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**The Exercise Physiologist and the Professional Organization**

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Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has.

-- Margaret Mead, 1901-1978

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| *Success is one step at a time. Do not be afraid of making a mistake. Reflect upon what was done and then do better the next time.* |

he purpose of this article is to discuss the legitimate issues and concerns that face exercise physiology, the definition of exercise physiology, the importance of professional membership, and to put emphasis on the necessity of participation, and on a combination of guts, responsibility, and credibility which will encourage professionalism in exercise physiology. This is the 21st century and yet most exercise physiologists are still mentally in the 20th century. Their behavior and reaction to thinking differently has resulted in the continuation of repetitious and meaningless academic majors [1]. So much has gone wrong during the past three decades that traditional values associated with getting a college degree are being questioned by students and their parents.

Where physical education once stood alone and unchallenged to a great extent, the various subspecialties have aggressively staked out territories, with the personal trainers and other spin off instructors making inroads into health and fitness. Such well-entrenched bastions of some positivity have not just endured, but grown in size as well. Even the person trainer associations are embraced with enthusiasm, but not without emotional uncomfortableness or worse [2]. However complicated, understanding that the problem faced by students is the multiplicity of varying theories and ideas of the way it is versus the way it should be.

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| *Celebrate your successes. Keep a sense of humor.* |

Breakaway groups of thinkers (e.g., the American Society of Exercise Physiologists [3] and the Clinical Exercise Physiology Association [4]) assert more so today than in the past that their career needs are not being met. With a virtual smorgasbord of academic degrees available to undergraduates that address health, fitness, rehabilitation, athletics, and sports training, one has only to decide what each degree is in reality [5]. The tragic risk in all of the undergraduate degrees as well as graduate degrees is the lack of the specificity of a career-oriented, purpose-driven college degree. As an example, a person who graduates with a biology degree is rightfully a biologist. A person with a degree in physiology is a physiologist. Clearly, then, an exercise physiologist is not a physiologist. A person with a theology degree is not a biologist. Similarly, a college graduate with an exercise science degree is not an exercise physiologist. This thinking applies equally as well to kinesiology graduates or those who graduate with a human performance degree. They, too, aren’t exercise physiologists.

How it has happened that college students who major in kinesiology or exercise science believe they are exercise physiologists does not have any delineated scientific basis, yet there are thousands who could give testimonial otherwise. Here, it is not pointless at all to speak of the past, and certainly this must be done for the purpose of better understanding the present. Nothing about this article is for the purpose of recrimination of individuals and/or academic departments. Instead, what can be learned of the mystery of where students, faculty, and exercise physiologists find themselves today and, most certainly, their problems and lack of power to find credible jobs for our students, is some degree of hope and boldness. Yet, the failure to shift from the earlier thinking about physical education to exercise science to exercise physiology is slowly draining the well of hopefulness.

This is why it is important that academic exercise physiologists must become more politically aware, and they must be willing and able to help the ASEP leadership to achieve a legitimate educational reform that is required of the profession of exercise physiology. Neither students nor the evolving professional status of exercise physiologists should be further exploited either for the institution’s financial gain or that of some particular organization. Clearly, there is a tradition, however misunderstood during the past two or three decades, of (in particular) the economic exploitation of students through internship training whereby students with an inadequate education end up with inadequate jobs. The tragedy is that the graduates have acquiesced in their own professional development. It is difficult to appreciate the students’ frustration, stress, and pain, especially since they are boldly engaged in the paradigm shift.

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| *Leadership is always a function of risking failure. Stay strong and determined anyway.* |

Many students, certainly not all, are caught in the desire to get by with as little work as possible. They will do just as much work as the teachers require. Hence, their limited work experience and, more often than not, their lack of self-esteem means that they are easily influenced and dominated by teachers and administrators who have little insight into, or sympathy for the vision [6] and goals [7] of ASEP. This is why it is critical for academic exercise physiologists, regardless of their department name or the academic major a person finds him or herself teaching in, to agree on “what is exercise physiology” and “who is an exercise physiologist.” The ASEP leaders’ thinking isn’t complicated, yet the failure of exercise physiologists for the past four decades to recognize the need for agreement on this one matter is insanity. It is time to get beyond the “macho” research image, to fight off implications of passivity, and the chauvinistic nature of thinking as a scientist for an improved and markedly different pattern of thinking in exercise physiology.

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| *Leadership is about finding yourself outside your own comfort zone.* |

Part of this process of stepping up to the plate is that exercise physiologists must shift their accountability from sports medicine to their student. They must become a true advocate of exercise physiology and what it can do for college students. This is not a trivial point. Failure to develop economic opportunities within the public sector will ultimately lead to getting rid of certain academic majors. Hopefully, in the future, a student who receives an exercise physiology education will emerge as professionally competent and personally aware of the need for a professional organization. As a healthcare professional, exercise physiologists need a solid and progressive evidence-based scientific education to serve the public. After all, with the right education and right involvement with their own professional organization, they will have the political power to prescribe “exercise as medicine.”

Right now the exercise physiologist’s ability to stand apart from non-exercise physiology majors is limited among college graduates. Part of the problem is the failure of department chairs to clean up their non-exercise physiology academic majors. In fact, in time, their behavior is likely to be recognized as an unethical turning of a deaf ear to the students’ problems. The quality of the students’ education and the usefulness of the academic major to life events after college should drive transformational changes within the colleges/universities. Students should not pay hard-earned tuition dollars to obtain a college degree just so the college teachers can have a job! This means that academic exercise physiologists must actively encourage the faculty, their department chair, and the dean to embrace a new standard of exercise physiology education.

Non-doctorate exercise physiologists must be actively encouraged to get involved in the change process. They must understand that the power of changing begins with understanding the necessity of supporting the professional organization so that it is recognized as a credible advocate of exercise physiologists. The decades of conditioning and hierarchical control by other organizations must be understood for what are and what they continue to produce (i.e., disunity, lack of respect, poor salaries, and divisiveness). Exercise physiology is a healthcare profession that is of tremendous importance as a service to all members of society. However, exercise physiologists must unite if they are to cultivate a professional awareness and visibility in healthcare. This means getting beyond the notion that being a fitness instructor or an exercise specialist is sufficient or even appropriate to compare to the exercise physiologist as a healthcare professional. It means thinking as members of the profession of exercise physiology.

**Profession or Semi-Profession**

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| *Deal with apathy by being positive and staying the course.* |

Traditionally speaking, occupations have been conceptualized along a continuum, with the occupations at the professional end with more of Greenwood’s [8] five attributes of a profession. “Succinctly put, professions seem to possess: (1) systematic theory, (2) authority, (3) community sanction, (4) ethical codes, and (5) a culture” (p. 45). Realistically, exercise physiology at the present time is more of a semi-profession than a profession. The characterization itself isn’t demeaning. All professions evolve from disciplines to semi-professions to professions. Because research is important to exercise physiology, it has frequently been referred to as a research discipline. Of course this is only appropriate for those with the doctorate degree. And yet, they, too, must learn to appreciate that their academic responsibility is to their students. It makes no sense for faculty members to spend all their time doing research, publishing scientific papers, attending national meetings, and building their resumes to find that their students cannot find viable employment.

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| *Deal with it. “If you are not a leader.” Then, learn to lead by doing.* |

Exercise physiology is an evolving profession, perhaps, somewhere between semi-profession and profession. Contrary to the semi-professional status [9], where the education of students is usually a 2-year degree program, the ASEP board certified exercise physiologists [10] is increasingly acknowledged as a healthcare professional. Similarly, exercise physiology is largely a function of a specialized body of knowledge, as is evidence by the ASEP accreditation guidelines [11]. In fact, it is increasingly evident that board certified exercise physiologist are demonstrating their autonomous status by starting small healthcare businesses [12]. Only this contradiction from the usual graduation outcomes could account for change initiated by the ASEP leaders. That’s why the vision and leadership of the ASEP community is a vital element to the promotion of exercise physiology as a profession.

Why not answer the following questions: As an evolving healthcare profession, can exercise physiology operate outside of its own professional organization? The answer is “no.” Other healthcare professions do not and, therefore, it is senseless to try and do so. Is regular exercise important to the health and well-being of the public? The answer is “yes.” Then, if an exercise physiologist graduates from an ASEP accredited exercise physiology program and, then, sits for the EPC exam, shouldn’t the exercise physiologists as a board certified professional be acknowledged as responsible for administering and supervising exercise as medicine? The answer is “yes.” Is it likely that exercise physiologists would be (or even should be) accepted in society as both safe and legitimate if they were not self-regulated by a professional organization? The answer is “no.” A sense of commitment (i.e., a calling) to exercise physiology means little without dedication to a professional code of ethics and standards of practice [13]. Hence, in direct opposition to present-day thinking, exercise physiology cannot grow if it is always associated with the term, exercise science, or if in clinical jobs exercise physiologists are always under the supervision of physical therapists. Board certified exercise physiologists must be able to make their own decisions without external pressure from other professions and/or generic organizations.

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| *Without a doubt, leaders often have to make decisions that friends and colleagues are happy about.* |

Exercise physiologists who support the professional organization stand out from the crowd of others who say they have an interest in exercise as medicine. Underpinning this conclusion is the familiar concepts emphasizing the highest aspirations of a profession (i.e., code of ethics) to both the public and the practitioners. Professional competence isn’t occasionally argued by the professional organization; it is a constant, not just encouraged but mandated, as is true for avoiding conflicts of interest. Professions have a scope of practice and, therefore, exercise physiologists must have a scope of practice as well. While the practice has traditionally included research, teaching, and service, given that decades only doctorate prepared exercise physiologists could call themselves exercise physiologists, the ASEP argument is that the title must be broadened to include non-doctorate exercise physiologists [14]. Of course, it is the ASEP leaders’ beliefs that for this thinking to be true it must be restricted to board certified exercise physiologists.

**Criticisms, Truths, and Ongoing Efforts**

Hardly a week goes by that most exercise physiologists can’t avoid hearing criticisms that exercise physiology is really just exercise science, which is nothing but physical education without the licensure. The fact is, the criticisms are warranted. Students are misled into thinking exercise science is something different from a physical education major without the licensure to teach in public schools. The same is true with kinesiology and human performance. The collective body of faculty members in any given department (including the department chair and dean) are deluding themselves if they fail to recognize that much of the students’ criticism of non-exercise physiology academic degrees has merit and requires attention.

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| *Change is driven by passion. What do you believe in?* |

To be sure, the generic organizations of the recent decades have done precious little to advance exercise physiology as a profession. The now popular development of the personal trainer certifications by various organizations speaks volumes to the lack of understanding of the critical issues of ethics and integrity. Physical therapists and others are laughing their heads off at the so-called “exercise scientists” title. They understand the fundamental tenets of professionalism. Also, they are not completely sure what to do with the ASEP organization, except to keep monitoring the organization with respect to its effort towards licensure. Remember, it is only during the past decade that there has been an organized professional organization to undertake advances in professionalism in exercise physiology. In less than one-fourth of the time that ACSM has existed and yet, the ASEP leadership developed the first-ever code of ethics for exercise physiologists [15], developed disciplinary procedures for EPCs [10], promoted professionalism and developed a culture [16] to support commitment to advance exercise physiology in less than 10 years after its founding.

There remains much to be done to help ensure that students are given a chance to develop professional competence. The problem that has evolved with the current ASEP status is that the leadership has seemingly moved beyond the opportunity for the academic community to catch up. At the same time, every other discipline that is transitioning to semi-profession status to professional independence has experienced similar challenges (e.g., nursing). The question of how to keep pushing forwards is a good one. This thinking doesn’t mean that the ASEP should close shop and contain itself. Rather, it is a fair conclusion to say that more non-ASEP exercise physiologists should in good faith seek to help with the change process (i.e., actively support the ASEP leadership). As hard as it is to say, then, this means on one hand dealing with the suppression of truth regarding exercise science and exercise physiology, and on the other doing what is necessary to resolve contradictions occasionally arrived at by ignorance or blindness to the reality of reason or evidence. There is no question that organizations are businesses doing what the leadership perceives as its right to maintain an edge over competitors. However, it should be clear that by the pretense of procedural rights to bypass morality by politics, power or greed is an ethical problem that is disturbing and should be rejected [17].

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| *Never give up. Never take a back seat. Never take “no” for an answer.* |

Truths are uncomfortable realities. Professionals must acknowledge that it is not their right to do as they please to maintain status quo. They are not hired guns to get rid of the competition. And yet, such behavior is consistent with today’s politeness. The lack of courteous treatment of colleagues is on the rise. It is a demonstration of the lack of respect for others and their points of view. In fact, the history of the professions is sharply defined by the understanding that you get what you work for. In short, by this is meant that academic exercise physiologists must lose something (say, emphasis on research and status) to gain something new, such as healthcare status. The ASEP leaders believe that it is best to give their time, effort, and passion for students to receive a credible education in return. They believe it is time that the professionalization of exercise physiology begins to take on a larger social and cultural context, and they are willing to sacrifice time, money, and effort to see it come to past.

The model of professionalization advanced in the late 1990s by ASEP has had much to do with the use of words such as professional, professionalism, professional development, credibility, and credibility in numerous publications by non-ASEP exercise physiologists. Now, it is fair to say that while ASEP has influenced a major breakthrough in terminology, the gist of its influence has resulted in strong efforts by ACSM to maintain if not embellish status quo. While no doubt some embellishment is a good thing, the effort is likely to result in more hypocrisy surrounding the lack of objectivity in dozens of meaningless academic degrees. It also helps to explain why some people are stuck in their current conditions, although they would love to break free to be happier and more successful as professionals. This happens because they unconsciously know that they are not willing to sacrifice what they currently have for them to receive something new.

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| *Never be afraid to fight for what you believe is important, especially when it helps others.* |

One would think that the academic exercise physiologists, especially those who had their doctorates in the 60s, 70s, and 80s, have been more aware of and/or influenced by the lack of professionalization in exercise physiology. The truth is that either they didn’t know or were simply indifferent to the perception of what others thought or believed. It is almost a cop out to argue that they were too inextricably bound up with transitioning from physical education to that of a “scientists” way of thinking to have not known what was necessary to do. Could the truth be that simple? Pushed further, aside from not finding enough strength to take necessary steps towards their own professionalization, there may well be a basic flaw in their character as otherwise excellent individuals. Their lack of insight into the issues of what is exercise physiology is a dramatic conclusion, given their intellectual pursuit of research and publishing. Not knowing that they should speak to, engage in, and develop the professional transformation that has been so evident with other professions is to so precisely miss the point of exercise as medicine that there can be only one conclusion. Is it not possible that the absence of discussions pertaining to professionalism while being physical educators left them without knowledge, understanding, or purpose of professional knowledge and expertise?

**Exercise Physiology is “Under Threat”**

The expression “under threat” is an effort to clarify the uneasiness of non-doctorate exercise physiologists in the public sector. They are gradually getting the message that without professionalism, along with trust and integrity from within the academic circles, exercise physiology is recognized as not be regulated or self-policed. Under threat is a function of what is actually missing, such as professional privileges and a recognized contract between exercise physiology and society. What is also missing is the moral understanding among exercise physiologists that gives reality to their cultural context. In other words, where is the mutual trust among all exercise physiologists? Where is the professional discretion to ensure students with “market shelter” to deal with economically precarious healthcare issues? At this point, exercise physiologists have little to no control over a specific area of expertise. Physical therapists and even personal trainers have access to metabolic analyzers. This failure to establish authority in cardiovascular physiology and exercise prescription is a serious loss of legitimacy by the researchers who were responsible for creating and infusing it with clinical implications and responsibilities. The outcome of this struggle to bring “exercise as medicine” into the profession versus the free market appeal to a variety of established professions is still to be defined.

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| *Criticism is a part of leading others. Rise to the occasion anyway.* |

To those who see the threat as coming from the leadership of other professions (such as ACSM, “exerciseismedicine.org/) doing what they can to maximize their autonomy and opportunity, understand that if non-exercise physiologists do not secure control over the power of exercise to heal, all may be lost. The focus of exercise as medicine is to give new attention and new importance to the spirit of professionalism in exercise physiology. It is the professional and ethical duty of exercise physiologists to do what they say they will do. Yet, today, the majority of exercise physiologists cannot be trusted to retain ASEP professional membership from one year to the next. Many academic exercise physiologists are out of touch with who their professional leaders are, not caring to support them and being uninformed, or disinterested in ASEP affairs. Instead of continuing this way for another one or two decades, why not look toward the work of other professional groups? The promise of something better is just around the corner if only more exercise physiologists would get involved and contribute to the social context in which professionals and professional organizations operate.

Bruhn [18] said, “Professionalism is an attitude, a state of mind.” What is the exercise physiologist’s attitude towards professionalism? It is important to know the exercise physiologist’s state of mind. Then, one could answer why exercise physiologists are not relying on the ASEP code of ethics when they provide professional services? Does it have something to do with their image of exercise physiology as a research discipline and not as a health profession? Why are exercise physiologists reluctant to pursue ASEP accreditation and board certification as professional development opportunities within exercise physiology? Where is their sense of pride when it comes to supporting exercise physiology? Is this professional behavior? Exercise physiology is obviously under threat when there is a lack of initiative and/or behavior to promote professionalism. Also, when faculty members aren’t honest or caring, professionalism is conspicuously absent. This raises the following question [18]. Why can’t people be civil, ethical, honest, the best, consistent, a communicator, accountable, collaborative, forgiving, current, involved, and a model?

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| *Know what is important and then go after it. Do not let others get you off-track. Talk, write, and live your dream.* |

The ASEP leaders understood early on that a lot of confusion centered around who is or is not an exercise physiologist. The only semi-universal definition of exercise physiology within academia for the past several decades is whether a person has the doctorate degree. Even today, as strange as it might sound, there are many doctorate-prepared exercise physiologists who do not want a recent college graduate with a degree in exercise physiology call him or herself an exercise physiologist. Fortunately, such thinking is changing. One only has to look at the ASEP definition of an exercise physiologist [19] to see how the organization differs from past and present sports medicine thinking: “***Exercise physiologist*** is a person who has an academic degree in exercise physiology, or who is certified by ASEP to practice exercise physiology [via the Exercise Physiologist Certified exam (EPC)], or who has a doctorate degree with an academic degree or emphasis in exercise physiology from an accredited college or university.”

The ASEP definition is straight to the point. If a person graduates with an academic degree in exercise physiology, then he or she is an exercise physiologist. However, from the ASEP perspective, that person still needs to sit for the board certification to practice exercise physiology. This doesn’t mean that the non-exercise physiology college graduate by degree title per se cannot become an exercise physiologist. A person who graduates with an exercise science (or similar degree) but who has taken a certain number of exercise physiology listed courses and who has had sufficient laboratory experiences to past Part II of the ASEP board certification exam can sit for the exam to earn the professional title, Exercise Physiologist. This latter track is likely to remain available to college graduates for several decades.

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| *The average exercise physiologist takes little responsibility for his or her own professionalism.* |

To further emphasize the original point, that is, the importance of the degree title, a person who graduates with a college degree in exercise science or kinesiology or one of several dozen similar degrees is not an exercise physiologist. This is true regardless of whether the person is hired as an exercise physiologist. Neither the employer nor the job title defines who is an exercise physiologist. It doesn’t matter if the employer hires a nurse as a lawyer. A person without a law degree is not a lawyer, and even then that person must pass the bar exam to practice law. It isn’t complicated, yet such failed thinking is all too common in the exercise sciences. That is why a professional roadmap is helpful. Then, people can ask questions about the “direction” they are going without finding themselves going round and round in circles. A few have reached their destination decades late. Others are likely to never reach it at all. That is a true tragedy, both for the faculty and their students. It is especially disappointing for students and their parents who find that the college degree outwardly portrayed some semblance of exercise physiology and success while being void of the academic and professional necessities to create the life of one’s dreams.

**More Exercise Physiology Research or Professionalization**

No one is arguing that research isn’t important to exercise physiology. This includes papers with a molecular and cellular focus on exercise as well as research that helps to explain the effects of exercise in the etiology and treatment of diseases [20]. So, where do exercise physiologists go from here? It is the author’s perspective that research must continue. However, shouldn’t exercise physiologists focus also on the professionalization of exercise physiology? There remains a tremendous challenge to ensure the credibility of all exercise physiologists, not just those have a doctorate degree and do research. As such, it

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| *The language of professionalism must be taught along with the energy systems, biomechanics, nutrition, and ECG.* |

is obvious that the majority of non-doctorate exercise physiologists do not engage in either basic or applied research. It is time to promote the professionalism in exercise physiology. To accomplish this, two critically important issues need to be addressed. First, academic exercise physiologists need to promote professional development of exercise physiologists by supporting the American Society of Exercise Physiologists. Second, the community of non-doctorate exercise physiologists must provide a stronger voice for exercise physiology as a healthcare profession. As it stands, the lack of a collective support of the ASEP organization is one of the primary failings of the educational system in the United States.

Historically, it was believed that drinking water during athletic training and performance was a sign of weakness [21]. Now everyone knows that there are important reasons to drink water during a sporting event. It seems that doctorate exercise physiologists are their own worst enemy when it comes to talking and writing about professionalism. If their existence is only for publishing research papers, one has to wonder why they fail to realize the importance of building the profession of exercise physiology. It seems rather obvious that exercise physiology meets the definition of *profession*. The question is whether exercise physiologists know it or know what to do with the information.

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| *Academic exercise physiologists have an important responsibility to be the glue that keeps “exercise is medicine” at the very center of its professional development.* |

Yet, it is clear that exercise physiologists provide society with an essential service (i.e., exercise is medicine) which is designed to benefit the recipients of that service. That professional service requires a mastery of a body of knowledge and judgment that the layman cannot practice it safely. The body of knowledge is defined by a scope of practice that is regulated by a code of ethics [22]. However, there is a curious illogic in not believing that work towards professionalism is not as important as doing research. To shirt publishing a paper about professionalism in the *Professionalization of Exercise Physiologyonline* electronic journal [23] because it does not have an impact factor shouldn’t be a road block for those who understand the need for professionalism.

The first step on the journey to success is no doubt the hardest for most people. Yet, it is absolutely imperative that it is taken. Playing an active role in creating professionalism is the “science” that backs up a successful profession. This isn’t a complicated thought. Yet, do exercise physiologists have what it takes to overcome their traditionalized thinking? Can the ASEP 21st century forward-looking reality of “what is exercise physiology” and “who is an exercise physiologist” turn things around? After all, exercise physiology must change and is changing, and in those changes can be found the blueprints for a successful application of “exercise as medicine.” But, what lies ahead, however, must be approached in an empowering way, explaining, and facilitating a new paradigm and a new exercise physiology.

Healthcare in the future will be focused on maintaining and promoting wellness [24], instead of treating illness. The ASEP board certified exercise physiologists will be key players in their own community-based healthcare practice, especially designed for health promotion and disease prevention [14]. The board certified exercise physiologists’ professional expertise is applicable to health promotion (not just research). In particular, this includes cardiovascular assessments to assist clients in developing health promotion paths and in tracking their performance. This also means that exercise physiologists of the future will work with clients who have spirituality concerns. It is all part of the striving towards discovering the true purpose or mission of exercise physiology as a scientific-based healthcare profession.

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| *The question is, “What is the best thing to do for the students?” In what way not doing what is right threatens the teachers’ integrity?* |

Healthcare is a trillion-dollar industry, representing about 14% of the U.S. gross domestic product [25]. Thinking of exercise physiology as a healthcare profession and not as a research discipline requires a new perspective. Because healthcare is at the center of the ASEP’s work, experiencing change internally while staying the same externally is extremely challenging. Yet, change is exactly what exercise physiology needs, especially since exercise physiologists are superbly qualified as healthcare practitioners. To position themselves within healthcare and to use their skills in new and exciting ways, academic exercise physiologists need to rethink their work and retool their minds in the areas of professionalization. In short, a transformation is needed; one that is likely to scare the living daylights out of them. Like it or not, exercise physiologists must focus on healthcare employment with the same vigor and vigilance they have focused on doing research.

The changing landscape of healthcare is directly related to an increased need and demand for accountability. This is why the ASEP Standards of Practice [13] are especially important to exercise physiologists for maintaining a degree of competency which assures that the public is safe. The ASEP leaders believed that it is crucial to facilitate consensus, increase communication, and develop political awareness in the exercise physiology community. But, unfortunately, without state licensure or a unified agreement and procedural rights among exercise physiologists, there simply is no way to ensure practitioners’ competence. Germane to this point is the research model of exercise physiology that has defined practitioners for decades. Here again, while research has for decades been at the core of academic exercise physiology, professional values such as ethics, integrity, altruism, and autonomy must also be learned and reinforced in educational and practice settings.

Students don’t just automatically know or understand professionalism [26], moral principles (including beneficence, nonmaleficence, veracity, and confidentiality), and the specificity of a code of ethics. They must be taught the exercise physiologist’s code of ethics and professional standards. Otherwise, conflicts of interest and questions of academic dishonesty arise in the classroom and research setting, especially in regards to sports and performance enhancing supplements and drugs [27]. To help faculty and students foster expected professional values and promote professionalism in exercise physiology, both the faculty and the students should support the professional infrastructure of ASEP, especially abiding by the ASEP code of ethics.

**Change Is a Certainty**

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| *Martin Luther King, Jr. said that “the time is always right to do what is right.”* |

How exercise physiologists respond being proactive or silent will have a definite influence on future exercise physiology practice. For the profession to become equal to physical therapy or other established healthcare professions, members must help to ensure that professionalism is at the core of the academic curriculum. It must also attract new members and retain others. Academic exercise physiologists must be protected against certain mean spirited individuals, the negative aspects of groupthink, organizational politics, and greed. Non-tenured exercise physiologists must be aware of the magnitude of risk to their academic status, especially in the evaluation of how to respond to threats to their own status. The ASEP leadership needs to establish policies and, where possible, institute measures designed to protect young faculty members who support and promote the ASEP vision.

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| *Leadership in its simplest form is: You are responsible for the destiny of others.*  *-- Richard Carmona* |

Having said this, the next logical point is: How long will it take? The only positive answer to this question lies within the community of exercise physiologists. Then, the question becomes: What, if anything, can the ASEP leaders do promote a faster acceptance and support of professionalism in exercise physiology? In short, members of the organization must “stay the course and never give up.” It is clear that much deliberation must be undertaken in order to develop fully as a healthcare profession. Certainly no one state that ASEP leaders have not done their best to begin the needed work towards professionalism. As a result, there isn’t any question that exercise physiology has undergone an evolution in recent years: From a 100% research-based discipline, with a primary mission focused on scientific papers, to a university-based accredited education program with emphasis on academic standards, cultivation of professionalism, and the practice of exercise physiology as a service to the public in an era of ever increasing healthcare issues and concerns.

Exercise physiologists are the sole architect of their profession, that is, if they desire to be. Those who get this point understand that there can be little doubt that exercise physiologists need their own professional organization. This shift from a generic organization to a professional one will continue to influence academic exercise physiologists. One reason is the growing awareness that the education of exercise physiologists as healthcare professionals brings with it liability issues concerning the protection of the public from incompetent students and/or faculty [28]. The academic exercise physiologists cannot be exempt from a certain share of the legal liability resulting from avoidable malpractice due, in part, to defective instruction and/or the lack of a shared support and promotion of professionalism. This is not to argue that there is not professionalism among exercise physiologists or that the teachers aren’t qualified. The truth is that most academic exercise physiologists are good men and women. But many of them either don’t believe they have that control over exercise physiology, or they don’t see how their influence can be responsible for change and success.

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| *Leaders have to learn to deal with people who are willing to sacrifice others to suit their personal ambitions.*  *-- Ruth Lubic* |

Simply put, it is the ASEP leaders’ beliefs that non-doctorate exercise physiologists of the 21st century will work in an environment in which they will help to create a better healthcare system. As entrepreneurs, they will be prepared as scholars and practitioners, and they will be much more likely to attract success than failure. They will have the intellectual training and academic rigor of an accredited program to ask questions, think critically, and synthesize both practical and scientific information. Given their increased hands-on laboratory experiences that are frequently associated with knowledge acquisition and problem-solving, they will be better prepared as active learners. This rethinking of undergraduate exercise physiology will help to get rid of exercise science and related majors. There will be more courses on business and marketing as well as a greater diversity and depth of exercise physiology courses. Students will graduate with a greater sense of how to move into entrepreneurial roles, thus enabling them to have more control over their career opportunity and future financial status as well as a greater impact on consumer healthcare (and athletic) outcomes.

**Past, Present, and the Future of Exercise Physiology**

The population 65 and older increased from 35 million in 2000 to 40 million in 2010 (i.e., a 15% increase) and then to 55 million in 2020 (a 36% increase for that decade) [29]. The physiologic, neurologic, musculoskeletal, and psychological changes in older adults are increasing and complex. Age-related changes in older adults and patients can be managed to a great degree by regular exercise. But, the exercise prescription must be properly carried out and applied with precision to promote positive outcomes and reduce complications. As such, board certified exercise physiologists have a vital role in successful outcomes for older adults. They are qualified to determine the appropriate exercise intervention and intensity based on changes in functional and physiological capacity, concomitant illnesses, and chronic or debilitating disease. Age-related changes in organ subsystems can be helped by regular exercise, but only if it is properly administered.

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| *Leaders must learn to challenge themselves and engage in constant discovery.*  *-- Marla Salmon* |

Functional capacity is an excellent objective quantification of a person’s exercise tolerance. In fact, research by Spin and colleagues [30] suggests that for every 1 MET that a patient attains, there is a corresponding reduction in annual mortality of 11%. Here again, since adults of all ages may have high blood pressure, decreased cardiac output, ventricular arrhythmias, and may be taking β- blockers with chronic heart failure and ischemic heart disease, they need the benefit of being tested by exercise physiologists and not by personal trainers or fitness instructors. Personal trainers have little to no actual academic class work in age-related changes of the respiratory system, such as a loss of elastic recoil of the lung, decreased strength of the respiratory muscles, and decreased compliance of the chest wall. They aren’t aware that these changes lead to a decrease in tidal volume along with an increase in frequency of breaths that increase work of breathing [31] or how the changes influence the cardiovascular system.

The future of exercise physiology resides in healthcare. This does not diminish its past or future role in athletics and sports training. However, without an entrepreneurial healthcare component to the exercise physiologist’s career options, the student who majors in exercise physiology will suffer the same job-related problems (if not age-related academic problems) as the students of exercise science or kinesiology find themselves. This point was highlight in 2006 by Roberta Rikli [32, p. 1], “…together with a lack of a common name and common purpose has raised concern about the field’s identity and importance in higher education….” The fact is, many professionals, including society, do not have any idea “what is kinesiology” or “what jobs students find following graduation.” Like exercise science, the lack of a philosophy and culture to sustain and clarify its role in the public sector, kinesiology and the thousands of students majoring in it lack the professional infrastructure and credibility important to generating a financial income sufficient to raise a family. It is not that physical education, exercise science, or kinesiology students and their faculty do not understand the power of physical activity. Rather, understanding the power of exercise must come from an integrated and comprehensive academic program that is constantly being transformed by a healthcare focus.

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| *I knew that whoever embraced professionalism held the power, and it was the key to success and credibility.* |

Unfortunately, the problems that have emerged from exercise science (and kinesiology; just two of 40 or more different names for physical education) have hampered the growth of exercise physiology. This is true regardless of the fact that exercise physiology along with exercise science developed from physical education in the 1960s and 70s. The other subdisciplines are biomechanics, sport psychology, sport sociology, motor learning, and history and philosophy. Frankly, while each has had its own growth and contribution to society and its members, exercise physiology is the primary subdiscipline that developed a scientific body of knowledge that stands on its own – “exercise is medicine.”

The James B. Conant report [33] was wrong in its assessment of physical education not having a sufficient scientific base to justify it as an academic field. Yet, given the nature of academia and the obvious “activity-oriented” field called physical education, hardly anyone jumped up and disagreed. Instead, academic departments and programs throughout the United States started changing their names to exercise science, as though the word “science” was actually strong enough to keep the departments from being eliminated. The problem is, there was (and still is) a lack of visionary leaders. No one could envision the “big picture.”

In retrospect, from the beginning, it was not a good idea that every science-related course within physical education would become a subdiscipline with its own content. Even today, few if any original members of the physical education department collaborate with colleagues from within other disciplines. Much like the “big bang” theory, everyone and every subdiscipline went a different path to perceived success. Worse yet, given the obvious lack of fulfillment for success, except to a large degree, exercise physiology, they are still moving further apart from each other. Only exercise physiology is for the most part a recognized composite of the course work from each subdiscipline. It is still

concerned with inactivity, athletics, obesity, and many of the same healthcare issues as physical educators were before the report. As the field of physical education/exercise science/kinesiology has become less recognized as a credible academic and educational experience/major, why not convert the various degree programs to exercise physiology? Related to this is the reality that then these programs will begin to experience a positive return on decades of investment rather than program reductions or even the complete elimination of academic programs [34-35].

**Leadership and a Unified Front**

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| *As is true with most organizations, the development and recognition are always a function of time. Patience is not wasted on doing the right thing for the right reason.* |

Most college teachers understand that administrators are always looking for ways to contain costs, or where they can they want to get rid of an academic program to eliminate tenured faculty [32]. The ASEP leaders understand this basic instinct to downsize as long as it is fair and driven by integrity. They also get what apparently many of their colleagues do not get. That is, they get the need to come together, to see the whole, and to think in a forward-looking manner. It is surprising, although it shouldn’t be that many exercise physiologists are excellent thinkers on one hand and, yet so narrowly defined on the other hand. It is as though they actually can’t see beyond their present research emphasis. They should be able to take a good hard look at exercise physiology as it is right now. They should be able to observe the status of their graduates. Are they working? If so, are they being paid a decent wage? Are they respected by other healthcare professions? The point of these questions is to raise awareness of the problems that associate with a failed unified front.

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| *Can you think of an exercise physiologist, teacher or otherwise, who has made a difference to the organization or profession? Can you?* |

“Hello, wake up American” is an expression to get people’s attention. Similarly, the ASEP leaders say, “Hello, wake up exercise physiologists.” It is time to accept full responsibility for professional in exercise physiology. By accepting responsibility, they will avoid the demise of exercise physiology along with the Kinesiology Department, such as happened with UCLA [36]. It was once a Department of Kinesiology that had exercise physiologists as faculty members. Later, it became the Department of Physiological Science. Today, it is the Department of Integrative Biology and Physiology whereby the majority of the 21 or so professors are not exercise physiologists. The fact is, it is not an exercise physiology department. Exercise physiology no longer exists at UCLA. The following statement was taken from the undergraduate webpage of the department [37]: “Physiological Science provides a rich background that covers cellular through whole organism physiology, and is appropriate for a variety of professions. Many of our students consider themselves "Pre-Med" which means that they are satisfying requirements for entering Medical School upon graduation, or in the near future. Others seek rewarding careers in research, teaching, physical therapy, nursing, optometry and pharmacy, just to name a few options.” This means that the “physiological science” major is as meaningless as is the “exercise science” major, given that students must seek yet another academic degree to find employment.

Once again, life repeats itself. If only exercise physiologists would unite and bring to an end the fragmentation within exercise physiology. It is the only way to gain universal recognition and stability as an academic department. Doing so would help inform the public sector and other healthcare professions that exercise physiology is recognized as the primary authority in the application of “exercise as medicine.” It is the main focus of exercise physiology, not sports or strength training. However, what is missing is the leadership outside of the ASEP organization to share in the work towards a unified mission to connect with and promote visionary leaders to continue the professional development in exercise physiology. The power of many isn’t a joke. Every exercise physiologist has an equal responsibility in caring for and nurturing exercise physiology. Whether it is

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| *You can’t go somewhere without leaving somewhere.*  *-- Marla Salmon* |

a professor talking about ASEP or the networking that takes place among students, faculty, and their friends and colleagues, it is all about the passion to continue the work of the ASEP leaders. If exercise physiologists aren’t taking care of their profession, who do you think will take control of it?

Either exercise physiologists forget the old ideas or they don’t [38]. John Maynard Keynes said it this way, “The hardest thing is not to get people to accept new ideas; it is to get them to forget old ones.” That is the key point, isn’t it? During the 20th century, the focus was on performing good research. Now, in the 21st century, the focus should be on professionalism. Exercise physiologists are living on the cusp of the transition between two ages. The ASEP leaders’ view of exercise physiology is substantially different from the sports medicine view. They have opened a fabulous new window of opportunity to take control of exercise physiology. In order to understand how every exercise physiologist is responsible for nurturing professionalism, it is important to start paying close attention to ASEP.

So, what does it take to change? Are exercise physiologists ready for a change? Are they willing to become a master architect of a better future for all exercise physiologists? Change is always difficult; it means letting go and taking on a new perspective. Exercise physiologists must be willing to leave some things behind them so they can embrace a new future. Think for a moment about the following questions:

1. Will exercise physiologists become the architect of change within their own profession?
2. Will they become advocates of their professional organization?
3. Will they continue to allow the hierarchy within sports medicine to influence exercise physiology?
4. Will they accept themselves, acknowledge their problems, and rely on their own intellect and skills?
5. Will they accept that exercise science is a broken record and that sports medicine has no business acting like an exercise physiology organization?

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| *It is common knowledge that fewer than half of the RNs in the United States participate in the ANA. It is more than appropriate therefore to give EPs the benefit of the doubt as they embrace the professionalization of exercise physiology.* |

Rethinking years of thinking one way and behaving similarly isn’t easy. But, if exercise physiologists are to move into entrepreneurial roles and be able to have a direct impact on consumer outcomes beyond those of recent times, they must expand their roles to promote the ASEP vision. They must become the new 21st century leaders who bring the clinical exercise physiology together with exercise physiology to bridge communication barriers. The problem is that too many exercise physiologists are promoting everything but exercise physiology. Thus, many are not familiar the ASEP initiatives, goals, and objectives [7]. There has always been too much variability and little interdisciplinary support. This is why little leadership has emerged from within the physical education subdisciplines (including exercise physiology). That is why the image of exercise physiology is often times more associated with coaching than the preparation of leaders and perpetuation of scientific thinking that undergirds exercise as medicine.

The future leaders of exercise physiology must develop strategies to unify exercise physiology and business proficiency; both are necessary for the future of exercise physiologists in the public sector. Students should be required to take business and management courses during their programs of study. Graduate education must teach more than statistics and research. It must be designed to teach students how to work in teams during their academic course work, particularly during the hands-own laboratory experiences. Students must be taught how to develop business plans to maximize their healthcare career opportunities as entrepreneurs. Future exercise physiology leaders must go beyond the need to develop expertise in research to that of understanding a broad range of regulatory measures contributing to a new vision for a professional healthcare practice.

**Concluding Statement**

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| *The exercise physiology person who is responsible for facilitating the change process with others is known as a* ***change agent****.* |

However complex, the transition from the traditional research-based doctorate exercise physiology to defining professional goals and abilities and matching them with the ASEP vision, mission, and priorities that support professionalism in exercise physiology must go on. The potential for a successful transition is increased with ASEP university-based accreditation, mentors, and emphasis on undergraduate scholarship and relevant work towards achieving professional development. The challenges that remain are many, especially given the views and dialogue about exercise science, diversity in approaches, and the problematic nature of the state of affairs for recent college graduates.

In a similar view but with a different emphasis, the ASEP leaderships suggest that it is possible to change and to hold on to the hope of something better. Ideas that have been acted upon reflect the synchrony of movement and interaction of caring exercise physiologists throughout the United States. They believe exercise physiology exists in its own right and not as an extension of sports medicine, exercise science, or physical education. Also, that any encroachment on the ASEP standards of practice is recognized as an incursion on the practice of board certified exercise physiologists. The goal of the ASEP organization is to facilitate optimal client health through primary, secondary, and tertiary prevention interventions. Exercise as medicine fits well with the “big picture” holistic concept of optimizing a dynamic and stable interrelationship of mind, spirit, and body of all clients.

While exercise physiologists need to understand and celebrate their past and current contributions to the scientific literature that represents their specialized body of knowledge, they must also have passion to move forward with the courage and imagination for a better future. Exercise physiologists and the professional organization must remain focused. The good news is that a lot of work has already been done. Exercise physiologists can change their beliefs, and they are responsible for defining the future of exercise physiology as a healthcare profession. Think about it: The need to use research findings in the ASEP practice, the willingness to change, and the need for professionalism in exercise physiology are all important for survival. Will exercise physiologists meet the challenge? The ASEP leaders think so.

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