

# Professionalization of Exercise Physiology<sup>online</sup>

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**American Society of Exercise Physiologists**  
The Professional Organization of Exercise Physiologists

## Exercise Physiology, Professionalism, and Healthcare

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*Our lives begin to end the day we become silent about things that matter.*  
-- Martin Luther King, Jr.

OVER THE PAST FOUR DECADES academic exercise physiologists have defined exercise physiology almost exclusively as a research discipline. From their point of view, the objective has always been to pursue and develop the scientific knowledge that speaks to the acute and chronic physiologic adaptations and applications to athletic training and performance. While a better understanding of sports training, athletic competition, and human movement is always important, it does not (and it should not) take precedent over important healthcare guidelines for the prevention and treatment of chronic diseases.

*We have to fight for our ability to  
imagine the world we want.*  
-- Ruha Benjamin

In 1871, Sir William Osler read that: “Our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand.” It is equally true today. That is why the present image of exercise physiology must change. Image isn’t just important it is everything to a person, an organization, and a profession. The better the public image of exercise physiology the better the chances of students locating a credible career after college.

Hence, the expression “Change your image. Change your life” is true for many different reasons. The future of exercise physiology as a healthcare profession is in our hands. But, we must appreciate the importance of professionalism and learn why it is

important to promote the professionalization of exercise physiology today. To accomplish both, exercise physiologists must learn the importance of what they think. After all, our thoughts literally make us what we are. No doubt that is why Emerson said: “A man is what he thinks about all day long.”

*We become what we think, what we talk about, and what we do. If we think that our work is for the right reasons, if we think that our actions will produce positive results, and if we start living as professionals, we will become our vision.*

### **Exercise Medicine and the Healthcare Image**

Think about it. The first impression of anyone, including that of an academic degree, is most often what that person walks away thinking. If you are an exercise physiologist who teaches at the college level, do you want students and/or faculty leaving your classroom or department thinking that you are interested only in teaching athletes to jump higher, run faster, or build bigger muscles? If not, then, you may wish to do something about what the contemporary image portrays.

The ASEP leaders are interested in developing and re-enforcing the image of exercise physiology as a healthcare profession. It is part of the strategy to help students think outside the box. After all, since exercise is medicine, shouldn't it be prescribed by qualified healthcare professionals and not by personal trainers with a weekend warrior certification? Similarly, ask yourself this question: “Why is a college degree important with respect to one's career, particularly in the healthcare industry?” The answer can be found in a parallel thought by Plato who said that “the greatest mistake physicians make is that they attempt to cure the body without attempting to cure the mind; yet the mind and body are one and should not be treated separately!”

*Acting with integrity means that exercise physiologists must adhere to the ASEP ethical principles and professional standards.*

Hence, the greatest mistake academic exercise physiologists make is that they go about teaching their classes and doing research without attempting to think of their work as a healthcare profession; yet exercise and medicine are one and should not be treated separately. Ask yourself, “Why did the ASEP leaders develop early on as an integral part of the founding of the Society specific academic accreditation guidelines?” The answer is

simple and to the point. After getting the facts about the importance of professionalism, after analyzing the facts (particularly in regards to the established healthcare professions), they arrived at the decision that exercise physiology accreditation was required and, then, they acted on that decision.

**Key Point:** *If exercise is medicine, **Exercise Medicine** as a term or as a title is actually no different from physical activity is therapy (i.e., Physical Therapy)! The problem has always been and still is the exercise physiologists' failure to think beyond yesterday's failed rhetoric. But, fortunately, with the existence of the ASEP organization, the professionalization of exercise physiology as a new healthcare profession is within grasp.*

While the path to attaining a professional healthcare image will be challenging, it is no different from what other professions have done and continue to do today. The ASEP Board Certified Exercise Physiologist is not someone to be regarded as a fitness instructor, but as someone who is fully educated in the scientific knowledge of exercise medicine. The EPC exercise physiologist is such a person. He/she is worthy of respect, especially given the proven credential in the prevention of chronic diseases. Clearly, the exercise physiology body of knowledge regarding health-specific physiologic benefits of regular

exercise can help members of society in their quest for better health and well-being.

***The Astounding Discovery! Are You a Professional? Did you know that it is more than being a researcher? It is more than attending regional and national meetings.***

The power of perception is huge among all individuals, regardless of age and/or professionals. Perhaps, most noteworthy is that it allows for new thinking that enables individuals to discern the future they want to live. This is an important point because people who have the facts and willingness

to act are more likely to find themselves solving their problems. Similarly, how clients and/or patients perceive exercise physiologists influences what exercise physiologists can do as healthcare professionals. Perception and identity are all about building a good reputation that begins with a constant effort to manage image. Re-enforcing the healthcare image is a constant on-going professional process that eventually becomes a fully accepted reality.

## **The ASEP Organization**

The American Society of Exercise Physiologists was founded in 1997 (1) as the professional organization of exercise physiologists. The ASEP mission is to represent and promote exercise physiology as a healthcare profession. The organization is committed to the professional development of exercise physiology, its advancement, and the credibility of exercise physiologists. Exercise physiology is no longer viewed just as a research discipline that benefits exercise physiologists with the doctorate degree. Now, college graduates with either an undergraduate degree in exercise physiology or an ASEP board certification can earn a living by finding employment in the healthcare field. Or, they may find themselves the proud owner of their own healthcare business.

With the creation of this new thinking and the responsibilities that go with it, the first-ever Code of Ethics for Exercise Physiologists (2) was developed and posted on the ASEP website. The significance of the Code is that both students and professionals in the study and application of exercise physiology to health, fitness, and exercise training as well as the prevention and rehabilitation of chronic diseases can turn to the Code for guidance in their professional conduct. Adherence to a profession-specific ethical code of conduct is expected of all healthcare professionals. It is based on the understanding and belief that exercise physiologists as healthcare professionals are self-regulated critical thinkers who are accountable and responsible for their practice and delivery of exercise physiology concepts, ideas, and services.

1. Exercise physiologists should accurately communicate and provide health and fitness, educational, preventive, rehabilitative, and/or research services equitably to all individuals regardless of social or economic status, age, gender, race, ethnicity, national origin, religion, disability, diverse values, attitudes, or opinions.
2. Exercise physiologists should be responsible and accountable for individual non-medical judgments and decisions about health and fitness, preventive, rehabilitative, educational, and/or research services.
3. Exercise physiologists should maintain high quality professional competence through continued study of the latest laboratory techniques and research in preventive and rehabilitative services.

4. Exercise physiologists are expected to conduct health and fitness, preventive, rehabilitative, educational, research, and other scholarly activities in accordance with recognized legal, scientific, ethical, and professional standards.
5. Exercise physiologists should respect and protect the privacy, rights, and dignity of all individuals by not disclosing health and fitness, rehabilitative, and/or research information unless required by law or when confidentiality jeopardizes the health and safety of others.
6. Exercise physiologists are expected to call attention to unprofessional health and fitness, preventive, rehabilitative, educational, and/or research services that result from incompetent, unethical, or illegal professional behavior.
7. Exercise physiologists should contribute to the ongoing development and integrity of the profession by being responsive to, mutually supportive, and accurately communicating academic and other qualifications to colleagues and associates in the health and fitness, preventive, rehabilitative, educational and/or research services and programs.
8. Exercise physiologists should participate in the profession's efforts to establish high quality services by avoiding conflicts of interest and endorsement of products in the health and fitness, preventive, and/or rehabilitative services and programs.
9. Exercise physiologists should participate in and encourage critical discourse to reflect the collective knowledge and practice within the exercise physiology profession to protect the public from misinformation, incompetence, and unethical acts.
10. Exercise physiologists should provide health and fitness, preventive, rehabilitative, and/or educational interventions grounded in a theoretical framework supported by research that enables a healthy lifestyle through choice.

### **The Road to Professionalism**

While the road to exercise physiology professionalism started in 1997, it will take decades for exercise physiologists to understand the importance of supporting their own profession. This point is simply inevitable. The change process is always very slow. You may recall that the professionalization of physical therapists was initiated in 1881 when the Sargent

School in Boston instituted a formalized training program. Yet, it took more than 30 years (January 15, 1921) before the American Physical Therapy Association was founded. Then, it wasn't until 1935 that the first Code of Ethics for Physical Therapy was published (3). There isn't any question that physical therapy has evolved into a profession with powerful lobbying efforts and a commitment to the highest quality of healthcare (4).

**Key Point:** *With college tuition increasing, it is important that career opportunities are strong. Otherwise, spending a huge sum of money on an academic degree that doesn't allow for a credible job doesn't make a whole lot of sense. After all, there is a rather simple question to ask: Where is the financial payoff? The answer is in finding the remedy and there is one! It is centered on a credible academic degree. Thus, regardless of the fear of changing or thinking differently, that is exactly what academic exercise physiologists must do. Or, as H. Jackson Browne said, "Don't be afraid to go out on a limb. That's where the fruit is." The fruit (i.e., credible career opportunities for students) prompted the ASEP leaders to think outside the box.*

If academic exercise physiologists settle for anything less than what the physical therapists have done, they will fail at showing concern, empathy, and consideration for the needs and values of their students. It is simply not enough to say to undergraduate students who are spending thousands of tuition dollars to graduate and find credible employment to hear from their professors that, *"With this degree, you can now apply to graduate school in physical therapy or nursing."* Also, it is increasingly obvious that it is never enough, if not ethically wrong, to fragment degree programs with concentrations and minors (e.g., the kinesiology degree with a minor in exercise science or the exercise science degree with a minor in sports science). In fact, when specialization is used to increase the number of students without giving appropriate consideration for credible career opportunities after college, it destroys the intended purpose of the undergraduate degree.

*I believe that it is appropriate to systematically plan the future of exercise physiology rather than simply allowing it to be determined by non-exercise physiologists, particularly by individuals of academic subspecialties.*

Others have said it before me in regards to their chosen field of work and yet, it is so true today. Exercise physiologists must understand "what is exercise physiology" and "who is an exercise

physiologist.” That is why the ASEP leadership defined both and placed the definitions on the ASEP website. Point in fact, ASEP exercise physiologists call themselves by one title. They are not sports scientists, exercise scientists, or movement scientists.

*Exercise Physiology is the identification of physiological mechanisms underlying physical activity, the comprehensive delivery of treatment services concerned with the analysis, improvement, and maintenance of health and fitness, rehabilitation of heart disease and other diseases and/or disabilities, and the professional guidance and counsel of athletes and others interested in athletics, sports training, and human adaptability to acute and chronic exercise.*

*Exercise Physiologist is a healthcare professional who either 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 in exercise physiology from an accredited college or university.*

-- <http://www.asep.org/>

The road to professionalism in exercise physiology will only be made harder with the failure of traditional thinkers not wanting to change. They must learn to think differently.

*Many, if not most, of the jobs in fitness centers and corporate settings are filled by persons without a college degree or exercise certification.*

-- Malek et al. (6)

They must also learn the importance of looking to the future and forgetting the past. Part of that process is breaking from the past and present approach to the non-exercise physiology degree programs such as the exercise science degree, which produces an inordinate number of college graduates who find themselves unemployable. Another part of the change process is to recognize that it is not okay for the academic exercise physiologists to publish their research papers and attend national meetings while teaching various exercise physiology courses in the exercise science degree with a concentration in exercise physiology at the expense of the students and their parents. While it is obvious that research is important, it must be recognized that students attend college to qualify themselves for credible career jobs after college.

If the academic degree is not career-driven, it is a meaningless degree. This point isn't complicated. To think otherwise or to encourage a different point of view is simply

an illusion and not the truth. It is misinformation that generates hope that results in failure. While there is no polite way to say that exercise science is having a negative effect on exercise physiology, it is the truth nonetheless. The degree is obsolete without a leg to stand on, especially when college graduates of these programs must go on to graduate school to increase their chance of financial success. It is pastime to act. Remember the saying, “If you don’t know where you are going, any road will get you there.” Well, in my opinion, that is why we have 40 or more similar undergraduate degrees as offshoots of what was once physical education.

Professionalism dictates an ordered thinking process. Professionalism doesn’t exist in chaos; it is about knowing where you are going and how to get there. It is about attracting individuals with a vision of something more than research, attending

national meetings, and doctorate programs. That is, while it is natural and expected to study physiology to understand cardiovascular health (and human performance), the development of a healthcare profession requires interests in the legitimate concerns that undergird the professional development of exercise physiology. This doesn’t mean that exercise physiologists cannot or would not continue to study the physiology of athletic performance. It simply means that exercise physiology is more than describing the control of fuel use during exercise training and competition and recovery. The matching of the scientific knowledge that is already known with prevention concepts is a powerful exercise medicine.

I believe it is highly probable that exercise physiologists, particularly board certified exercise physiologists, will be recognized as the primary healthcare professional responsible for the development and application of the exercise prescription. At this point, though, suffice it to say that much work remains to be done. At present the literature may appear to be as it should be for exercise physiology, particularly as it is associated with ACSM. However, the reality is that it is in a state of disarray with far too many related degree programs that confuse and diminish exercise physiologists. A coordinated interplay

*The ASEP organization is “the” professional organization of exercise physiologists in the United States. It is the means to documenting the uniqueness and professional value of exercise physiologists as healthcare professionals.*

among key academic exercise physiologists is required to reconfirm the work of ASEP, and to further elaborate the emphasis on exercise physiology as a healthcare profession.

The crossover point from the traditional sports medicine-driven thinking about exercise physiology and the 21st century ASEP perspective is the decision to recognize that exercise physiology is a healthcare profession and not a research discipline. After all, exercise is medicine and “exercise” physiologists are the logical healthcare practitioners to demonstrate and maintain a professional relationship with clients and/or patients who are concerned about chronic diseases,

health, and well-being. This does not mean that they must stop their study of fuel utilization during exercise, muscle tissue plasticity, and oxygen transport and utilization. But, it does mean that academic exercise physiologists must begin the process of emphasizing the importance of the right title at the

*It is clear that exercise physiologists are not the only ones who provide exercise medicine services to the public sector. But, given the work of the ASEP organization, especially with emphasis on viable and marketable careers for graduates with an accredited undergraduate degree, board certified exercise physiologists are prepared to provide the healthcare services to prevent and/or postpone many chronic diseases.*

undergraduate level. Clearly, exercise physiology cannot be viewed as a research degree that exists among the doctorates while the non-doctorates are challenged to make a living in the real world.

While exercise physiologists have learned much during the past 40 years about oxygen transport and utilization, they must now learn what it means to be a healthcare professional. Non-doctorate board certified exercise physiologists must be educated so that they can use standardized treadmill tests to evaluate the client’s physical work capacity and exercise prescription. Moreover, academic exercise physiologists must describe, teach, and promote the EPC exam to their students and program. They must help their students understand the differences between personal trainers and board certified exercise physiologists. The ASEP leadership understands this thinking, and that is why the organization has benefited exercise physiology.

**Key Point:** *There is an important link between an academic major and occupation (e.g., 82% of the nurses work in health-practice occupations).*

## **Failing to Grasp the Need to Change**

Forty to 50 years ago it was popular to encourage people to be physically active, but not get too serious about regular exercise. Today, it is critical that every person who can exercise should do so on a regular basis. It is in fact the primary means to living a lifestyle that helps to modify the risk factors for chronic diseases while promoting a healthier state of mind and body. But, the “regular exercise” via an individualized exercise prescription must be properly developed and prescribed. In this regards, it is anticipated that exercise physiologists will promote a better lifestyle; one that will increase and sustain changes in psychophysiology of individuals of all ages.

Instead of continuing to think of the power of exercise to prevent health problems while promoting a healthier lifestyle within the context of fitness centers and athletic settings, why not empower the exercise physiologists with the help of ASEP to compete with other allied health professions? Why not move beyond the fitness instructor and personal trainer mentality? In actuality, they don't exist with sufficient financial base to

*The ASEP leadership believes that it is imperative for all academic departments offering the exercise physiology major that the students are taught the importance of the mind-body interconnectedness to meet career marketplace demands. Understanding the role that the mind plays in health and disease helps to foster the development of the profession of exercise physiology.*

warrant the purchase of a home and/or a car or to raise a family. Also, it is clear that these individuals are not scientifically educated as exercise physiologists. They did not graduate from an ASEP accredited program. They come either from a mix of kinesiology and physical education courses or exercise science and one of its several concentrations. Also, they might have a degree in political science or, perhaps, accounting. Regardless, they fail to possess the key to being a credible healthcare practitioner and, for certain, they are not entitled to the term “healthcare professional.”

Why these points are so little understood betrays the lack of reflection and understanding of present-day academics. In short, their thinking is too influenced by the sports medicine rhetoric. Their focus is “do whatever they need to sustain their own academic career opportunities” while their students find themselves jobless. As an example of their stubbornness, they use the degree title exercise science rather than exercise physiology while telling their students that

they can call themselves exercise physiologists. It makes no sense whatsoever, yet it is so commonplace as to be an embarrassment to anyone remotely related. The required knowledge base for exercise physiology suggested by the American Society of Exercise Physiologists is primarily a composite of 7 to 8 academic courses. This is not the case with the majority of the offshoot undergraduate degree programs. The students who graduate from an ASEP accredited program (e.g., Marquette University, Midwestern State University, West Liberty University, Long Island University – Brooklyn, Bloomsburg University) do so with a better education and increased opportunities for a career in healthcare.

Academic departments (and the faculty) should not promote exercise science and exercise physiology as the same area of study. They are not the same, and it is unethical to argue that they are the same because the curricula for both are different. The problem is not that exercise physiology (under the direction of ASEP) is doing what it can to present itself differently from the typical physical education-exercise science undergraduate degree program. Rather, the problem is that the fragmentation of the programs hinders the professionalism of exercise physiology. It is the fact that too many non-exercise physiologists profess to understand “what is exercise physiology” when they do not. There is no way that the exercise science degree, as generated from the decades of a physical education-driven perspective, can effectively address the healthcare issues of this country. It is simply too narrow in its scope, and it is inattentive to the importance and necessity of professionalism issues as well as the role professional development plays in building a healthcare profession.

For these reasons and others, it is a matter of time that the non-exercise physiology academic majors will decrease in popularity. It has already happened to once well-known doctorate programs in physical education. Exercise science and kinesiology will go the same path unless they join forces with exercise physiology. If (and when this happens), the force of change will be so powerful that the attention of other allied healthcare

*Given the complexity of healthcare settings, services, and responsibilities, it is extremely important that exercise physiology students have the opportunity to take a professional development courses just as they would be expected to take an exercise physiology course. The course should be taught by the exercise physiology faculty with significant discussion of the exercise physiology code of ethics and professional standards of practice.*

practitioners will look to exercise physiology for guidance rather than assuming that they can do what exercise physiologists are educated to do in healthcare. Physical therapy, in particular, is already poised to assume leadership in prescribing exercise to healthcare issues. Indeed, they understand the importance of exercise medicine. They are also in a good position to benefit from the financial bottom line.

All of this is taking place while the faculty members of exercise science fail to upgrade to exercise physiology, fail to incorporate new thinking, and fail to understand the significance of a professional organization such as ASEP.

It is a sad commentary on the mix of department chairs, directors, related faculty, deans, and vice-presidents. On one hand, they believe exercise physiology is problematic for its over-specialized research interests. On the other hand, they believe that exercise physiology is headed towards extinction, given the quasi-technician status of its college graduates (7). To some degree, they are right in that the “extinction” will be with all non-doctorate programs while it is likely that the doctorate exercise physiologists will be assimilated into other existing allied health professions.

***The Point is This:*** If exercise physiologists do not open their eyes and grasp what is happening, especially in regards to limited career options, then, the existing exercise science programs will be nothing more than transitional degrees for entry into the multi-skilled allied health graduate programs.

### **Final Thoughts**

Exercise physiology needs a clear vision and mission. That is what the ASEP leaders have done. Exercise physiology programs must be accredited (8) and all exercise physiologists should acknowledge the ASEP professional standards of practice (9). Again, the ASEP leadership created both within a short time after it was founded. Why, one reason was to avoid the obvious fact of exercise physiology disappearing from the face of academia. Another reason was to avoid (if at all possible) the incorporation of exercise physiology into other healthcare professions (such as physical therapy, in particular). A third reason was to set the stage for professional advancement so that students of exercise physiology could expect a reasonable reimbursement from fee-for-service in the public sector.

Also, the ASEP leaders believe the designation of “clinical” exercise physiologist is outdated and too narrow in its career focus. There simply isn’t any reason for the use of term. Board certified exercise physiologists are qualified to work in both non-clinical and clinical environments. The idea that there is a distinction is grossly misleading and naïve. Physical therapists do not refer to themselves as clinical physical therapists. It makes no sense whatsoever to reduce the exercise physiologists’ scope of practice to the “clinical” realm of work. The title, Exercise Physiologist, is sufficient unto itself. It is more than clear that exercise physiologists treat clinical and non-clinical clients and patients. Neither represents a higher level of preparation since the ASEP academic curriculum is the same

*A writer’s job is to tell the truth.*

*-- Andy Rooney*

for both with the expectation that the board certified exercise physiologists will work with anyone who needs exercise medicine.

Board certified exercise physiologists should do whatever they can to create their own healthcare network and career options.

These options should be developed outside the traditional hospital cardiac rehabilitation setting (10,11). The fact that hospitals and medical clinics have a history of nurses and physical therapists doing the work of exercise physiologists argues this point very well. This is also why exercise physiologists are paid so poorly in hospital cardiac rehabilitation programs in addition to the fact that they are often hired as part-time employees with little healthcare benefits (12). Yet, this shouldn’t be the case since there isn’t any doubt that regular exercise is linked to improve health status and quality of life. Exercise physiologists should be hired as full-time employees with the same healthcare benefits as physical therapists and nurses.

The power of exercise to promote health and well-being has been recognized since the 1540s (13) and many times since the 1700s (14). In fact, the first research laboratory established in physical education in the United States for the study of exercise physiology was at George Williams College in 1923, then at the University of Illinois in 1925, Springfield College in 1927, and the University of California, Berkeley in 1934 (15). The point is this: Decades later there appeared several exercise physiology textbooks (e.g., Karpovich in 1959, Mathews et al. in 1964, DeVries in 1966, and Astrand and Rodahl in 1970). These textbooks presented the “physiology of exercise.” Exercise physiology as a profession such physical therapy was evolving was not even considered. It wasn’t until

1997 with the founding of ASEP that laid the professional infrastructure to increase the emphasis on the importance and necessity of professionalism, professionalization, and organizational development specific to exercise physiology. The first textbook devoted to the both exercise physiology and professionalism was not published until 2013 (16).

Significant challenges remain. Regardless of the little jibes hurled at the ASEP leaders, increased attention must be given to learning about the professionalization process at the individual and organizational levels. How do both promote the understanding that exercise physiology is a healthcare profession, and does the existence of ASEP accelerate it? Is the individual primarily or secondarily the key to changing how we think about exercise physiology and exercise medicine? What is the role of the academic exercise physiologists in the change process? Can they, in combination with the ASEP leadership, effectively promote professionalism in timely manner and will they do so?

*If you get your head above the crowd, you're going to be criticized. So get used to the idea.*

*-- Matthew C. Brush*

Obviously, even though there remain many challenges to solve the problems faced by exercise physiology, it is time to amalgamate the expertise of all exercise physiologists to carve out a place for exercise physiology in the 21st century healthcare prevention and treatment services throughout the United States and worldwide. To accomplish this, two important issues need to be addressed. First, academic programs committed to educating future exercise physiologists should be accredited in accordance with the ASEP Accreditation Guidelines to ensure that exercise physiology is not lost among the fitness instructors and personal trainers. Second, the community of exercise physiologists must provide a much stronger voice in support of the critical issues of professionalism and professional development to ensure that exercise physiology is recognized as a healthcare profession.



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