

Professionalization of Exercise Physiology^{online}

ISSN 1099-5862 Vol 7 No 9 September 2004

Editor-in-Chief: Tommy Boone, PhD, MPH, MA, FASEP, EPC

Supplements and Their Role in Society and the Future of Exercise Physiology

Eric Durak, MSc

Medical Health and Fitness

Santa Barbara, CA

Introduction

I have read with interest the reports coming from ASEP journals over the past few years on the aspect of dietary supplements and sports performance and the values of exercise physiology. I write this article on a Sunday morning in August with the Athens Olympic Games on the TV in the living room, and a glass of FRS liquid antioxidant supplement on my desk. It is my vitamin of choice these days, and it is an area of sports science that I revere greatly.

Over the past twenty years - since my days in graduate school, the area of nutrition science, and especially vitamin supplements, has gained much headlines in American culture. I have seen vitamin and nutrition companies grow from a single investment to large corporations that provide jobs and careers for many Americans.

Supplements in Society

I had the opportunity to meet Mr. Marshall Ackerman in my travels. Mr. Ackerman, along with JI Rodale, started *Prevention Magazine* in the 1950s. This magazine revolutionized American's thinking regarding the state of nutrition, and supplementation in our society. In fact, when Rodale started his first newsletter in 1936, he was promoting his bone meal supplement for weak bones and ligaments (something he was concerned about back then). Today, with osteoporosis affecting almost 40% of senior citizens – the choice between nutrition supplements and Fosomax prescription drug seems to be a sound one for health-minded individuals.

That same decade, Joe Weider from California began training athletes using barbells and specific strength training techniques. Now, over 60 years later, most sports science researchers owe some level of gratitude to Weider, who completely reshaped the thought process of sports training using resistance training techniques. In fact, we have exercise physiologists to thank for the development of certain supplements - as K rations were developed by EPs prior to WWII (E. Michaels, personal correspondence). In the mid 1990s, veterinarian Joel Wallach published a scathing review of nutrition in America over the past century, and the failure of modern medicine to use nutrition as a preventive and therapy for many diseases. He states that due to the poor topsoil, processing of foods, over cultivation, and bad crop rotation techniques, the nutrient content of many foods are lower than reported in most major nutrition publications.

The Growth of the Supplement Industry

Vitamin supplements, like packaged foods, fast food restaurants, and nutrition research have all grown and proliferated over the past half century. Much research in the area of sports nutrition has come from exercise physiology researchers, such as Cooper and Katch and Darden. Close to a million articles have been published in the field of nutrition, sports nutrition, holistic nutrition, and supplementation on overall health status. One can argue either way that taking of herbs, supplements, and powders either improves health - or may cause harm. The issue is far from resolved - especially since the recent death from a Crunch Fitness client using ephedra while on blood pressure medication. This scenario did not involve an Exercise Physiologist.

However, the growth of supplements will continue, and will eventually involve the pharmaceutical industry. We see this presently with Rexall Sundown (parent company of Rexall Pharmacies) who now owns a billion dollar international nutraceutical corporation. With over 2,000 companies now vying for the consumer market, specialty companies will develop and market products for both increased performance, and improved health.

Is the Use of Supplements a Violation of Exercise Physiology Values?

One of the main concerns brought up by Boone and Birnbaum is that supplements may be considered a form of cheating. They are not. There are no rules under USOC, IOC, NCAA, Int. Cycling Federation, NFL, NBA, or Major League Baseball that considers the use of vitamin supplements a form of cheating. One must realize that athletics is not based on fairness, it is based on winning. We pay athletes in this country millions of dollars to win, and look the other way when they engage in assault, alcoholism, and prejudice. If taking legal supplements is considered cheating - then what about athletes who are paid to be tested at the USOC training facilities in Colorado, New York, or California?

What about the endorsements from athletic companies to wear the newest products? Our US swim team is competing with a new suit polymer developed by Nike. Lance Armstrong had a patented skin suit for his time trials. Are having the best coach, the best equipment, and the best facilities cheating? Of course not - and neither is the use of supplements. In fact, new innovation provides jobs for creative sports scientists and entrepreneurs who wish to be on the cutting edge of technology - whether it is in shoes, supplements, or equipment. These are the values that are encouraged in the marketplace. It may be easy for professors to preach the values and ethics in classes - but their interpretation in the working world is a different story. The unethical practice in working with any nutritional company would be to knowingly support a product that has no benefit - and claim that it does.

I am proud of my research work with the Balance Bar Company in the late 1990s. Through my work - I was able to establish a glycemic index for a popular nutrition bar (Ceriale et al). Today, the glycemic index is becoming a standard for comparison of certain foodstuffs in terms of weight management programs, diabetes care, and endocrinology assessments.

In a recent review in the Wall Street Journal by Skip Rozen, the mention of supplements comes up with some other advances in sports technology over the past half century. From muscle vibration to altitude low oxygen tents to carbon graphite tennis rackets, to super fiberglass vaulting poles, athletes are seeking the edge for better performance because they wish to perform better - and because this technology is available to them. This is no different with supplements. The makers of such products spend as much time in research and development as some pharmaceuticals - and they don't gauge their prices as do the medical companies.

In Conclusion

Exercise Physiology has contributed greatly to medicine, public health, and athletics. To be caught up in a particular debate (although it may have academic merits) plays little in terms of moving the profession forward. If we could look into a crystal ball over the next decade, we may see the following areas of employment and opportunities for Exercise Physiologists:

- Bariatrics weight loss programs (lifestyle management)
- Medically supervised weight loss programs (exercise therapy)
- General exercise therapy programs (cancer, diabetes, youth, etc)
- Nutrition supplement development and research trials
- Serving on strategic task forces involved in public health policy
- Health care program development through major healthcare companies (United Way, HealthSouth, Easter Seals, managed care organizations)

What I don't see is an increase in jobs in the academic sector (unless EPs which to teach in the exploding opportunity of personal trainer and massage schools). Therefore - the graduating EP will have a decision to make. Take the academic training they have learned in school - and apply it to move society forward in a way that they personally can feel that they are making a difference, or maintain a philosophy that certain things are wrong because they have been told so, and move through their life with that knowledge.

Birnbaum used the phrase "grey area" in his piece. I second that notion - that unless something is shown to be illegal, or harmful, there is no reason to condemn it because it may be advantageous to someone. Most people can afford to take supplements - very few can afford to go through advanced testing assessments, or purchase the most expensive equipment. They must do with their abilities. EPs should use their abilities to analyze not only the results of research studies - and make recommendations to clients based on that information - but they must also use their abilities to look at opportunities in the world of sports training and nutrition. It is through these advances that a trickle-down perspective happens in society. It should not be ignored, or disparaged because an athlete wins or loses.

In the long run, it is my opinion that Americans will be better off health-wise by the chronic use of supplements. Perhaps it will be one of the jobs of EPs to decide on the

proper dose-response for optimal health not only in sports performance, but general well being. That would be a tremendous use of an academic pursuit in any discipline.

References

1. Birnbaum, L. (2003). Supplements and Exercise Physiology. *Professionalization of Exercise Physiologyonline*. 6:5 [Online].
<http://www.css.edu/users/tboone2/asep/SupplementsANDExercisePhysiology.html>
2. Boone, T. (2004). Is Sports Nutrition for Sale? *Professionalization of Exercise Physiologyonline*. 7:7 [Online].
<http://www.css.edu/users/tboone2/asep/IsSportsNutritionForSale.html>
3. Boone, T. (2003). Open Inquiry and Shared Thoughts about Ethics, Exercise Physiology, and Sports Supplements. *Professionalization of Exercise Physiologyonline*. 6:10 [Online].
<http://www.css.edu/users/tboone2/asep/openINQUIRYexercisePHYSIOLOGYsportsSUPPLEMENTS.html>
4. Boone, T. (2003). Cheating in Sports. *Professionalization of Exercise Physiologyonline*. 6:10 [Online].
<http://www.css.edu/users/tboone2/asep/CheatingInSports.html>
5. Boone, T. (2003). The Nutritional Needs of Athletes. *Professionalization of Exercise Physiologyonline*. 6:10 [Online].
<http://www.css.edu/users/tboone2/asep/NutritionalNeedsOfAthletes.html>
6. Boone, T. (2003). The Sports Supplements Disagreement: A Call for Dialogue About Values and Obligations of University Teachers. *Professionalization of Exercise Physiologyonline*. 6:8 [Online].
<http://www.css.edu/users/tboone2/asep/TheSportsSupplementsDisagreement.html>
7. Boone, T. (2003). Dietary “Sports Supplements”- The University Teacher’s Role in Teaching Values? *Professionalization of Exercise Physiologyonline*. 6:7 [Online].
<http://www.css.edu/users/tboone2/asep/TeachingVALUES.html>
8. Ceriale, S.M., Durak, E.P., Wenz, S.M., and Elliott, M. (2001). Glycemic Response: Comparison of Different Values of Nutrition Bars and Drinks. *Journal of Performance Enhancement Online*. 2:3 [Online].
www.bodyresults.com/jpeindex.html
9. Cooper, K.H. (1994). *The Antioxidant Revolution*. ML Evans Books, New York.
10. Darden, E. (1984). *The Nautilus Sports Nutrition Book*. Contemporary Books, Chicago, IL.
11. Katch, V.L., Katch, F.I., and McArdle, B.L. (2001). *Exercise Physiology*. Williams and Wilkins Publishers, Baltimore, MD.
12. MacRae, H. (2004). Effect of Free Radical Scavenger Dietary Supplement on Cycling Performance. *White paper submitted to New Sun Nutrition - July*.
13. Rozlin, S. (2004). Sports, Science, and the Spirit of Competition. *Wall Street Journal*. Thurs. Aug. 12, 2004, Pg. D-8.
14. Wallach, J.D. and Lau, M. (1996). *Rare Earths*. DH Publishing, Bonita, CA.