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Post-Sport Male Athlete Nutrition and Mental Health

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This publication aims to bring to light the experiences of current and former adult male athletes and their nutrition and mental health. Although there is literature on female athlete nutrition, there is a general gap in literature on male athlete nutrition. Thus, we've decided to conduct a qualitative case study research design to begin studying this topic. The goal of this study was to collect, analyze, and disseminate data related to this topic in order to further research and hopefully set the table for quantitative studies on this topic in the future. We've collected detailed accounts from 5 current and former adult male athletes about their a) nutrition in relation to health, b) nutrition in relation to sport performance, c) access to information and advisement related to nutrition, d) changes in nutrition through the course of sport and life, e) post-sport nutrition, and f) post-sport health.

Keywords: Nutrition, Sports, Male Athletes

This publication aims to achieve the goal of bringing the experiences of current and former adult male athletes and their nutrition and mental health to light. Although there is literature on female athlete nutrition, there is a general gap in literature on male athlete nutrition. Thus, we've decided to conduct a qualitative case study research design to begin studying this topic. The goal of this study was to collect, analyze, and disseminate data related to this topic in order to further research and hopefully set the table for quantitative studies on this topic in the future. We've collected detailed accounts from 5 current and former adult male athletes about their a) nutrition in relation to health, b) nutrition in relation to sport performance, c) access to information and advisement related to nutrition, d) changes in nutrition through the course of sport and life, e) post-sport nutrition, and f) post-sport health.

Literature Review

Due to a general scarcity of relevant literature with overlapping themes in the pursuit of synthesis, this section reads more like an annotated bibliography sorted chronologically than a literature review. Critical connections relating articles together are made where possible for the purpose of analysis and synthesis, but the fact remains that the majority of existing research on

this topic pertains either to a) international athletes and/or b) female athletes. Thus, the aim of this literature review is to indirectly triangulate the state of male athlete nutrition in the general absence of existing literature. A tabular summary is included as an appendix.

International Athletes

Ruiz et al. (2005), studied nutritional intake in soccer players of different ages with a sample of four soccer teams in Spain. Based on the results, it was recommended that nutritional education should be given to soccer players at an early age and should continue throughout adolescence, not only with a view to improving performance but also to promoting more healthy dietary practices in the long term.

Jessri et al. (2010), studied Iranian college athletes' sport nutrition knowledge with a sample of sixty-six basketball and one-hundred-forty-one soccer players in Iran. Findings suggest that sport nutrition knowledge among Iranian athletes may be inadequate. This substandard level of knowledge may contribute to poor dietary behaviors and it's recommended that these athletes could benefit from nutrition-related training and education.

Walsh et al. (2011), studied the body composition, nutritional knowledge, attitudes, behaviors, and future education needs of senior schoolboy rugby players with a sample of two-hundred-three in Ireland. Findings suggest that most players had a healthy body fat percentage but despite positive attitudes toward nutrition, poor nutritional knowledge and dietary practices were observed in many players. Young athletes' nutritional knowledge and dietary practices may benefit from appropriate nutritional education.

Russell & Pennock (2011), analyzed the diets of young professional soccer players for one week during the competitive season with a sample of ten in the United Kingdom. Findings suggest that the nutritional practices of the sampled group of professional youth soccer players were inadequate to sustain optimized performance throughout training and match play. Youth soccer players should therefore seek to ensure that their diets contain adequate energy through the increased total caloric intake, while also optimizing the proportion of energy derived from carbohydrates and ensuring that enough fiber-rich foods are consumed.

Aerenhouts et al. (2011), studied the energy and macronutrient intake in adolescent sprint athletes as a follow-up study with a sample of sixty in the United Kingdom. Findings suggest that the dietary habits of adolescent sprint athletes are not always according to guidelines and are relatively stable but repeated advice can induce moderate improvements.

Spendlove et al. (2012), evaluated general nutrition knowledge in elite Australian athletes with a sample of three-hundred-fourty-four in Australia. Findings suggest that nutrition knowledge among elite athletes should be improved, particularly in pertaining to diet-disease relationships and procedural knowledge associated with choosing everyday foods.

Folasire et al. (2015), studied the nutrition knowledge and practice of athletes translating to enhanced athletic performance as a cross-sectional study amongst Nigerian undergraduate athletes with a sample of one-hundred-ten in Nigeria. Findings suggest that having good nutrition knowledge or practice did not directly determine athletic performance. However, there is a need for nutrition education interventions, to improve athlete's performance by promoting adequate energy intake, lean muscle mass, and appropriate weight gain in athletes.

Sedek & Yih (2014), studied the dietary habits and nutrition knowledge among athletes and non-athletes in the National University of Malaysia (UKM) with a sample of two-hundred in

Malaysia. Findings suggest that non-athletes displayed healthier dietary habits than athletes but no significant difference in nutrition knowledge between both groups.

Alaunyte et al. (2015), studied nutritional knowledge of professional rugby league players on how knowledge translates to practice with a sample of twenty-two in the United Kingdom. The study identified adequate general nutritional knowledge in professional rugby league players with the exception of recommendation for starchy and fibrous foods. Players who scored higher in nutritional knowledge test were more likely to consume more fruits, vegetables and carbohydrate-rich foods.

Delvin & Belski (2015), explored general and sports nutrition and food knowledge in elite male Australian athletes with a sample of forty-six in Australia. Findings suggest that broad nutrition messages and recommendations appear to be well understood; however, gaps in nutrition knowledge are evident. A better understanding of nutrition knowledge in athletes will allow nutrition education interventions to target areas in need of improvement.

Spronk et al. (2015), studied the relationship between general nutrition knowledge and dietary quality in elite athletes with a sample of one-hundred-one in Australia. Findings suggest that given the importance of nutrition to health and optimal sport performance, intervention to improve nutrition knowledge and healthy nutrition is recommended, especially for young males athletes.

Couture et al. (2015), evaluated sports nutrition knowledge and recommendations among high school coaches with a sample of forty-seven in Quebec. Findings suggest that the two most popular nutrition practices that coaches recommend to improve athlete performance were hydration and the consumption of protein-rich foods. Recommendation for nutritional supplements use was extremely rare and was suggested only by football coaches, a nonleanness sport. Findings from this study indicate that coaches need sports nutrition education and specific training.

Trakman et al. (2016), conducted a systematic review of athletes' and coaches' nutrition knowledge and reflections on the quality of current nutrition knowledge measures with a sample of thirty-six studies in Australia. Findings suggest that nutrition knowledge can influence dietary choices and impact on athletic performance.

Tawfik et al. (2016), studied the patterns of nutrition and dietary supplement use in young Egyptian athletes through a community-based cross-sectional survey with a sample of three-hundred-fifty-eight in Egypt. Findings suggest that there is a necessity for comprehensive nutrition education programs targeting not only athletes and parents, but also coaching staff, health trainers, and all sport team officials.

Debnath et al. (2019), studied the prediction of athletic performance through nutrition knowledge and practice as a cross-sectional study among young team athletes with a sample of ninety in India. Findings suggest that good nutrition knowledge may improve the nutritional habits and dietary patterns of athletes. Body composition and nutrient intake can predict athletic performance. Intervention studies should emphasize nutrition education aiming for improved athletic performance.

Posthumus et al. (2021), student competition nutrition practices of elite male professional rugby union players with a sample of thirty-four in New Zealand. Findings suggest that players fell short of daily sports nutrition guidelines for carbohydrate and appeared to "eat to intensity" by increasing or decreasing energy and carbohydrate intake based on the training load. Despite

recommendations and continued education, many rugby players select what would be considered a “lower” carbohydrate intake. Although these intakes appear adequate to be a professional RU player, further research is required to determine optimal dietary intakes.

Sunuwar et al. (2021), studied the association of nutrition knowledge, practice, supplement use, and nutrient intake with athletic performance among Taekwondo players with a sample of two-hundred-ninety-three in Nepal. The results suggest that nutritional knowledge and nutrient intake both were poor among TKD athletes. Height, weight, BMI, nutritional knowledge, energy, and fat intake showed a positive correlation with athletic performance. Future studies can build on the premise of this study to identify the robust relationship between nutritional knowledge, practice, different supplement use, and nutrient intake among athletes.

Female Athletes

Cupisti et al. (2002), studied nutrition knowledge and dietary composition in Italian adolescent female athletes and non-athletes with a sample of sixty athletes and fifty-nine non-athletes (all adolescent females) in Italy. Findings suggest that the overall recalled dietary intake and nutrition knowledge of the studied adolescent females show some misconceptions and nutrient deficiencies.

Mullinix et al. (2003), studied the dietary intake of female US soccer players with the sample as the Under-21 (U-21) United States women’s national soccer team in the United States. Findings from the pilot study suggest that these young female soccer players should be encouraged to eat small, high-carbohydrate, nutrient-dense meals, frequently throughout the day and they should be provided with appropriate nutrition counseling.

Martin et al. (2006), studied the nutritional practices of national female soccer players, including analysis and recommendations, with a sample of sixteen in England. Recommendations for female soccer players are to encourage the consumption of carbohydrate-electrolyte beverages to enhance carbohydrate intake and increase fluid intake and ensure sufficient iron-rich foods are included in the diet to meet the DRI.

Rash et al. (2008), studied nutrition-related knowledge, attitude, and dietary intake of college track athletes with a sample of one-hundred-thirteen in the United States. The researchers identified adequate intake and knowledge (carbohydrates), poor intake and knowledge (vitamin E), and adequate intake and lack of knowledge (vitamin C and protein). Future research should explore factors other than knowledge and attitude that may have a primary influence on dietary intake among college athletes.

Gibson et al. (2011), studied the nutrition status of junior elite Canadian female soccer athletes with a sample of thirty-three in Canada. Findings suggest that a high proportion of players were not in energy balance, failed to meet carbohydrate and micronutrient recommendations, and presented with depleted iron and vitamin D status. Suboptimal nutrition status may affect soccer performance and physiological growth and development. More research is needed to understand the unique nutrition needs of this population and inform sport nutrition practice and research.

Manore et al. (2017), studied sport nutrition knowledge, behaviors, and beliefs of high school soccer players with a sample of five-hundred-thirty-five in the United States. Findings suggest that adolescent athletes, especially females and Latinos, would benefit from sport nutrition education that enhances food selection skills for health and sport performance.

Braun et al. (2018), studied the nutrition status of young elite female German football players with a sample of fifty-six in Germany. Findings suggest that a remarkable number of players failed to meet the energy balance and the recommended carbohydrate and protein intakes. Low iron and 25-hydroxyvitamin D serum levels were observed showing a suboptimal nutrition status of some young female football players. As a consequence, strategies have to be developed for better information and application of sport nutrition practice among young female football players.

Dobrowolski & Wlodarek (2019), studied the dietary intake of Polish female soccer players with a sample of forty-one in Poland. Findings suggest that the participants demonstrated low energy intakes, and consequently, low consumption of macronutrients and a large number of micronutrients.

Jenner et al. (2020), assessed the nutrition knowledge of professional female Australian football (AFLW) athletes with a sample of twenty-six in Australia. This study assessed the nutritional knowledge (NK) of AFLW athletes and found athletes had average NK, with room for improvement particularly regarding supplement knowledge. Future research should assess the efficacy of online and group education to improve athletes' NK and dietary intake.

Dobrowolski et al. (2020), studied the nutrition for female soccer players, including recommendations, in Poland. Findings suggest that the right amount of fluid intake, consistent with the player's needs, is crucial in maximizing exercise performance. The diet of female practicing soccer is usually characterized by low energy values, which increases the risk of various health consequences related to low energy availability. Monitoring the diets of female soccer players is, therefore, necessary.

Renard et al. (2020), evaluated nutrition knowledge in female Gaelic games players with a sample of three-hundred-twenty-eight in Ireland. Findings suggest that future education interventions with female Gaelic games players may lead to beneficial changes in dietary behavior and would likely benefit from stratifying content based on athletes' demographic characteristics, given the differences observed.

Gomez-Hixson et al. (2020), studied the significant differences in dietary intake of NCAA Division III soccer players compared to recommended levels with a sample of seventy-five in the United States. This study evaluated dietary intake patterns of NCAA Division III soccer players compared to recommended levels. Based on the results of the present study, increased efforts should be put into the development of nutrition education programs for NCAA Division III athletes.

Jagim et al. (2021), studied the influence of sport nutrition knowledge on body composition and perceptions of dietary requirements in collegiate athletes with a sample of forty-two in the United States. Findings suggest that Division III collegiate athletes have a low level of sport nutrition knowledge, which was associated with a higher BF%. Women athletes with a higher body weight, BF% and BMI were more likely to select weight loss as a body weight goal. Athletes also significantly underestimated their energy and carbohydrate requirements based upon the demands of their sport, independent of sex.

Methodology

Five current and former male athletes were recruited for this study. Of these, four are former athletes and one is a current athlete. The concepts studied were a) nutrition in relation to health, b) nutrition in relation to sport performance, c) access to information and advisement related to nutrition, d) changes in nutrition through the course of sport and life, e) post-sport nutrition, and f) post-sport health. All interviews were conducted via Zoom between February 1st, 2021 and January 10th, 2022 (IRB Protocol Number: 000-SB21-004; Boise State University). The purpose of this qualitative case study is to begin addressing the gap in literature by furthering research and setting the table for future quantitative studies.

Results and Findings

Athlete J is an Olympic track and field athlete who still competes at the time of the interview. He notes a high level of importance placed on nutrition in relation to health. His nutrition in relation to sport performance focuses on physical health. When asked about his access to information and advisement related to nutrition, he stated that coaches and trainers micromanage his nutrition and training, focusing on endurance and recovery. He also stated that shaming language is sometimes employed as coaches need to keep their jobs and thus, get away with saying a lot to male athletes. Since Athlete J is still competing, there was no data gathered on post-sport topics.

Athlete L is an NFL football player who last competed one year prior to the interview. While competing, he noted a high level of importance placed on nutrition in relation to health. His nutrition in relation to sport performance focused on physical and mental health (including mood and focus). When asked about his access to information and advisement related to nutrition, he stated that team chefs, nutritionists, and dieticians emphasized nutrition for sport performance and individual plans were created and regularly adapted for each player (including micronutrients (vitamins)) with a focus on hydration and consideration for allergies. He stated that his nutrition has changed through the course of sport and life, especially post-sport. Currently, his post-sport nutrition consists of less structure, red meat, pork and more fish, gluten-free pasta, organic tomatoes, and pizza. His post-sport health consists of weightlifting three times per week and cardio twice per week.

Athlete M is an MLB baseball player who last competed two years prior to the interview. While competing, he noted a high level of importance placed on nutrition in relation to health. His nutrition in relation to sport performance focused on physical health. When asked about his access to information and advisement related to nutrition, he stated that strength coaches and nutritionists emphasized nutrition (grocery lists) for sport performance while in the MLB, however there was no mention of nutrition when he played professional baseball in Mexico, despite the league being comprised predominantly of ex-MLB baseball players. He stated that his nutrition has not changed through the course of sport and life, with no significant changes post-sport. Currently, his post-sport nutrition is a continuation of eating clean, though he is less strict and now has begun consuming alcohol socially. He wished not to answer any questions related to his post-sport health.

Athlete C is a college track and field athlete who last competed seven years prior to the interview. While competing, he noted a low level of importance placed on nutrition in relation to health. His nutrition in relation to sport performance focused on physical, mental, and emotional health, as well as stress reduction and sleep quality. When asked about his access to information

and advisement related to nutrition, he stated that coaches provided scientific, evidence-based approaches to nutrition for sport performance, emphasizing quicker healing and recover in the pursuit of medals. He stated that his nutrition changed through the course of sport and life, especially post-sport. Currently, his post-sport nutrition consists of eating breakfast, drinking coffee, and more fruits, bagels, waffles, and smoothies than when he was competing. He also adopted a plant-based diet post-sport. His post-sport health consists of light yoga, martial arts, swimming, and playing with his kids.

Athlete K is a high school track and field athlete who last competed twelve year prior to the interview. While competing, he noted a high level of importance placed on nutrition in relation to health. His nutrition in relation to sport performance focused on physical and mental health. When asked about his access to information and advisement related to nutrition, he stated that certified coaches highly emphasized nutrition for sport performance and shaming language was used by coaches and teammates if caught with soda or Kentucky Fried Chicken after practices. He stated that his nutrition changed through the course of sport and life, especially post-sport. Currently, his post-sport nutrition consists of more vegetables, fish, white meat, and less red meat than when he was competing. His post-sport health consists of thirty minutes to an hour of exercise per day.

Thematic Analysis

Overall, sport performance seems to be the focal point of nutrition for the athletes studied. Most noted changes to their post-sport nutrition with no post-sport nutrition “debriefing” by their coaches and trainers. There was a pleasantly surprising amount of emphasis placed on nutrition for the purpose of athletes’ mental health, though juxtaposed by micromanagement and the reported use of shaming language as a tool for behavioral conditioning. Finally, an international focus could yield significantly different data as international athletes at all levels may be coached and trained differently in relation to US athletes.

Conclusion and Recommendations

Based on the literature reviewed and the data collected and analyzed, it’s clear that more research is needed on the topic of male athlete nutrition and mental health. Particularly in relation to mental health, there seem to be several promising avenues for future research. The case studies here and the subsequent thematic analysis suggests that graduating into a quantitative study would require the addition of variables, including the use of shaming language and comparisons between a national and international sample-set.

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