A cardio & neuroprotective dietary pattern using omega-3 fatty acids: a guidebook for collegiate football athletes

Faith Rousey

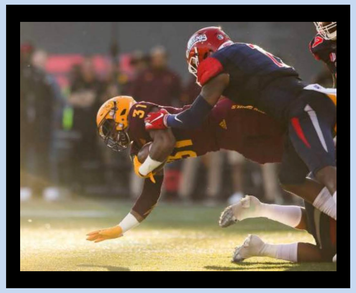
Michelle Barrack, Ph.D. (Chair), Virginia Gray, Ph.D. , Alisha Parker, MS, RDN

Department of Family & Consumer Sciences

College of Health & Human Services, California State University Long Beach

Introduction

In 2019, the NCAA no longer categorized omega-3 supplements as impermissible due to emerging research that supports significant levels of deficiency within college athletes, especially football players who have elevated risk of neurological and cardiovascular health conditions. This has increased interest in the nutrient, while creating a need for proper recommendations, nutrition interventions, and further research about the omega-3 status of college football players.



The purpose of this directed project is to develop an athlete-focused guidebook that will help male football players meet the daily omega-3 recommendations published by the National Academy of Medicine and Academy of Nutrition and Dietetics in order to decrease their elevated risk of CVD and neurological complications after repeated trauma to the head.

Project Objectives

The objectives of this Directed Project included:

- To review the literature on omega-3 fatty acid recommendations, status and patterns of intake of NCAA football athletes
- Review the literature addressing relationships between omega-3s and promoting neural protection as it relates to optimal neuronal function and cardiovascular health.
- To develop a guidebook with clear and actionable guidance for NCAA collegiate football athletes on the potential benefits of achieving optimal omega-3 fatty acid intake.
- To enlist an expert panel in the field of sports nutrition to review the guidebook in effort to provide feedback.
- To develop an evaluation survey and administer a formative evaluation to assess the nutrition guidebook.
- To refine the guidebook after expert review to enhance the educating capability of the program for amateur football athletes on the topic of consuming omega-3 fatty acids to offer cardiovascular and cognitive protection, as well as promote lifelong health.

Results from the Expert Review Panel

Expert Review Panel

- **2 registered dietitians** with experience in sports nutrition
- **1 collegiate football coach**
- **1 professional athlete**

Additional comments provided by panel members included:

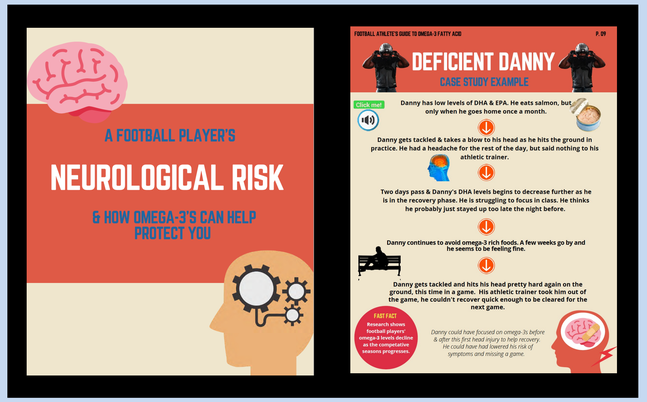
- "simple, easy to follow"
- "great visuals"
- "informative and relevant to the topic"
- "appropriate use of research data"
- "I believe [this guidebook] would be beneficial for student athletes"

Figure 1. Each panel member answered a series of questions based on the scale 1 (strongly disagree) to 5 (strongly agreed) to indicate their position on the statement. The far-right column indicates the average score for each statement.

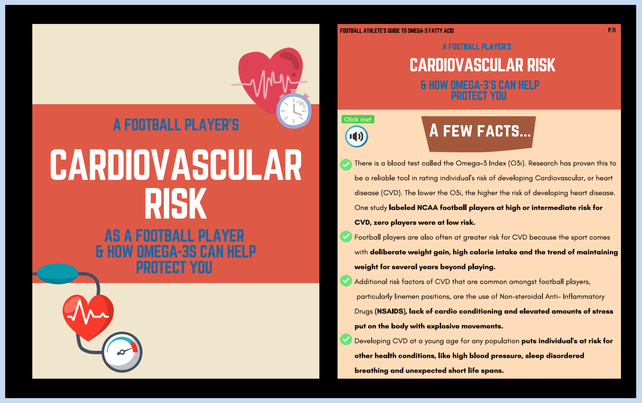
Survey Statement	Panel Member A	Panel Member B	Panel Member C	Panel Member D	Average Score
The target audience for the guidebook was clear	5	5	5	5	5
The materials included in this guidebook stimulate athlete learning.	5	5	4	4	4.5
The content in this guidebook would be practical for collegiate football athletes.	5	5	5	4	4.75
The instructions are easy for collegiate football athletes to follow.	5	5	5	5	5
The guidebook was visually appealing for collegiate football athletes.	5	5	4	5	4.75
The layout was appropriate for collegiate football athletes.	5	5	5	4	4.75
I feel that a collegiate football athlete would be focused on the materials.	5	5	4	4	4.5
I was satisfied with the content.	5	5	5	4	4.75
On the topic of omega-3 fatty acids, the content covered the necessary concepts for football athletes to know.	5	5	5	4	4.75
The quality of the evidence-based information in this guidebook is acceptable.	5	5	4	4	4.5
The content was relevant to a collegiate football athlete	5	5	5	4	4.75
I am confident a collegiate football athlete can complete the materials.	5	4	4	4	4.25
Would you recommend the use of this guidebook?	Yes	Yes	Yes	Yes	n/a

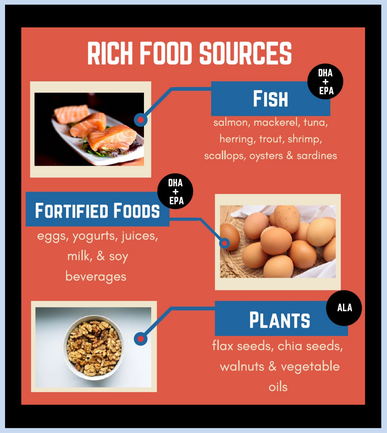
Discussion

- The results confirm the guidebook was organized, visually appealing, evidence-based, and concise, while appropriately addressing athlete learning styles and lifestyle practicality with clear instruction and sufficient evidence quality.
- Based on statements receiving consecutive "4's", there was a slight lack of confidence in the athlete's overall ability to complete the material or willingness to engage with the education among the panel members.
- An emphasis on self-efficacy among delivery on material and possible DHA testing could elevate willingness & motivation among readers.
- Limitations may arise when readers lack knowledge of basic terminology used in football and biology.



Figures 2 & 3 The guidebook focuses on both neurological & cardiovascular risks among football athletes. These images display pages from the section addressing each health risk with the use of evidence-based findings and relative case study situations.





Figures 4 This is another excerpt from the guidebook that breaks down which form of omega-3 can be found in certain foods.

Conclusion

Omega-3 fatty acids support cognitive function, reduce inflammation, and promote other positive health outcomes, including neurological and heart health. Many U.S. adults fail to consume the recommended levels of omega-3 associated with these health factors, including football athletes. In addition, the football population is at elevated risk of head trauma and developing CVD later in life, when compared to the average person in the U.S. Omega-3 status, relevant dietary intake, evidence-based education, and approachable tools can positively influence outcomes related to these risks. The application of actionable tools and resources has the potential to help athletes apply their omega-3 related knowledge within their own life to better support their health during and after sport.

References

- Anzalone, A., et al. (2019). The omega-3 index in national collegiate athletic association division I collegiate football athletes. Journal of Athletic Training, 54(1), 7–11. https://doi.org/10.408 5/1062-6050-387-18
- Bernasconi, A., et al. (2021). Effect of omega-3 dosage on cardiovascular outcomes. Mayo Clinic Proceedings, 96(2), 304–313. https://doi.org/10.1016/j.mayocp.2020.08.034
- Oliver, J. M., et al. (2016). Effect of docosahexaenoic acid on a biomarker of head trauma in American football. Medicine & Science in Sports & Exercise, 48(6), 974–982. https://doi.org/10.1249/mss.0000000000000875
- Ritz, P., et al. (2020). Dietary and biological assessment of the omega-3 status of collegiate athletes: A cross-sectional analysis. PLoS One, 15(4), e022 8834. https://doi.org/10.1371/journal.pone.0228834
- Vannice, G., & Rasmussen, H. (2014). Position of the academy of nutrition and dietetics: Dietary fatty acids for healthy adults. Journal of the Academy of Nutrition and Dietetics, 114(1), 136 –153. https://doi.org/10.1016/j.jand.2013.11.001

Acknowledgements

Thank you to my chair, committee, mentors and family for supporting me in every way throughout this project!

For more information

Please contact Faith.Rousey@student.csulb.edu.