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The Sports Supplements Disagreement: A Call for a Dialogue About Values and Obligations of University Teachers

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“Tolerating dissent is an essential means by which societies cope with change.” -- Peter C. Newman

Introduction

Unlike so many of the words writers use to describe their profound understanding of a topic, it is less often the use of words like “ethics” and “disagreements” that get your attention. This is unfortunate yet necessary since human behavior is reflected in words. Even more fundamental is the belief in a common meaning bound by the understanding of the purest interpretation of fairness and honor. Athletics is the definition of this belief or, at least, it used to be. No longer are all athletes competing “head-on” free from sports nutrition products. The promise of quick success has increased the use of hundreds of sports nutrition supplements. Forget whether the products have scientific support. Forget about the claims of superior performance. Athletes are convinced that they cannot win without them. The assumption is made that everyone is doing it, so it must be okay. Nutritional supplements are said to help athletes get an “edge” and, as a result, the sports nutrition market has flourished in the recent past. Revenue is expected to reach \$4.5 billion by 2007.

The problem is not any one single factor. There are many problems with nutrition supplements, but hardly no one in exercise physiology is cautioning the athletes that most claims do not stand up to close scrutiny. Disagreement is a hard path to take, even when it is clear that products are often mislabeled. Disagreement is full of crooked turns, misunderstandings and, of course, the “search” for the noble path. Seeking the truth often requires a time commitment most university teachers do not have, but it does not slow many from trying. And, so the question is whether or not the use of dietary “sports” supplements is an ethical issue for athletes, regardless of their age, position, or status. For me, the answer is obvious. Athletes are not supposed to excel on the backs of supplements. However, for reasons all too common, athletes are encouraged to believe their very careers are at stake if they do not use drugs and/or supplements. Confirmation of this belief is too easy, and anyone intimately connected with athletics knows it. It

would be foolish to believe otherwise and, therefore, the term *athletics* has become commonplace with nutrition products. Coaches and athletes who wish it were not true find themselves in disagreement with those who believe it is okay. And, yet athletes are seldom aware of being bombarded with countless fitness and abdominal products, exaggerated ads for muscular development, and sleazy marketing tactics in almost every type of media possible.

Despite widespread belief that it is okay to use drugs and supplements to level the playing field, it is not the only belief. Others disagree with all aspects of supplementation that is reportedly necessary for special powers of the mind and/or body. Those who continue to promote sports supplements through scientific research may be remembered decades from now as unintentionally misleading and confusing the public. Can the notion of scientific inquiry save them, especially when athletes come to realize that supplements cannot replace motivation, genetics, and training? The answer to this question is not likely to be found among individuals who are emotionally and/or financially invested in the fitness supplement industry. But, since the promotion of supplements beyond the athletes' normal diet has serious ethical, if not, legal implications, the outcome is an evolutionary process. There is an immediate need for answers to the following questions: "Who is responsible for adverse effects resulting from ingestion of supplements to gain a competitive edge?" "Should coaches, trainers, and exercise physiologists encourage the use of supplements at the junior high and high school level?" "What are the legal implications for coaches, trainers, exercise physiologists, and others who encourage the use of supplements among adolescents and college-age athletes?" There is a concern for safety when consuming unregulated substances. Is the increased health risk of our young people worth the use of ergogenic substances. Maybe, it isn't smart to use drugs or substances to get bigger, stronger, or to run faster.

Because of what I've published in [PEPonline](#) and what seems to be an army of professionals who agree with Dr. Richard Kreider's point of view [1] and, for reasons fundamentally important to the ethical dimension of athletics, it is important to remember that the earth is not flat, that the purveyors' beliefs and confirmation of sports supplements are little more than someone's else thinking, and that the wonder of athletics and science still exists with a strong and important ethical dimension. The evidence for this belief is the energy spent by individuals worldwide who are not interested in giving medals to athletes pumped up with "enhancers". This is why the Canadian Centre for Ethics in Sports (CCES) discourages the use of supplements, from both a scientific and an ethical point of view. CCES states that evidence-based research has not demonstrated clearly that dietary supplementation leads to increased athletic performance. Moreover, if a particular supplement does increase athletic performance, the supplement may provide athletes with an unfair advantage over their competitors and may cause athletes to test positive. Because of these issues, the CCES cannot support the use of supplements and, therefore, does not support supplement product endorsement by sport organizations.

In short, the problem is this: My biggest surprise is the notion that my thinking ought to be dismissed because it is not founded on science or a current perspective of the

fundamental issues of sports nutrition. And, yet the reflective educator is seldom unaware of current realities. Even the Kreider and associates' article [1] state that “most” dietary supplements available for athletes just don't work. But misguided university thesis supervisors, academic exercise physiologists, sports nutritionists, and others keep doing the research hoping to find “significance”. There is the impression that if there are no data to support a particular supplement, it is just a matter of time. The researchers use terms and phrases, like “does not appear”, “additional research is needed”, “these findings suggest”, “may have minimized”, and “studies suggest” to keep the door open as if it works. The following brief quotes from their article (with words in **bold** for emphasis) illustrate the point [1]:

1. “**Theoretically**, BCAA supplementation during intense training **may help** minimize protein degradation...BCAA supplementation **appeared** to minimize loss of muscle mass...these findings **suggest** that BCAA supplementation **may** have some impact on body composition.”
2. “...**there appears** to be strong **theoretical rationale** and **some** supportive evidence that EAA supplementation **may enhance** protein synthesis and training adaptations.
3. “...glutamine supplementation... **may help** to optimize cell hydration and protein synthesis during training...”
4. “...KIC, a branched-chain keto acid that is a metabolite of leucine metabolism...**may help** minimize protein degradation...”
5. “...**it is possible** that phosphate could serve as a potential thermogenic nutrient...”
6. “...chromium supplementation **does not appear** to promote fat loss.”
7. “...HCA supplementation **does not appear** to promote fat loss in humans.”
8. “...**more research is needed**, most studies show no ergogenic value of ribose supplementation...”
9. “...findings **suggest** that sodium phosphate **may be** highly effective in improving endurance exercise capacity.”

As pointed out in an article published in **PEPonline** [2], “...there is considerably more unknown about supplements than there is known.” [p. 1] The phrases highlighted in **bold** are important to scientific writing, but they should not be used to keep an idea alive or to constitute a “declared” science when the actual science or rationale doesn't exist. This is obvious to most healthcare professionals who stay current with the scientific literature. For example, refer to #9 in which the authors use the word “suggest” which means a lack of either (or both) a failure to reject the null hypothesis (but, instead, interpret the data using trends) or a failure in reaching the same conclusion from a variety of studies to demonstrate a definite connection (meaning, “these data indicate that”) between sodium phosphate and endurance capacity. Then, in the face of this dilemma, there is the paradoxical expression “may be” followed by “highly effective”. This kind of writing is not new in scientific research. However, it should be avoided as much as possible. Researchers should state the facts. Either the “treatment” (perhaps, a supplement”) resulted in a statistically significant difference (e.g., an increase or a decrease in VO₂ max) or it did not. If it did not, then the treatment did not work. It is wrong to conclude

that although not significant, the trend was an increase in VO_2 max and, therefore, “may be” highly effective in improving endurance exercise capacity.

To teach is to always be in reflection about most things. The most interesting of which are those things that need the kind of thinking that university teachers do. It is a deliberate action that is built into the teachers’ inquiry of research-based material. Any topic that is uncertain, questionable, and especially complex is analyzed; this is the work of skilled professionals. For certain, my published articles on this subject are for one purpose. That is, to offer another point of view for those who may have difficulty with the drug and supplement issues that surround athletics. There is the very real possibility that some exercise physiologists who have not thought about the ethics of supplements will begin to question the idea of winning at all costs. It is also logical that new ideas as well as old ideas will be challenged. For example, optimizing training through the use of supplements is not the same as using the exercise physiology research literature to find the best method to train or when to stop training. And, regardless of whether the advocates of sports supplements admit it, it is still the right of every exercise physiologist to question the rules of athletics, equipment used, and “smart training” through optimizing nutrition beyond the kitchen table. Similarly, if a professional should take the position that supplements lead to questionable use of illegal supplements, it is not unfair at all to group dietary “sports” supplements in the same discussion. Here, the question is the use of supplements by athletes to level the playing field. It just doesn’t make sense to encourage (if not teach) that it is okay to use supplements to optimize performance and/or training adaptations. It is a short cut, and it is no different from any one in an office environment cheating rather than following standard procedures to do their work and to compete for merit pay or bonuses. Both are unethical and both are not smart training or necessary preparation for competition in business. This is best illustrated in the recent accounts of doping, drugs, and dietary supplements that dramatically draw our attention to the role of “being-the-best-at-all-cost” mentality. The tragic death of athletes provides insight into how this mentality leads to drastic measures and failed careers. Student-athletes should not have to feel that they are failures if they should not win, that their way of life is meaningless if they should experience signs of anxiety with their body weight, or that the idea of intense perfectionism is required of athletes. It is time to stop the crazy thinking that associates with athletics. Every athlete ought to know that vulnerability to failure is part of life.

“A 2001 national survey of 785 youths by Blue Cross/Blue Shield estimated that 1 million American 12- to 17-year-olds (roughly 4 percent of that age group) take one or more of the purportedly performance-enhancing sports supplements once aimed largely at professional athletes and serious amateur competitors. For children age 10 to 14, the estimate is 390,000 (about 2 percent of that age group).” -- *John Briley*, Special to The Washington Post, 2002

The Language of Disagreement

The very nature of academic subjects and published manuscripts makes occasional differences among writers inevitable. The disagreements are most commonly found in exercise physiology research. Indeed, the structure of scholarly writing is based on

different points of view. Disagreements are expected and necessary for significant advances in any field of study. Most recently, Robergs [3] published a report that is clearly a strong disagreement with the way research articles are reviewed. Implicit in the article is the disagreement with the peer review process itself; a review system that is defined by an enculturation (and thus an almost blind acceptance) of the functionality and unquestioned power of the gatekeepers in publishing scholarly work. The article is not a confrontive disagreement in that no individual is identified as responsible for the peer review schema that drives the scientific paradigm. It is, nonetheless, a very strong statement of facts and opinions. It is also an article with controversial information, based on the existing data and personal convictions. And, it is about “character”. Character counts. According to the Josephson Institute of Ethics, the members believe that student-athletes should be educated about the dangers of unhealthy drugs and supplements (including alcohol, tobacco and recreational or performance-enhancing drugs and nutritional supplements).

The reality of most published work is that personal and professional thinking is built into the structure of the story telling. Organizing and writing an empirical report for an exercise physiology journal is actually not that different from other types of writing. In general, the overall purpose is to portray both a logical and linear sequence of ideas and activities. The published version is valued in its ability to influence the reader(s) to consider new ideas and new models of thinking. Regardless of the authors’ academic specialty or areas of personal research, what appears in print is a contribution of one or more distinct points of view. Skilled writers understand this point. They work at mastering both the rhetorical approach to getting their point across to the reader and the stylistic nuances that suggest to the reader the article is worth reading. This is not unusual, wrong, or problematic since it attests to the functionality of discussing different points of view.

However, what is clear is that not all writers are willing to express their disagreement with ideas that have become enculturated into their discipline. And, yet disagreement can be (and often is) the stimulus to view a topic from a new perspective. Different points of view are natural and desirable. This is obviously the backbone to the analytical nature of scholarly writing. Hence, to take issue with a writer’s alternative thinking or to not believe a different view is possible is to fail to understand the rights of every person and professional to disagree about most everything. Moreover, to state, as Kreider has in his article [1] that “...the comments [*referring to my articles*]...cannot be supported by the current scientific literature...*and*...that much of the logic...is flawed...” is an unfair representation of my work. My thinking is not so different on the subject of sports nutrition as other subjects. Also, it is highly unlikely that my assessment is a glossy report of just what I believe. Similarly, at first glance, to read that authors (such as myself) “...should be careful that the opinions are based on a thorough and comprehensive analysis of the literature so that unfounded conclusions are not made...” took me by surprise. Disagreements usually focus either on the empirical process that also includes the summary and conclusions of published research or a consensus judgment about a topic that calls for exploring options. The disagreements aren’t usually directed to an individual per se. The article by Kreider and colleagues is different in that

they state my articles have “...served to alienate exercise physiologists...have reflected poorly upon ASEP within the broader scientific community...” [1]

Actually, my articles are about the rights of individuals to disagree, especially when the existing data doesn't support an ethical rationale for using supplements. It is true that some of the data supports the use of supplements from a physiological perspective. But, just because some supplements may work does not mean that they are appropriate in the first place. Also, it doesn't take a rocket scientist to figure out that a lot of the rationale for using supplements is not supported by research. This is illustrated very nicely in the following brief quotes from Drs. Melvin H. Williams and Brian C. Leutholtz's chapter in *Nutrition in Sports* entitled “Nutritional Ergogenic Aids” [4]:

1. “...amino acid supplementation is **theorized** to stimulate the release of insulin...” p. 357
2. “...HMB supplementation **may** increase lean muscle mass and decrease body fat...” p. 358
3. “Increased levels of 2,3-DPG **could** facilitate release of oxygen...” p. 360
4. “...L-carnitine supplementation **could enhance** FFA oxidation and help to spare the use of muscle glycogen, which might be **theorized** to improve prolonged aerobic endurance capacity.” pp. 360-361
5. “**Theoretically**, choline supplementation will enhance acetylcholine synthesis and prevent acetylcholine depletion...” p. 362

Note that the authors used the words “*theorized, may, could, and might*” in their explanation of the purported ergogenic effects of the supplements. To argue that athletes should be allowed to use supplements when a significant volume of the research is based on a theoretical rationale and/or expectation without solid scientific confirmation is a well-recognized problem (even if a sound rationale exists). Often times, the reader gets the impression that the research is a “fishing expedition” [5]. As McArdle and colleagues point out their book, *Sports & Exercise Nutrition*, “It should occasion little surprise...that supplemental iron enhances aerobic fitness in a group with iron-deficiency anemia. The inference can not be drawn, however, that iron supplements in general would benefit all individuals.” [4., p. 297] The indiscriminate extrapolation of the conclusions from nutritional studies beyond the scope of the research data is a concern. Often, in response to reading dietary supplement research, the finding of statistical significance may have little practical value. The omission of discussion concerning this point, much like the failure to discuss the ethical issues of nutritional supplementation, is not good science. And, as McArdle et al. [4, p. 298] put it: “...an increase in anabolic hormone levels in response to a dietary supplement reflect just that; they do not necessarily indicate an augmented training responsiveness or an improved level of muscular function. Similarly, significant improvement in brief anaerobic power output capacity with creatine supplementation does not justify the conclusion that exogenous creatine improves ‘physical fitness’.” This point ought to be an “eye opener” about the supplement industry and the researchers' pursuit to press forward with their own view at all costs of sound research and reasoning.

Whether nutritional supplements work or not, they should undergo the same exact analysis as other research topics and areas of interest. Just because sports nutritionists believe in using drugs to enable athletes to train harder and recover faster doesn't automatically make it right. In my opinion, there is a very small jump from legal drugs and supplements to illegal drugs and supplements. Using the scientific method to break the spirit of athletics or to argue the use of drugs for ergogenic purposes is an ethical problem. The exact degree to which it is a major ethical problem remains to be answered, but it will be answered. There are too many high school and even junior high school athletes using drugs and supplements. They have been led to believe that they must do so to be competitive. The very scientists who know that "...despite scant 'hard' scientific evidence indicating a performance-enhancing effect of many of these chemicals" [4, p. 306] promote their use even when, in time, some will be officially in violation of the principles of fairness and openness in sports.

Yes, without question, there are serious legal and ethical implications to using nutritional supplements. Just because they are assumed to be safe and legal today is not enough. Deception by omission of the examination of ethical issues is problematic. In short, the question: "Is it ethical?" needs answering, too. To also argue that supplements are necessary to improve performance is to argue for an understanding of the science of supplements that doesn't exist. There is too much unknown about most supplements, especially those that appear as advertisements in *Muscular Development* and other popular bodybuilding magazines. The potential "...for fraud, financial waste, and possible harm in the expanding marketplace for ergogenic aids..." [4, p. 298] is extremely high. Many professionals believe it has gotten out of hand. The likelihood of negative effects, mental and/or physical discomfort, and the threat to the very lives of the athletes is increasing exponentially with the ever-present acceptance of ergogenic substances.

To argue that my articles have reflected poorly upon ASEP is to make a case for something that doesn't exist as well. It is unfortunate that researchers outside of the sports nutrition field can't have their own opinions. For example, if I were to say that numerous dietary surveys of athletes indicate that the vitamin intakes of all but a small percent of athletes exceed the RDA levels, someone would say that seldom do athletes consume a well-balanced diet. The conflict lies not with my disagreement with supplement usage, but with the fact that a certain percentage of the exercise physiologists interested in sports nutrition recommend supplements. It is therefore no surprise that pharmaceutical manufacturers wine and dine exercise physiologists who believe they need the money for research. In the never-ending quest for more grants, there is also the company's need for more financial profits fed by the seemingly endless series of products. The claims for superior performance are "...often dubious, ill-founded, unproven, or abysmally deficient of scientific merit." [6, p. 523]

It is not logical or right that a commonly accepted way of thinking (e.g., sports supplements) cannot be contested. Exercise physiologists, as researchers, collect and analyze data all the time. They study the research design, the data collection and statistical analysis procedures and whether the conclusions are warranted. They may

even disagree with the authors of the related literature or the manner in which the authors interpreted the data. To disagree with the authors or to think differently from a commonly accepted view about a topic is not a problem when the focus of the published work is on empirical details. To disagree with conclusions that extend beyond the data is required of all educators and researchers. Similarly, to disagree with the authors' over-use of hedged wording (e.g., tend, suggest, and may) is appropriate (especially when the words are used to emphasize a response that did not reach statistical significance). The process of change dictates an openness to challenge existing thinking. Any dialogue that furthers the identification and analysis of factors that help facilitate self-determination is an important process of empowerment.

Teaching as Persuasion

For the vast number of exercise physiologists who engage in teaching, they go about it without reflecting on the nature of cognitive development and the educational process. It is a rather straightforward responsibility of covering the material, whether it is the physiology of women training, altitude training, cardiovascular responses to different forms of exercise, or one of a hundred other topics. Certainly, the idea that teaching "...is a process of persuasion" [7] whereby professors systematically alter beliefs and attitudes is seldom discussed. But, on many occasions, the classroom is exactly what the university teacher wants it to be. Using it to systematically teach historical beliefs or new ideas is not presently a controversy (i.e., as long as teachers are collectively in agreement about a topic, belief, or value). Strangely though, the important thing about academics is that teachers are often times not taught to be "constructive discontent" thinkers. The secret of staying ahead of the game is unknown to many teachers. They fail to listen and learn and, where necessary, to change. The simple truth of the matter is that change is hard to do, especially when it requires giving up well-accepted and comfortable thinking.

This difficulty raises several important questions: "What is the purpose of the students' education?" Is it to think just as the teacher thinks or is it to learn how to think? Parents are seldom aware of what goes on in the university setting. Most probably believe their sons and daughters are being taught how to think and not what to think [9]. Said somewhat differently, how do teachers teach without systematically causing students to think as teachers think? And, even if teachers are fully aware of the subtlety of presenting just the facts, the act of teaching itself is a definite form of persuasion when teachers influence students' attitudes and beliefs to embrace a particular point of view about a topic. Of course, teachers can present a view that is very convincing without knowingly trying to be persuasive. Here again, the use of persuasion isn't acceptable or is it? Perhaps, it is only manipulative when conflicts are not addressed when there is a lack of a balanced and objective presentation of material. Perhaps, it is logical that students should be free from ideas driven by grants funded by specialized forces within the industry. Still others have questioned the role of ethical issues in the context of teaching and organizational development [9-11].

"When vision, standards, and a strong, visible show of support from the leadership for practicing ethical behavior is lacking, any corporate culture — including a legal organization — can prove to be a breeding

ground for unethical behavior. Conversely, given the proper framework and show of support from the top, the corporate culture can be the venue to foster ethical behavior by an organization's employees." -- *Michael G. Daigneault*, Ethics Resource Center 1996

Many teachers believe that persuasion is a critical component of university teaching. They see nothing wrong with altering students' attitudes, beliefs, and behaviors. From their perspective, university teachers are supposed to influence what students think. They believe that, as long as they don't lie to the students, they come across as dispassionate purveyors of the truth. As long as they don't misrepresent the truth, their behavior is not questioned. Yet, they have the professional obligation to organize class lectures and content that accurately reflects a consensus of opinion. And, where appropriate, teachers are expected to present alternative, dissenting views [7]. Teaching is enormously complex and, thus what is expected of university teachers is critical inquiry.

As a course, sports nutrition (or as McArdle et al. prefers, exercise nutrition) would appear to be no different from sports physiology, sports psychology, or sports biomechanics. This belief is misleading, however. The difference is that exercise nutritionists, who are generally exercise physiologists, teach sports supplements as if the athletes' very performance is dependent on the supplements. From reading the literature, it appears that exercise nutritionists seldom advance the notion that the use of supplements may be wrong, which raises the question: "How, then, can students and/or athletes come to understand the truth when their very attitudes, beliefs, and behaviors are changed from within the context of teaching?" There isn't a quick answer. Most teachers are hopeful that, with an objective analysis of the research articles and other published accounts on the subject, student-athletes will avoid supplements. On the other hand, when students are not taught both sides of an issue, there is the real possibility that the lectures involve some form of persuasion. This is a problem that has been addressed best by Friedrich and Douglass (1998), who wrote: "Not only should instructors help students weigh special bias or opinion in source materials....the object of such a strategy is not to indoctrinate students but rather to encourage them to see the affective, personal dimension to knowledge and to develop in them the habit of critical consideration of all sources. By the same justification, instructors should disclose to students their...persuasion agendas." [7, pp. 554-556]

Willingness to Tolerate Honest Answers

In the May, 2002, issue of **PEPonline**, I published the "*Exercise Physiology Quackery and Consumer Fraud*" article [12]. It should be recognized that my statement regarding protein (i.e., "It is obvious or it should be that athletes meet the high protein requirement through their diet, not through supplementation. To argue otherwise is groundless and scientifically not a plausible rationale.") is supported by Lowenthal and Karni [13]. Kredier and associates [1] state that my statement about protein is misleading if not unethical. Their belief is said to be based on the notion that I am "...not ...aware of the scientific literature..." and have, therefore, made "...blatantly or false statements..." They failed to understand that my statements are based on previously published literature. For example, I used Powers and Howley [14, p. 443], Wolfe [15], and Eichner [16] to

support my statements about protein. They stated that: “The scientific data provide no rationale for increasing protein intake when exercising.” Here again, I pointed out that: “The real question is whether the athlete who engages in strength training is eating a nutritiously balanced diet to begin with....” Brotherhood [17] concluded that the ‘average athlete’s diet is about 16% protein. This value exceeds 1.5 g/kg/d or the equivalent of 88% more than RDA [13]. It would have been better had Kreider and associates not implied that “I had not done my homework” or that “...opponents of nutritional supplements and ergogenic aids are either unaware and/or ignorant of research supporting their use [1]. For example, I quoted Robergs and Roberts [18] and Fogelholm [19] who, in short, stated that: “no research evidence exists to support the claim that added vitamins increase exercise performance.” Of course if Kreider and associates want to believe that what I’ve written “makes little sense” – so be it. It is unfortunate they agreed to put their name on an article that fails to adequately address the specificity of the issues and concerns discussed in the “Quackery...” article. This is part of the reason why the article was written in the first place.

In my more recent article, “*Dietary ‘Sports’ Supplements: The University Teacher’s Role in Teaching Values*” [20], I wrote the following: “While it is important to teach sound sports nutrition, it is an ethical problem to teach students and athletes that it is okay to take supplements to level the playing field. Or, is it unethical?” [p. 1] Please note that *I asked a question!* “Exercise physiologists ought to be teaching that it is wrong to substitute supplements for athletic training.” [p. 1] *It seems highly unlikely that any one could disagree with the statement.* “Who among exercise physiologists is analyzing the ethical questions that surround sports supplements? Is there an ethical problem with the use of supplements? Or, does it become an ethical problem only when the supplement becomes illicit or banned or when an athlete dies?” *Here again, I asked several questions!* The content of the article is a fair statement of the ethical concerns that exercise physiologists face in the months and years to come. There is nothing about it that is inappropriate or false. It represents my personal and professional feelings and beliefs about athletics, professionalism, and the ASEP organization.

Frankly, every author of the Kreider statement [1] should be concerned that much of what is in the “introduction part of their article” in regards to what I’ve written has either been taken out of context or misinterpreted altogether. As leading researchers and educators in the exercise nutrition field, they should take the time to analyze the impact of what they agree to (given their names on the paper). Students who read the article and cross compare it with my articles will be surprised with the authors’ critical approach to what I’ve written. Also, the authors’ decision-making in what they have agreed to define as their professional choices has subsequently uncovered their focus on the use of supplements above and beyond the value that many people place on athletics. For me personally, sports is a way of life; it gives direction and, to a large degree, sports make a difference in the mental and emotional development of the participants. To encourage supplement usage as the law of the land without considering how it affects a cherished part of our culture is troubling.

Although it is obvious that personal values and professional values are not always consistent, the stated beliefs of Kreider and associates [1] cause me to ask the following questions: “Are they going to purchase the unproven and unscientific supplement products for their children? Do they believe it is important that their children take supplements to play high school football or to participate in track? What about college gymnastics for those who have daughters, “Is there a conflict with their 18 or 20-year old talking supplements advertised in *Muscular Development*?” The importance of values cannot be overlooked, for they are part of what we are, what we say, and what we teach. Therefore, an exercise physiologist, such as myself, has an absolute right not to participate in a situation, such as the approval of athletes using legal drugs and/or supplements to enhance athletic performance, which violates my personal values. Maybe other members of the Kreider article will share their thinking in the **PEPonline** electronic journal. ASEP members need to know what others are thinking. For example, I found it interesting that one member of the Kreider article, Dr. Tim N. Ziegenfuss, stated the following on the Internet: “Athletes under 18 years of age should never be encouraged to use supplements because their use degrades the ethics of sport by fostering the "win at all costs" mentality.” For certain, everyone benefits with more information about how we should think about exercise nutrition 5 or 10 years from now. We need it for survival as an emerging profession, and we need to make good choices in what we do and how we think. Instilling values that make a difference is important. It is our responsibility, as members of the emerging profession of exercise physiology, to influence the values held by its members to be sure that the values exemplify the ethical dimensions of the profession.

Understanding Ethical Behavior

I must admit, although I’m sure it must be obvious, my education in ethics is limited. While I may have incorrectly linked certain ideas in past writings, the intent has been always to understand exercise physiology as a “healthcare profession”. It is not a specialized area of study (like exercise nutrition or cardiac rehabilitation), but a complete profession with knowledge and responsibility over health, fitness, rehabilitation, and athletics issues and concerns. ASEP members, in particular, and interested readers, in general, should therefore “understand” that the purpose of the **PEPonline** articles is to move exercise physiology from a technician school of thought to a “practice” of exercise physiology. When this thinking becomes a shared vision, exercise physiologists will think in terms of standards of practice and a code of ethics. One reason for what I’ve written in regards to exercise nutrition is my interpretation of the ASEP Code of Ethics. Another reason is the personal dilemma I have with the worldwide use of drugs, particularly as they relate to influencing athletic performance. Personally, for me, there is one and only one way to compete in athletics, and it has everything to do with what you are as an athlete. Playing within the rules is important, but also important is what the athlete comes away with after the sporting days are over. For me, that “special something” (or, if you will, sense of pride and strength of character) is more important than the deception that associates with the business of athletics driven by the drug (legal and illegal) and supplement culture. The problems of questionable practice arise from within a profession linked to a code when its members give themselves authority to define what is acceptable, unacceptable, safe, unsafe, ethical, or unethical practices. This

has, in my opinion, evoked mixed emotions among many who are uncomfortable with coming forward with their feelings. The lack of a moral objection and discussion of concerns with drugs, supplements, and athletics has fueled the “theoretical” notions that lubricate the economic and research dimensions of research and athletics.

Since individuals make decisions based on their personal level of moral development, my ethical views are probably considered a very narrow analysis. Perhaps, it is time for exercise physiologists who use supplements and drugs to influence their physical development to come forward and discuss their self-chosen ethical principles.

Throughout history, individuals have fought extensive battles to safeguard ideas and ways of living. It is probably too much to expect other exercise physiologists to become serious stakeholders in the cleaning up of athletics. This conclusion is supported by the lack of published articles, chapters, and books about the ethics of athletics and, of course, the lack of having a professional code of ethics until 1997. This doesn't mean that others aren't writing about the ethics of competition. They are, but they are not within exercise physiology and, for certain, they are not members of the ASEP organization. Simply put, this understanding is shared with the reader only to convey what I believe is a serious problem in exercise physiology. Those who are invested in the exercise nutrition subject matter don't see it as a problem having ethical dimensions. For them, it is what they do. They believe their research justifies the use of ergogenic aids. It is not hard to see why they think this way. After all, exercise nutrition has become, for many, an economically and politically valued area of study to which the actions of some call into question the integrity of their own reputations. And, when left unchallenged, their motives and/or actions also call into question the integrity of the profession.

At the gut level, this is the reason for my articles on ethics, values, critical reflection, and athletics. Professional ethics need to be discussed, and opinions need to be presented. If university teachers cannot be believe as fair and open minded leaders, who will students believe? On a personal level, have many of us have pressed a particular point to the exclusion of alternatives to get our views across? Distortion of the truth in the form of confirming one's bias, however inadvertently or intentionally, is still distortion and not an education. Quite simply, exercise physiologists cannot give in to a popular belief or a historical view if it violates the ethics of the profession (in this case, both the profession of education and exercise physiology). Yet, many teachers do just that and more. They not only give in to the arguments of the powerful, they popularize their thinking by teaching their beliefs. The obligation to critical self-expression is not taught at the doctorate level. Intellectual honesty and “how to” teach are seldom taught. Teachers fail to lecture on integrity of professional conduct or ethical standards. All of this is a statement of what is to change as exercise physiologists mature in their understanding of the dignity of others, especially their responsibility as professionals to act as professional.

Concluding Remarks

Critics of the articles I've published on the **PEP**online journal can go on criticizing me. I have no problem with that. I'm doing what I believe is correct, and I'm personally challenged to find integrity in athletes who win on drugs, supplements, and God only knows what else. I guess, in all fairness to Kreider and his co-authors [1], until ASEP

members argue strongly for a Code of Ethics to guide them, then, in actuality the Code doesn't exist. What they have agreed to is summed up in the following expression: "When in Rome, do as the Romans." This type of thinking suggests that exercise physiologists who are exercise nutritionists and interested in athletes will do as athletes have done for centuries to ensure that they win. This type of demarcation of their version of what is right sets them apart from those who disagree with them. On their behalf, it is correct to point out that, according to Von der Embse and Wagley [21], *ethics* is defined "... as the consensually accepted standards of behavior for an occupation, trade, or profession and *morality*, in contrast, is "...the precepts of personal behavior, based on religious or philosophical grounds." [21, p. 76] I've written about both, and others have too [22]. Take, for example, the words (and questions) of Dr. William O. Roberts, a clinical associate professor at the University of Minnesota and a charter member of the American Medical Society for Sports Medicine:

"Is it ethical to pursue performance enhancement outside the traditional mix of hard work, skilled coaching, genetic gift, proper training, proper rest and recovery? Should a substance like creatine be advocated to gain an edge over an opponent, or have these substances become necessary to maintain a level playing field with the school across the tracks? Finally, should potentially unethical behaviors be tolerated, much less endorsed, by coaches in the youth sports setting? If a substance like creatine is recommended, can you as a coach give an adequate and informed discussion to allow both the parents and athletes to make a reasonable decision regarding the use of the substance? Since youth coaches deal mainly with minors, informed consent must be presented to both the parents and the athletes. How should an informed consent be given to families and players? Who should be informed first? What are the legal implications if the informed consent is given and accepted by the parents, or if informed consent is omitted, and something goes wrong during the substance use? Is the sports program liable or does the liability fall on the shoulders of the coaching staff? [23, p. 2]

ASEP is about the professional development of exercise physiology as a healthcare profession. The Board of Directors must be concerned about issues that influence how other healthcare professionals view the "Society". Position and status *per se* do not offer the right to perfect freedom to embrace an idea without considering its limitations as well as its strengths. University teachers, like members of the ASEP organization, have the responsibility to share knowledge with some ground rules for moral debate and scrutiny. The uncommon view should be taught along with the common view. The opportunity to disagree in itself is how professionals grow in their thinking. Classroom lectures and content should be tailored to the changes that reflect society's concerns with ethics, morality, and values in athletics. Therefore, the impulse to avoid discussing both sides of the ethical dimension and implications for athletics and sports nutrition must be evaluated. A "beginning" for discussion of the ethical issues of using performance-enhancing substances that are not banned and the controversy that surrounds nutritional ergogenic aids has been laid out in the **PEPonline** articles. A meaningful dialogue about values and obligations should follow to promote professionalism. We don't want to inadvertently pass the wrong message to ASEP members and/or athletes that the drug and

supplement debate only has one dimension to it, to win at all costs! Exercise physiologists must take a long hard look at the contradictions and tensions that exist within sports nutrition. I think it would be fruitful for ASEP to develop a common ethical stance regarding drugs and supplements by members of the ASEP organization. The building of character, regardless of age, but particularly important with young athletes, the development of virtues, and the implications of dealing with challenges in sports and life in general are among the highest reasons we value athletics.

In summary, this article is not intended to create a divide between those who encourage supplement use and those who do not. The purpose throughout the article has been to introduce an ethical dimension to nutrition supplementation and to raise important questions so others can begin to reflect on where they stand on this issue. While I appreciate that our views are seldom black and white, there is the opportunity to reach a consensus or, if you will, come to agree on the gray areas of exercise nutrition. The most important thing is not necessarily to take sides, but to come together and do what is right for our student athletes and, yes, what is right for the professional development of exercise physiology. In the ideal professional environment, there are members of a discipline who represent a community of professionals. Among the community members there are leaders who have views that are congruent with the professional development of their field. When the views reach a critical point of distinction, the reality is that a new leadership emerges. This new leadership has a perspective that is aligned with the new emerging philosophy that defines the new community of professionals. The resulting outcome is a fresh and decisive style of thinking and reacting to everyday problems. Driven by solutions and empowered by their new control, the community leaders achieve their goals by communicating a new paradigm. It is a process that shapes organizational leadership.

“Ethical compromises in sports will continue as long as fans tolerate them. Scandals and shortcomings are tolerated as part of the way sports "work." Raising awareness would mean that fans first have to admit there is a problem and then have to demand that the problem be fixed.” – *Jerry Brown*, Ethics Resource Center / Ethics Today 2003

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