, the story feature on Instagram was utilized. The

story feature allowed the posts on Instagram to be viewed for 24 hours from the time it was posted.

Instrumentation

The athletes were presented a link on the Instagram profile and via email of the nutrition page to access the pre-survey to determine the participants' knowledge of protein before a series of protein specific educational posts are presented. A new link to the post-survey was presented after the series of posts are complete to determine if the posts on Instagram had an impact on the athletes' knowledge of protein and protein intake. These surveys were administered once and athletes had access to each survey open for approximately 12 days each.

During the pre-survey the participants were asked to fill out information about their demographics. Athletes answered a few questions about their Instagram use, their assessment of their own understanding of protein, and their consciousness of how much protein they eat. The demographic questions included gender, sport type, and year in school.

After the final Instagram post, the athletes were presented with the post-survey containing the same 15 protein knowledge questions plus five questions to measure how often the participants read the posts, whether they liked the posts, etc. (Figure 1). These statements were self-developed as multiple choice questions and statements were answered using a Likert scale ranging from strongly agree, agree, neutral, disagree, and strongly disagree. Each multiple choice question only had one correct answer.

Data Analysis

Data from the questionnaires was analyzed using a quantitative approach and the statistical software IBM SPSS 26.0. The protein knowledge results from the pre-survey were compared with the results of the post-survey to measure if there was an impact of the Instagram

posts on protein knowledge. A paired samples t-test was done with the pre-survey and post-survey results to measure the difference of protein knowledge after viewing the posts. A Pearson correlation test was done to look at how the sport and year in school of the athlete related to how many responses the participants answered correctly. Frequencies were calculated and reported for demographic information, questions related to Instagram use in the pre-survey, and frequency of activity viewing the posts in the post-survey.

Results

A total of 63 participants who met the criteria, consented and started the pre-survey but due to incomplete surveys, a total of 59 participants were included in the final analysis for the pre-survey. Most participants of the pre-survey were seniors (40.7%) and the majority of participants were female athletes (88.1%). Unlike the pre-survey, majority of athletes from the post-survey were juniors (46.2%) but similarly to the pre-survey the majority of participants were female athletes (76.9%). The sports teams that participated in this research study for the pre-survey were track and field (23.7%), soccer (15.5%), basketball (13.6%), gymnastics (11.9%), swimming (8.5%), golf (6.8%), softball (5.1%), volleyball (5.1%), cross country (5.1%), football (3.4%), and dive (1.7%). Table 1 contains more detailed demographics for the participants of the pre-survey. For the post survey, 24 participants started the survey but only 13 participants completed the survey in entirety. Since there was a fewer number of athletes who participated in the in the post-survey compared to the pre-survey, the participating sports teams varied. These sports included track and field (38.5%), soccer (23.1%) basketball (7.7%), cross country (7.7%), swimming (7.7%), golf (7.7%), and dive (7.7%). Table 2 contains more detailed demographics of the post-survey participants.

Social Media Use

Frequencies were used to determine the participants' social media habits. Of the 59 participants, 31 (52.5%) said they agree to using social media for educational purposes while 17 (28.8%) participants stated they were neutral and 9 (15.3%) participants disagreed. When asked to rate their daily use of Instagram, 39 participants (66.1%) said they “strongly agree” and 19 participants (32.2%) agreed to using Instagram daily. Majority of athletes, 45.8%, stated that they “agree” to following social media accounts for educational purposes such as nutrition or related to their sport and 22% stated they were neutral. More details can be found in Table 3.

In regards to the post-survey, 53% of participants agreed to liking receiving nutrition education via Instagram while 15.4% reported strongly disagreeing. Of the post-survey participants, 53.8% agreed to feeling like they retained the information, 38.5% of student athletes agreed to using what they learned in their day-to-day lives, 61.5% reported finding the posts helpful, while 15.4% disagreed. Of the 13 student athletes who completed the survey, 69.2% agreed to interacting with the social media posts and 15.4% strongly disagreed. More details are reported in Table 3.

Protein Knowledge

An independent sample t-test was used to compare the pre-survey to the post-survey. The significance when comparing the two surveys was 0.00 and the 2-tailed significance was 0.335 for equal variances assumed. This can be found in Table 4. Frequency was used to determine collegiate athlete's knowledge of protein before the posts were distributed on Instagram. Of the 59 completed surveys, 15 participants (25.4%) scored 12 out of 15 on the survey. Thirteen participants (22%) scored 11 out of 15. Only 2 participants (3.4%) scored 14 out of 15. Of the 59 student athletes who completed the pre-survey 38 (64%) scored 73% or higher. The highest score

on the pre-survey was 93% which was achieved by 2 participants. Of the 13 student athletes who completed the post survey, 23.1% scored 87% and 23.1% scored 100%. Two (15.4%) scored 73% and the rest scored 67% or lower. More detail of the survey results can be found in Table 5 and Table 6.

Protein Knowledge Related to Year in School and Sport

A correlation test was used to determine if the relationship between the post survey scores and participants' year in school and sport (Table 8). The Pearson's correlation between the participants year in school and post-survey scores was 0.090 ($p < 0.05$). The Pearson correlation between the post-survey scores and the athletes' sport was 0.363 ($p < 0.05$).

Table 1. Pre-Survey Demographics

Demographic Category	Frequency	Percentage
	<i>n</i>	%
Gender		
Female	52	88.1
Male	7	11.9
Year in School		
Freshman	9	15.3
Sophomore	12	20.3
Junior	13	22.0
Senior	24	40.7
Graduate Student	1	1.7
Sport		
Basketball	8	13.6
Cross Country	3	5.1
Dive	1	1.7
Football	2	3.4
Gymnastics	7	11.9
Golf	4	6.8
Soccer	9	15.5
Softball	3	5.1
Swimming	5	8.5
Track & Field	14	23.7
Volleyball	3	5.1

Note. *n* = number of participants. Total = 59 participants

Table 2. Post-Survey Demographics

Demographic Category	Frequency	Percentage
	<i>n</i>	%
Gender		
Female	10	76.9
Male	3	23.1
Year in School		
Freshman	2	15.4
Sophomore	0	0.0
Junior	6	46.2
Senior	4	30.8
Graduate Student	1	7.7
Sport		
Basketball	1	7.7
Cross Country	1	7.7
Dive	1	7.7
Football	0	0.0
Gymnastics	0	0.0
Golf	1	7.7
Soccer	3	23.1
Softball	0	0
Swimming	1	7.7
Track & Field	5	38.5
Volleyball	0	0.0

Note. *n* = number of participants. Total = 13 participants

Table 3. Pre-Survey and Post-Survey Likert Scale Statements

Question	Frequency	Percentage
	<i>n</i>	%
I use social media for educational purposes.		
Strongly Agree	2	3.4
Agree	31	52.5
Neutral	17	28.8
Disagree	9	15.3
I use Instagram daily.		
Strongly Agree	39	66.1
Agree	19	32.2
Neutral	1	1.7
I often follow social media accounts for educational purposes such as nutrition or skills related to my sport.		
Strongly Agree	10	16.9
Agree	27	45.8
Neutral	13	22.0
Disagree	8	13.6
Strongly Disagree	1	1.7
As an athlete, I am conscious of the amount of protein I eat.		
Strongly Agree	15	25.4
Agree	26	28.3
Neutral	14	23.7
Disagree	3	6.5
I found these posts helpful.		
Strongly Agree	2	15.4
Agree	8	61.5
Neutral	1	7.7
Strongly Disagree	2	2.2
After reading the posts, I tried to use what I learned in my day-to-day life.		
Strongly Agree	1	13.6
Agree	5	5.1
Neutral	2	1.1
Disagree	3	3.4

(Table Continues)

Question	Frequency Percentage	
	<i>n</i>	%
Strongly Disagree	2	11.9
I feel that I retained the information I read in the posts.		
Strongly Agree	2	15.4
Agree	7	53.8
Disagree	2	15.4
Strongly Disagree	2	15.4
I interacted with the majority of the posts.		
Agree	9	69.2
Neutral	2	15.4
Strongly Disagree	2	15.4
I liked receiving nutrition education through Instagram		
Strongly Agree	3	23.1
Agree	7	53.8
Neutral	1	7.7
Strongly Disagree	2	15.4

Table 4. Pre-Survey and Post Survey Independent Sample t-test

Scores	Variance Assumption	Levene's Test for Equality of Variances	t-test for Equality of Means				
			Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Pre-Survey Scores and Post-Survey Scores	Equal variances Assumed		.000	.970	.335	.05765	.05942
	Equal variances not assumed			.568	.580	.05765	.10147

Table 5. Pre-Survey Scores

Scores	Frequency	Percentage
	<i>n</i>	%
33%	2	3.4
40%	1	1.7
53%	5	8.5
60%	8	13.6
67%	5	8.5
73%	13	22.0
80%	15	25.4
87%	8	13.6
93%	2	3.4

Note. *n* = number of participants. Total = 59 participants

Table 6. Post-Survey Scores

Scores	Frequency	Percentage
	<i>n</i>	%
0%	1	7.7
7%	1	7.7
13%	1	7.7
60%	1	7.7
67%	1	7.7
73%	2	15.4
87%	3	23.1
10%	3	23.1

Note. *n* = number of participants. Total = 13 participants

Table 7. Year in School, Sport, and Pre-Survey Scores Correlation

Variable	<i>n</i>	1	2	3
1. Pre-survey scores	59	-		
2. Year in school	59	.090	-	
3. Sport	59	.363	.155	-

Discussion

The purpose of this study was to investigate how social media, specifically Instagram, can be used to educate Division I collegiate athletes about protein and to determine their prior protein knowledge. This study is important because social media has become a large part of how people communicate and share their lives. Determining if social media has a positive effect on collegiate athletes' knowledge of protein can expand the way through which athletes are educated on nutrition specific to sports. To the author's knowledge, this is the first study to evaluate athletes' knowledge of protein and how social media can be used to educate athletes on protein.

This study aimed to answer three research questions. The first research question was "what knowledge related to protein do collegiate athletes have?" Of the 59 participants who completed the pre-survey of this study, 15 (25.4%) athletes scored 80% and 13 athletes scored 73% meaning the vast majority of Division I collegiate athletes surveyed had a general understanding of protein prior to the Instagram posts. In a previous study, researchers examined the nutrition knowledge of college sportsmen had similar results. In this study, 102 athletes from five different colleges in India were surveyed about their nutrition knowledge, attitudes, and dietary practices. Of the 102 athletes who completed the questionnaire, for the questions related to protein, the volleyball players scored 42%, weight lifters scored 43%, and runners scored 75%. Their overall tests scores indicated most athletes had good knowledge of nutrition (Nazni et al., 2010).

This is contrary to the study done by Wengreen et al. (2017), where incoming Division I athletes were surveyed on their nutrition knowledge. Even though this study did not specifically break down the athletes' knowledge related to protein, the average overall score of was 34% and 80% of the questions were answered incorrectly by greater than 50% of the athletes. Similar to the study done by Wengreen et al. (2017), a previous study looked at the sports nutrition

knowledge among mid-major division I university student-athletes. In this study, 123 athletes were surveyed to determine if they had adequate sports nutrition knowledge. The results showed that the overall mean sports nutrition score for the student-athletes was 56.9% which was considered inadequate because the mean of the scores were <75% (Andrews et al., 2016).

The second research question this study aimed to answer was “do educational posts on social media about protein influence collegiate athletes’ protein knowledge and knowledge related to intake?” Of the 13 completed post survey, 3 (23.1%) of athletes scored 87% and 3 (23.1%) of athletes scored 100% on the post survey. When looking at questions specifically related to protein intake on the pre-survey, 20 (33.9%) athletes knew what protein intake was and 56 (94.9%) correctly answered how much protein athletes should consume per day. Compared to the pre-survey, 8 (61.5%) of the 13 athletes who completed the post survey, knew what protein intake was and 7 (53.8%) athletes correctly answered how much protein athletes should consume per day. When looking at the results from Table 4, equal variances cannot be assumed and there is no statistical significant difference between the pre-survey scores and the post-survey scores. This is most likely due to the difference in the number of participants who completed each survey. To say whether or not being exposed to the Instagram post influenced athletes’ protein knowledge related to intake is unclear due to the vast difference in the number of athletes who completed the pre-survey compared to post-survey. It cannot be said that the educational posts on social media had an influence on the athletes’ knowledge of protein intake. If the number of participants were similar for both the pre-survey and post-survey, then it is possible that their knowledge related to protein intake may have improved.

Due to the small number of athletes who completed the post-survey, the results are different from previous research studies that looked at the effects of sports nutrition interventions

had on athletes' nutrition knowledge. One research study done by Elias et al. (2018), examined the effects of sports nutrition intervention on 105 male Malaysian athletes to determine if there would be an improvement on their knowledge, attitude, and practice. The results of this study showed that there were significant increases in the experimental groups mean scores for nutrition knowledge meaning their nutrition knowledge improved after nutrition intervention.

As previous research has shown, student athletes often rely on team coaches, strength and conditioning specialists, and athletics trainers for sports nutrition knowledge (Andrews et al., 2016). However, studies have examined the nutrition knowledge of these professionals that indicated they may not be the best source for the student-athletes (Andrews et al., 2016). This study utilized an Instagram page specifically made for collegiate athletes created by the university's sports nutrition program to provide reliable sports nutrition education to athletes. With social media being a big part of college students lives, this study is unique because it looked at how social media could be used to educate collegiate athletes with reliable sports nutrition information. Since protein is a common topic among athletes, it was the main focus of the sports nutrition information provided to collegiate athletes via Instagram. Other research studies have looked at what nutrition knowledge athletes already have or how nutrition interventions can affect their nutrition knowledge but to the author's knowledge, there is no previous studies looking specifically at protein knowledge. There is also very limited research that has been done to examine how social media is used in the sports nutrition world. From the research that has been done, it has been found that female athletes are more likely to use social media for nutrition purposes and athletes commonly used social media for practical nutrition purposes related to recipes or information about restaurants (Bourke et al., 2019). Sports nutritionists have been encouraged to embrace social media and to utilize it for interventions to

their athletes (Dunne et al., 2019). With the majority of college athletes reporting they interacted with the posts on Instagram and retaining the information, this indicates using social media may be beneficial for sports nutritionists and dietitians to educate their athletes.

The third and final research question this study aimed to answer was “does collegiate athletes’ year in school and sport relate to their knowledge of protein?” To determine this, a correlation was done between the sport, year in school, and pre-survey scores. The pre-survey scores were used instead of post-survey score due to the higher amount of participants. The results of this correlation showed that there was no correlation between the athletes’ year in school, sport, and post-survey scores. To the author’s knowledge, there are no previous research studies that examine the relationship between sport, year in school, and nutrition knowledge in which the results of this correlation can be compared to.

While this study is different and fills a gap in the literature, there were limitations. With the vast difference in participants for the pre-survey and post-survey, it was hard to determine the validity of the difference in protein knowledge. It would have been beneficial to include an identifier for athletes to make up for the difference in participants for each survey. This would have allowed for the analysis of the athletes who completed both surveys to see how the social media posts affected their protein knowledge. The small amount of athletes who completed the post-survey may have been due to timing of the post-survey administration. The post-survey was released leading up to holiday break and in the midst of many sports teams’ seasons. Another limitation to this study was the timing of which the posts were made on Instagram. The social media platform follows its own algorithm that may have impacted who was able to see the posts. This algorithm does not show posts in its users feeds in chronological order. This means the post may have been lost in the midst of other content or it may not have showed up in the participants

timelines at all. The days chosen to post the content may have also been a limitation due to the fact that they were during the week and not on the weekend when athletes tend to have more free time.

Furthermore, participants were not evaluated on their past nutrition education. Some athletes may have previously taken nutrition classes and the athletes who participated in the study have a sports nutrition program available to them at their university, therefore, this could have played a role in previous nutrition knowledge as well. It would be beneficial to have a larger sample size and participant retainment. As for future direction, knowing there is a significant correlation between post interaction and retention of information can encourage athletes to follow more nutrition focused pages from sports nutritionist or dietitians. This can also prompt sports dietitians and nutritionists to utilize social media for client and athlete interventions and education. Social media can be used as a more efficient way to reach athletes or clients in a way that already fits into their day-to-day lives. Lastly, this study only looked at division I athletes from a single university. Further studies which utilize more diverse samples and greater sample sizes would overcome some of the limitations of this study.

Conclusion

Overall, the results suggest that collegiate athletes have a good understanding of what protein knowledge is and how much they should consume each day. However, it is unsure whether posting educational information about protein on Instagram for athletes to interact with led to improved knowledge of protein for the athletes who scored low on the pre-survey. Athletes reported finding the Instagram posts helpful and felt they retained the information that was provided. Direction of the influence of social media posts has on college athletes' knowledge of protein cannot be determined from this study.

This study also provided some evidence that year in school and sport do not correlate to the knowledge of protein an athlete has, yet this may be due to the availability of a sports nutrition program. Additionally, making sports dietitians and nutritionist aware of how social media can be used for athlete interventions and provide nutrition education can be an asset to the services they provide. Future research studies should investigate what knowledge college athletes have of other macronutrients and how other social media platforms can be used to educate collegiate athletes.

Figure 1. Survey Questions Related to Protein

1. "Protein intake" is defined as...
2. Protein is...
3. On workout/ practice days, when should protein be consumed?
4. What percent of an athlete's daily calories should come from protein?
5. Which of the following is an example of a complete protein?
6. Which of the following is an example of an incomplete protein?
7. The protein content per serving in a food item can be found where?
8. Compared to that of a power athlete, an endurance sport athlete's protein intake should be...
9. Which of the following beverages contains protein?
10. Protein is important for athletes because...
11. Which protein can vegetarian athletes eat?
12. How many meals per day should you consume protein?
13. Compared to non-athletes, athletes need how much protein?
14. Depending on activity level, it is recommended that athletes consume how much protein per day?
15. Which of the following is an example of lean protein?

Note. Multiple choice questions.

CHAPTER II: EXTENDED REVIEW OF LITERATURE

Sports Nutrition Dietitians' Impact

Sports nutrition has become a growing field in the world of dietetics. For collegiate and elite athletes, nutrition can play a vital role in their sports careers. Sports dietitians can help athletes learn about sport specific nutrition and nutrition to prevent injuries and enhance performance. An experienced sports dietitian demonstrates the knowledge, skills, and expertise that is necessary to help athletes and teams work toward their goals (Thomas et al., 2016).

In a study conducted from Trakman et al. (2019), 410 Australian elite and non-elite sports teams were surveyed about previous sources of nutrition advice and their preferred sources of nutrition information. The results of this study of this study showed that of the surveyed athletes, 44% reported previously being given nutrition advice from a dietitian yet the question did not specify whether the dietitian specialized in sports nutrition. Furthermore, 59% reported neither having access to a dietitian nor receiving nutrition information while 87% believed having access to a dietitian or nutritionist should be available (Trakman et al., 2019). Twenty percent, 19% and 16% of athletes chose “dietitian,” “internet” and “nutritionist” as their preferred source of nutrition information (Trakman et al., 2019).

A study done by Hull et al examined how the availability of a sports dietitian may lead to improved performance and recovery of NCAA division I baseball athletes. This study surveyed 99 male baseball players from three different division I institutions in relation to their dietary habits. Two of the three institutions had access to a sports dietitian. Results of this study showed that the athletes who had access to a sports dietitian found it easier to eat before activity, prepare their own meals more often, eat breakfast before training/lifting sessions, and had post work out nutrition provided compared to the athletes who did not have access to a sports dietitian (Hull et

al., 2017). Based on the results of this study, sports dietitians can be valuable assets to collegiate athletic programs.

According to Shelby Potter, MS, RDN, LDN and Joni Boyd, PhD, CSCS, including a sports dietitian within a sports performance team may assist in delivering positive results to athletes yet expertise from sports dietitians is sparse and often underutilized. Many athletes seek nutrition advice and information from athletic trainers, strength and conditioning staff, sports coaches, or even other athletes (Potter & Boyd, 2017). Many of these individuals do not have sufficient knowledge in nutrition as a dietitian would. According to the National Strength and Conditioning Association website, 26% of the certification exam are nutrition questions yet it is possible to miss the majority or even all of the nutrition questions and still pass the examination (Potter & Boyd, 2017). Compared to that of a dietitian, their nutrition knowledge is not as extensive or measured. A certified specialist in sports dietetics is a registered dietitian nutritionist with a sports dietetics specialization who is trained to be culturally competent, assist athletes to build healthy relationships with food, and facilitate nutrition education programs that can be implemented into athlete programs (Potter & Boyd, 2017). With their extensive training and knowledge, sports dietitians can help implement quality programs which can assist in the awareness and reduce nutrition confusion for athletes and ensure athletes have adequate nutrition resources available.

College Students and Social Media Use

Social media has become an integral part of peoples' lives today. In the United States, 90% of 18 to 29 year olds use social media (Perrin, 2015). The study done by Perrin also indicates that both undergraduate and graduate college students use social media every single day of the week. On average, in the United States, adults aged 19-32 use social media for 61

minutes each day (Levenson et al, 2016). When examining the association of social media use with the satisfaction with daily routines and healthy lifestyle habits for college students, 117 female and 47 male undergraduate and graduate students were surveyed (Austin-McCain, 2017). The findings of this study revealed that social media use is substantially related to certain healthy lifestyle habits, such as relaxation leisure, and social participation activities, as well as satisfaction with daily routine. There was no significant association between other healthy habits such as fitness and healthy eating (Austin-McCain, 2017).

One study done by Howard et al. (2018), conducted a survey to determine which social media platforms students at Purdue University in West Lafayette, Indiana use, platforms they would like their university library use, and what kind of content they would like from the library on each of these platforms. The survey was completed by 128 students and participants were asked to identify the social media platforms they used and how frequently they used them. Of the most frequently used, the top five were Facebook, YouTube, Snapchat, Instagram, and Twitter.

Results showed that students overwhelmingly use social media daily or weekly to watch videos, keep in touch with family and friends, and to get news. The least popular activities that students used social media for were research and to follow public figures. Of the social media platforms students reported wanting to receive information from their university library on, the top five were Facebook, Instagram, Twitter, Snapchat, and YouTube. When students were asked what content they wanted to see from specific platforms, they were able to choose from the following: library logistics (hours, events, etc.), research techniques and tips, how to use library resources and services, library resource info (database instruction/tips, journal availability, business news, library news, etc.), campus-wide info/events, and interesting/fun websites and memes. Results showed that students expressed no interest in receiving business news via

Instagram. For Snapchat students expressed the least interest in business news and content related to library resource information. YouTube had a focus on library services with the most requested content of research tips and techniques, how to use library resources, and information on library resources.

Education Via Social Media

With the amount of time people spend on social media nowadays, some studies have looked at how social media platforms can be used as tools for education. A study performed by Gauthier et al. (2016), examined the delivery of educational content via Instagram, Facebook, and Twitter. In this study, a pharmacotherapy course about infectious diseases was posted on all 3 social media platforms and student pharmacists enrolled in the class and were invited to follow the 3 social media accounts for the class. Educational posts for the class was shared across the 3 social media platforms and students were administered a pre-survey and a post-survey related to content posted on social media. Pre-survey results showed that pharmacy students were widely engaged on social media and frequently accessing the platforms at least daily. The post-survey results revealed that only 115 of the 234 respondents had followed the study content on Facebook, Instagram, and Twitter. Of the 115 students who reported following the content, 75% agreed the experiment enhanced their learning related to course objectives. Additionally, 41% of students indicated in the post-survey that they would encourage professors to use Instagram for educational purposes compared to the 19% in the pre-survey.

Another study conducted by Arceneaux and Dinu (2018) explored the viability of Twitter and Instagram for improving learning objectives. This experiment was conducted on 405 American college students and it probed how the presentation of textually based and visually based messages affected college students' recall of digital information. It also looked at how

communicator credibility affected the way college students consumed digitally disseminated information. Results of this study showed that the retention of information was improved by visually compared to verbally based information published by professional news outlets.

In relation to nutrition education via social media, a previous research study was done to determine the efficacy of social media on lifestyle behavior changes in college athletes participating in a general education nutrition course (Crawford-Ciglar, 2017). This study assessed college students in an introductory nutrition course to see if combining social media interventions with behavior change techniques would be affective in alterations to the students' readiness to change and dietary intake. In this study a control group of 90 participants was collected from archival data while the 65 sample respondents were from convenience sampling. There was a significant difference in the stage of change between the two groups post assessment. The results of this study did not indicate that the use of social media in the introductory nutrition course was of value when modifying a college student's readiness to change regarding nutritional lifestyle behaviors and there were only significant alterations in dietary intake relating to dairy and protein foods (Crawford-Ciglar, 2017)

As far as athletes and their use of social media as a resource, 306 New Zealand athletes were surveyed to determine whether they are using social media as a source of nutrition information and to understand perceptions of social media as a nutrition resource. Of the athletes surveyed, 65% reported using social media for nutrition purposes in the past 12 months (Bourke et al., 2019). It was found that female athletes were more likely to use social media for nutrition purposes than males and elite athletes were less likely to use social media for nutrition purposes compared to recreational athletes. Athletes reported commonly using social media for practical nutrition purposes such as recipes, information about restaurants, and weight loss and weight

maintenance. The main concern for athletes not utilizing social media as a resource for nutrition information was receiving unreliable information (Bourke et al., 2019).

When specifically looking at sports performance nutrition, a research study explored how sports nutritionists utilized social media as a part of their nutrition services and also their experiences and opinions of social media's use in practice (Dunne et al., 2019). This study surveyed sports nutritionists and had voluntary follow-up interviews. The results of this study showed that 89% of the 44 sports nutritionist who were surveyed used social media in their practice and 97% perceived it to be beneficial. Participants reported using social media platforms to deliver information and resources, and support athletes online via pages, groups, and messaging. Social media was reported to improve communication with athletes as well as facilitating mobile and visual learning. The most used platforms by sports nutritionists were WhatsApp, Facebook, and Twitter. The content that was provided across each platform were recipes, nutrition information and facts, and nutrition plans. Even though the use of social media was reported as beneficial, digital intervention training and time were reported as challenges to social media use in practice (Dunne et al., 2019).

Social Media Timing

Creating content for social media is one thing but knowing when to post it has become a topic of interest. A research study done by Wang et al. (2013), examined the timing effect of information diffusion on social media platforms. This study aimed to determine how and why popular content gets popular. In this study, the researchers hypothesized that the time when the content is generated has a significant impact on its popularity on social media platforms. In order to determine the effect time has on the popularity of content posted on social media platforms, researchers adopted a temporal network modelling approach at a global level (Wang et al.,

2013). The results of this study were collected using a micro-blog website and showed that the time when a piece of online content is posted has a significant effect on the popularity of the content. This study concluded that by monitoring the general active time periods of social media platforms, users can generate social media content based on those time periods which could be beneficial for marketing (Wang et al., 2013)

Collegiate Athletes' Nutrition Knowledge

As we all know, nutrition is important but as a college athlete, it can play a vital role in how they perform in their sport. Just because nutrition is important for athletes, does not mean they have adequate knowledge when it comes to nutrition. A research study that was done at Utah State University that surveyed 96 in-coming Division I student athletes based on their nutrition knowledge. These questions related to beliefs of what healthy eating is, supplements, and their sources of nutrition information. The average score of correct answers was 34% and 80% of the questions were answered incorrectly by greater than 50% of the athletes. Of the questions asked, the most frequently missed questions were about post-exercise recovery and the female triad. This study concluded that in-coming Division I athletes have a low degree of nutrition knowledge and would benefit from nutrition education (Wengreen et al., 2017).

Another study evaluated the dietary intake and nutrition knowledge of Division III football players. In this study 88 Division III football players, including 9 linemen, completed a food frequency questionnaire and a nutritional knowledge questionnaire that included a quiz and questions about the athletes' main sources of nutrition information. Participants also completed a 3-day diet recall for dietary assessment. Greater than 50% of the DIII football players reported consuming starches or grains, meat, and dairy daily but <50% reports consuming fruits and vegetables daily. The most common supplement that was utilized was protein powder. The

results of the nutrition knowledge quiz showed a mean of 55.2% and those who had previously taken a nutrition or health course scored higher on the quiz than those who had not. As for the sources from which the football players received nutrition information from, the most common were coaches, websites, and athletic trainers while athletic trainers were reported as the most trusted source. This study concluded that Division III football players had dietary habits that could contribute to risk of chronic disease and that these athletes can improve their nutrition knowledge. Even more, it concluded the importance of nutrition education from a registered dietitian nutritionist (Abbey et al., 2017).

College Nutrition Courses

Nutrition is an important part of people's lives including the lives of college students yet how many college students actually take a nutrition course during their undergraduate years. A research study by Gordon et al. (2019), examined the impact of an introductory college nutrition course on the nutrition knowledge and dietary intake of college students. In this study, the participants were undergraduate college students who were categorized based on whether or not they completed a general education basic science nutrition course. This study had 121 participants who completed an online questionnaire that assessed their nutrition knowledge and a 24-hour diet recall using the Healthy Eating Index (Gordon et al., 2019). The result of this study showed that student who had completed a nutrition course had a significantly higher mean knowledge score than those who had not completed a nutrition course. The Healthy Eating Index of the participants who had taken a nutrition course was also significantly different from those who had not. It was found to be a positive correlation between nutrition knowledge scores and Healthy Eating Index scores (Gordon et al., 2019). This study concluded that an increased knowledge in nutrition contributes to better food choices and more adequate nutritional intake

among college students, therefore, universities should offer undergraduate nutrition courses to all students (Gordon et al., 2019).

Another study conducted by Colson et al. (2019), examined the impact of implementing fully online undergraduate dual-enrollment nutrition courses for high school and college students. In this study, a two-year dual enrollment program collaboration between college and two high schools was done. Two sections of junior-level high school students and one section of college students completed a semester of the online nutrition course (Colson et al., 2019). Pretest and posttest data scores were collected among the groups and compared. Results of this study showed that the means of the pretest and posttest were significantly greater than zero (Colson et al., 2019). It was also found that there was a significant difference between groups on the posttest score when controlling the pretests scores. The results of this study indicated that the delivery of online introductory nutrition courses in the dual-enrollment program was effective in significantly improving the nutrition knowledge of both high school and college students (Colson et al., 2019).

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APPENDIX A: PRE-SURVEY QUESTIONS

Pre-Survey

Please select the demographic that relates to you.

Gender:

Female

Male

Year in School:

Freshman

Sophomore

Junior

Senior

Graduate Student

Sport:

Basketball

Volleyball

Football

Cross Country

Soccer

Golf

Swimming

Track and Field

Tennis

Swimming

Dive

Gymnastics

Softball

Baseball

Please rate how strongly you agree or disagree with the following statements.

1. I use social media for educational purposes.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
2. I use Instagram daily.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
3. I often follow accounts for educational purposes related to my sport and lifestyle.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
4. As an athlete, I am conscious of the amount of protein I eat.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

Please answer the following questions to the best of your ability. Do not Google or look up any of the questions. Answer all the questions solely based off of your current knowledge.

5. "Protein intake" is defined as...
 - a. The amount of protein your body utilizes during the day.
 - b. The amount of protein an individual consumes per day.
 - c. The amount of protein the body has before performing physical activity.
 - d. The amount of protein the muscles in the body needs to grow.
6. Protein is...
 - a. An essential nutrient in the cells of the body that is made of amino acids which are building blocks that help grow and maintain the body's tissues

- b. An essential nutrient that is the body's main source of fuel and energy
 - c. An essential nutrient that the body needs provides structure to cells, cushions membranes to help prevent damage, and absorb vitamins.
 - d. An essential nutrient that is only used for absorbing vitamins and minerals.
7. On workout/ practice days, when should protein be consumed?
- a. Only prior to practice or workouts
 - b. Before and after practice or workouts
 - c. At every meal but mainly within 2 hours after practice or the workout.
 - d. Only after workouts/practice.
8. What percent of an athlete's daily calories should come from protein?
- a. 10-15%
 - b. 70-80%
 - c. 20-35%
 - d. 40-50%
9. Which of the following is an example of a complete protein?
- a. Peanut butter
 - b. Beans
 - c. Chicken breast
 - d. Chickpeas
10. Which of the following is an example of an incomplete protein?
- a. Turkey
 - b. Salmon
 - c. Hummus
 - d. Eggs
11. The protein content per serving in a food item can be found where?
- a. The ingredients label.
 - b. The allergy label.
 - c. The nutrition label.
 - d. The protein content per serving is not available.
12. Compared to that of a power athlete, an endurance sport athlete's protein intake should be...
- a. More than the amount of a power sport athlete.
 - b. Less than the amount of a power sport athlete.
 - c. The same amount as all athletes no matter the sport.
 - d. Equal to the amount of carbohydrates they eat.
13. Which of the following beverages contains protein?
- a. Water
 - b. Regular Gatorade
 - c. Milk
 - d. Apple juice
14. Protein is important for athletes because...
- a. It helps give them fuel and energy.
 - b. It is necessary for recovery to repair and strengthen the muscles.
 - c. The body stores it so athletes can absorb more vitamins and minerals for greater performance.
 - d. It helps with weight maintenance.

15. Which protein can vegetarian athletes eat?
- Tuna
 - Tofu
 - Chicken
 - Turkey
16. How many meals per day should you consume protein?
- 1 meal
 - 2 meals
 - 3 meals
 - All meals including snacks.
17. Compared to non-athletes, athletes should consume how much protein?
- More protein
 - Less protein
 - The same amount of protein
 - It has not been determined
18. Depending on activity level, it is recommended that athletes consume how much protein per day?
- 1.2-2.0g/kg body weight
 - 0.6-0.8g/ kg body weight
 - 1 g/ kg body weight
 - Athletes do not have a recommended protein intake because they need to consume as much protein as possible in a day.
19. Which of the following is an example of lean protein?
- Bacon
 - Porkchops
 - Salami
 - Turkey

APPENDIX B: POST SURVEY QUESTIONS

Post-Survey

Please rate how strongly you agree or disagree with the following statements.

1. I liked receiving nutritional education through Instagram.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
2. I interacted with the majority of the posts.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
3. I felt that I retained the information I read in the posts.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
4. After reading the posts, I tried to use what I learned in my day-to-day life.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
5. I found these posts helpful.
 - a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree

Please answer the following questions to the best of your ability. Do not Google or look up any of the questions. Answer all the questions solely based off of your current knowledge.

1. "Protein intake" is defined as...
 - a. The amount of protein your body utilizes during the day.
 - b. The amount of protein an individual consumes per day.
 - c. The amount of protein the body has before performing physical activity.
 - d. The amount of protein the muscles in the body needs to grow.
2. Protein is...

- a. An essential nutrient in the cells of the body that is made of amino acids which are building blocks that help grow and maintain the body's tissues
 - b. An essential nutrient that is the body's main source of fuel and energy
 - c. An essential nutrient that the body needs provides structure to cells, cushions membranes to help prevent damage, and absorb vitamins.
 - d. An essential nutrient that is only used for absorbing vitamins and minerals.
3. On workout/ practice days, when should protein be consumed?
 - a. Only prior to practice or workouts
 - b. Before and after practice or workouts
 - c. At every meal but mainly within 2 hours after practice or the workout.
 - d. Only after workouts/practice.
 4. What percent of an athlete's daily calories should come from protein?
 - a. 10-15%
 - b. 70-80%
 - c. 20-35%
 - d. 40-50%
 5. Which of the following is an example of a complete protein?
 - a. Peanut butter
 - b. Beans
 - c. Chicken breast
 - d. Chickpeas
 6. Which of the following is an example of an incomplete protein?
 - a. Turkey
 - b. Salmon
 - c. Hummus
 - d. Eggs
 7. The protein content per serving in a food item can be found where?
 - a. The ingredients label.
 - b. The allergy label.
 - c. The nutrition label.
 - d. The protein content per serving is not available.
 8. Compared to that of a power athlete, an endurance sport athlete's protein intake should be...
 - a. More than the amount of a power sport athlete.
 - b. Less than the amount of a power sport athlete.
 - c. The same amount as all athletes no matter the sport.
 - d. Equal to the amount of carbohydrates they eat.
 9. Which of the following beverages contains protein?
 - a. Water
 - b. Regular Gatorade
 - c. Milk
 - d. Apple juice
 10. Protein is important for athletes because...
 - a. It helps give them fuel and energy.
 - b. It is necessary for recovery to repair and strengthen the muscles.

- c. The body stores it so athletes can absorb more vitamins and minerals for greater performance.
 - d. It helps with weight maintenance.
11. Which protein can vegetarian athletes eat?
- a. Tuna
 - b. Tofu
 - c. Chicken
 - d. Turkey
12. How many meals per day should you consume protein?
- a. 1 meal
 - b. 2 meals
 - c. 3 meals
 - d. All meals including snacks.
13. Compared to non-athletes, athletes should consume how much protein?
- a. More protein
 - b. Less protein
 - c. The same amount of protein
 - d. It has not been determined
14. Depending on activity level, it is recommended that athletes consume how much protein per day?
- a. 1.2-2.0g/kg body weight
 - b. 0.6-0.8g/ kg body weight
 - c. 1 g/ kg body weight
 - d. Athletes do not have a recommended protein intake because they need to consume as much protein as possible in a day.
15. Which of the following is an example of lean protein?
- a. Bacon
 - b. Porkchops
 - c. Salami
 - d. Turkey

APPENDIX C: EXAMPLE INSTAGRAM POST



Nutrition Facts

about 8 servings per container
Serving size 1/2 cup (50g dry rice,
makes about 1 cup cooked)

Amount per serving
Calories 180

% Daily Value*

Total Fat 1.5g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 39g	14%
Dietary Fiber 2g	7%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 4g	
Vitamin D 0mcg	0%
Calcium 0mg	0%
Iron 0mg	0%
Potassium 70mg	2%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4