**Thinking as an Exercise Physiologist**

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Unless we remember, we cannot understand.

-- E. M. Forster

*Aspects of the Novel*

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| Intellectual inertia must be overcome if real, meaningful innovation is to come about. When intellectual inertia reigns, yesterday’s thinking carries the day.  -- Mike Shipulski  http://www.shipulski.com/category/triz/ |

HIS ARTICLE is about the extraordinary challenge and need for exercise physiologists to think differently. What makes this process so difficult is the failure of academics to think exclusively as exercise physiologists. If you have kept up with the articles published in **PEPonline**, you should appreciate (that at least) from the writer’s point of view it is as if exercise physiologists are not free from the inertia of the delayed thinking. In one sense, it is a form of laziness. It is a provocative thought, and if nothing else it should provoke some academics to take the time to reflect on this notion of failing to step up to the plate of change and growth.

Although not that obvious among the academic exercise physiologists, the psychology of exercise physiologists is out of date with the 21st century change process. This is especially the case as it relates to exercise medicine and exercise physiology (1). Strangely enough, the college teachers continue to argue the same worn out themes of exercise science as if the typical curriculum is actually a science oriented series of academic courses. Of course, that isn’t the case, and all it takes is just a little analysis of one of a hundred websites to get the point. This is why I believe the academic exercise physiologists, whether they know it or not, are at least 50 years behind the times when it comes to thinking as professionals. Their thinking today can be traced back to the physical education period of the 1960s.

Strange as it might sound, hardly anything has changed. When will it click in the brains of the exercise physiologists, especially those who teach in Exercise Science or Kinesiology Departments? The clearest evidence that change is imperative is demonstrated in all other healthcare professions. Every day, the leaders in these professions produce new ideas and create new possibilities. They go beyond being personally selfish or even a one purpose self-centered mentality (such as research is the only thing important). Obviously, or it should be, students and the profession are important. How else are they going to equip themselves with “art of thinking?” That is, how are they going to understand the importance of manipulating their memories to facilitate change (2)? To me as an exercise physiologist, the evidence appears to be strong that the minds of many, if not the majority, of the academic exercise physiologists are not even aware of their responsibility to the professionalism that is required of healthcare professions such as exercise physiology.

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| Blindness to assumptions is all around us and is a real reason for concern. And the kicker, the most dangerous ones are also the most difficult to see – your own assumptions.  -- Mike Shipulski  http://www.shipulski.com/category/triz/ |

It is as though exercise physiology is invisible as a healthcare profession, except to those who are not interested in exercise physiology being any more than a stepping stone to their own profession (such as occupational therapy and physical therapy). This kind of thinking isn’t new to those who helped to grow their own profession during the past 60 to 90 or more years. Professional development has been going on for decades and still is among many professions. Both professionalism and professional development are imperative for members of a profession to be awarded with credibility. Until recently, since 1997 with the founding of the **American Society of Exercise Physiologists**, exercise physiology was defined in a research perspective (i.e., the acute and chronic adaptations to exercise).

Yet, as soon as exercise physiologists start to think straight, it becomes clear that exercise physiology is much more! “Thinking that matters” in this article is about exercise physiologists as healthcare professionals, and not as trainers, technicians, or instructors. It is using the mind to prescribe exercise medicine as healthcare professionals. It is thinking as a healthcare professional. It is all about the mental imagery of seeing the power of exercise medicine to help society. Thus, there is good reason to put our minds to work, and to give ourselves the time to find the solution to our failure to agree on a shared set of assumptions. As Adam Smith (3) said, “Paradigms do not change easily.”

***Key Point:*** The problem with changing how a person thinks is that the person him- or herself is living in accordance with his or her “beliefs.” We are what we believe! It isn’t any more complicated than that, but that is also the problem, isn’t it? If academic exercise physiologists believe that their job is to do research and publish, then they are not prone to think of themselves as healthcare professionals.

More often than not, change is dependent on a person’s values (i.e., what is meaningful to a person). Presently, it is obvious that research is valued by academic exercise physiologists. From the ASEP perspective, isn’t it time to value exercise physiology as a profession? Isn’t it time to give direction to exercise physiology? That is, isn’t exercise physiology a way of life that is good for everyone and not just for the doctorate prepared exercise physiologists? Isn’t it time to internalize the value that undergirds professionalism in exercise physiology in the same way that the physical therapists value professionalism? Lastly, isn’t it time to make a commitment to a particular hierarchy of values that correspond to giving up our time and energy to the ethical challenge of promoting all exercise physiologists as board-certified healthcare professionals?

As Shirley M. Steele and Vera M. Harmon (4) said, “There comes a time when it is necessary to question, to argue, to challenge.” Frankly, it is pastime to do all three. Yet, the freedom to challenge status quo is almost nonexistent for fear of retaliation (especially by otherwise friendly sports medicine academic colleagues). It is also pastime that academic exercise physiologists reorder their values if they are to reflect upon and support the emphasis on professionalism. In particular, they must develop the willingness to speak up and write about these points of interest. The question is this: Are you up for the challenge? You must learn to be because “you are the creator of your own destiny.” The universe is a complicated place. No matter what factors influence your life, it is important to stay the course. Or, as Ralph Waldo Emerson said, “The only person you are destined to become is the person you decide to be.”

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| Self-regulation that results from “speaking up” is a basic tenet of all professions. Why is it that exercise physiologists hardly ever think about professionalism? In today’s world – where students are paying outrageous tuition fees for meaningless degrees – why aren’t academic exercise physiologists taking control of their own ship? |

It is not an easy thing to “speak up” and share with friends and colleagues ideas that are different from everyday thinking. Such a person has to be willing to challenge the rhetoric, and he/she must do what is necessary to convince others that they, too, can develop the energy and will to do what it takes to be successful. In short, why not make the commitment to think? Why not commit to a new exercise physiology? Why not work to become the exercise physiologist of your dreams? Why not show your passion, enthusiasm, and will to succeed under pressure. Why not focus on the present and do the right thing? That is, ask not what can exercise physiology do for you, but instead, ask what can you do for exercise physiology? Why not do your part and, as Margaret Mead said:

*Never doubt that a small group of thoughtful, committed people can change the world.*

Never doubt for a second that exercise physiologists must learn the importance of self-regulation. It is at the heart of professionalism, regardless of what skeptical colleagues may say. Self-regulation is akin to if not driven by the exercise physiologists’ altruistic behavior. It is the presence of non-exercise physiologists as non-experts in the prescription of exercise that threatens the prescriptive use of exercise medicine. This in itself should be the reason to understand the significance and necessity for supporting the ASEP organization. It is a privilege and a burden shared by all exercise physiologists. After all, we are what we dream ourselves to be, so we might as well support the idea of doing a better job of monitoring what we are and what we do.

The following quote gives purpose to thinking differently, however a fragile construct it is for many people. As Joe Montana, who led the 49ers to four Super Bowl championships, admits, “Confidence is a fragile thing.”

**The Paradoxical Commandments**

People are illogical, unreasonable, and self-centered

Love them anyway.

If you do good, people will accuse you of selfish ulterior motives.

Do good anyway.

If you are successful, you win false friends and true enemies.

Succeed anyway.

The good you do today will be forgotten tomorrow.

Do good anyway.

Honesty and frankness make you vulnerable.

Be honest and frank anyway.

The biggest men and women with the biggest ideas can be shot down by the smallest men and women with the smallest minds.

Think big anyway.

People favor underdogs but follow only top dogs.

Fight for a few underdogs anyway.

What you spend years building may be destroyed overnight.

Build anyway.

People really need help but may attack you if you do help them.

Help people anyway.

Give the world the best you have and you’ll get kicked in the teeth.

Give the world the best you have anyway.

-- Dr. Kent M. Keith

In a nutshell, here is the deal. If parents are going to send their children to college to get a college degree so that they will be able to get a credible and financially stable job, then the degree must be credible to begin with. This means it is pastime to collect data and analyze the dozens of similar academic degrees, from exercise science to human performance to sports science. Are these degrees credible? Or, do they exist simply to benefit existing programs at the graduate level? If the latter is correct, then, it is time to tell the American public that the 4-year undergraduate degree itself is not enough to make it in the real world. If so, why is this thinking allowed to continue? It is simply to allow a lot of academics to do research while placing teaching and degree programs on the back burner? If this is the case, it is a horrendous version of why college is valued in society.

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| *Exercise physiologists must change their thoughts if they are to change their reality.* |

To be frank, not changing and therefore failing to think straight is the same as leaving “bad apples” in academia to destroy something that can be great and is needed by society. Exercise physiology is a healthcare profession, and society needs exercise medicine. It is a choice exercise physiologists must make, and they must do it sooner than later. It all comes down to exercise physiologists of all levels deciding to make a difference. Speak up to change what is to what can be and do it now.  Will it be work? Yes, will it take time? Yes, but begin now. Decide your course with the ASEP leadership. They know where they are going, and they know how to get there.

The ASEP leadership understands that since the founding of the ASEP professional infrastructure to put professionalism in exercise physiology, the academic exercise physiologists have been slow to deliver support. With encouragement, that can change. They must learn to think about what it means to be self-regulated (5). What must they learn about putting the profession first, and why it is important to change along with an appreciation for the goals of the profession? What are the dreams and desires of the members of the profession? But, sadly enough, none of this will happen if exercise physiologists do not start thinking so that they can change their paradigm of yesterday’s thinking to the 21st ASEP perspective.

In 1962, [Thomas Kuhn](http://www.emory.edu/EDUCATION/mfp/Kuhnsnap.html) (6) defined the concept of "paradigm shift."  [Kuhn](http://www.ee.scu.edu/eefac/healy/kuhn.html) argued that scientific advancement is not evolutionary, but rather is a "series of peaceful interludes punctuated by intellectually violent revolutions" and, in those revolutions, "one conceptual world view is replaced by another." In the pre-paradigmatic stage (such that ASEP finds itself in), there is not only confusion but major disagreement as the ASEP paradigm confronts the sports medicine and exercise science paradigm. Both are clearly different schools of thought. As has been the case with accreditation and other factors, exercise physiologists from both sides of the principle who is in charge of exercise physiology have disagreed strongly about one paradigm versus the other. Over time, as these ideas compete, ASEP exercise physiologists will have to stay the course in support of their right to the profession of exercise physiology.

Ultimately, the question is this: Is it the right of the profession of exercise physiology to regulate exercise medicine? Or, is the prescription of exercise medicine the option of anyone to prescribe? If so, when it is quackery? Can the process of prescribing exercise medicine be done without a thorough understanding and analysis of individual cardiovascular physiology and musculoskeletal assessment? If so, then, this thinking is crooked thinking because it violates all the basic premises that undergird professionalism and professional status. This thinking includes medical doctors, physical therapists, personal trainers, fitness instructors. Isn’t there a difference between prescribing exercise medicine and leading a fitness class? Isn’t there a difference between the exercise physiologists’ role in prescribing exercise medicine and that of the physical therapy profession?

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

Exercise physiologists are part of a profession that entails a certain societal contract whether they want to honor it or not. As healthcare professionals, they are linked to the ASEP exercise physiology code of ethics (7) and the professional standards of practice (8). As such then, “Exercise physiologists are left, therefore, with the conclusion, that if there is any meaning to an academic degree, it is we who must discover it ourselves.  Credibility will be not be handed to exercise physiologists, but rather they must seek it through similar, if not, the same steps other professions have done for decades.  For those of us in ASEP who spent our entire academic lives obsessed with research and recognition or in the manipulation and control of other organizations, the realization now is that we alone are responsible for the professionalism of exercise physiology” (9).

If ***we become what we think*** about, shouldn’t we be thinking about self-regulation, if not by licensure, then, by the ASEP board-certification exam? If we become ***what we talk about***, then, our attitudes toward professionalism must change from the sports medicine rhetoric to the ASEP perspective. If ***what we do*** 90% of the time is thinking about research, then, it is clear that we must start thinking about professional values and healthcare delivery. ***If we think our work is for the right reason***, then, we must understand the role of the ASEP professional organization in both the academic context and that of the societal contract. ***If we think that our actions will bring forth positive results,*** then, ***we will start living*** the exercise physiology professional life of a healthcare professional. That is, ***we will become our vision*** when we do these things.

Vision is central to thinking as an exercise physiologist and the commitment to improve the profession. Imagine visualizing an exercise physiologist with an attitude whereby he or she is willing to think beyond his or her research achievements. Imagine a person who is willing to put aside the attitude of collective mis-thinking for a new language of exercise physiology (10). Such a person is not an uncommon expectation among professionals. Part of the “new language” is taking the time to teach professionalism to students. Until 4 years ago, St. Scholastica was the only academic institution in the U.S. that the students of the exercise physiology major were required to take an exercise physiology professional development course. That changed when the exercise physiology faculty decided to discontinue supporting ASEP. Their relationship with sports medicine now places the academic major in the hands of non-exercise physiologists. Unfortunately, it is a major lost in the opportunity to engage the critical question: What does it mean to be an exercise physiologist?

Professionalism in exercise physiology is too important not to include an academic course in the exercise physiology curriculum. This is true regardless of how the course should be taught or what constitutes concepts of professionalism. The effort is at the heart of the change process that drives the broader context about “what is exercise physiology” and “who is an exercise physiologist.” Answers to these questions need serious updating, especially from the exercise physiologist’s perspective.

There are several reasons for the articles on professionalism. While some have been mentioned, it is also important to point out that professionalism is necessary to rescue exercise physiology from the clutches of other professions and disciplines. Exercise physiologists understand that they are responsible for complex cardiovascular services to society in an altruistic fashion. While professionalism isn’t yet a hot topic in exercise physiology, it will become one for sure. The lack of a consensus definition of who is responsible for overseeing exercise medicine needs to be assessed if it is to be helpful to the profession of exercise physiology. Then, too, while professionalism consists of understanding and applying the exercise physiology body of skills and knowledge in the service of others, the emphasis on research and athletics is hugely distracting to the definition and practice of professionalism in exercise physiology. This thinking is new.

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| Exercise physiologists have a choice in what their future will be. They can choose to turn a deaf ear or they can choose to see that their problems are connected. Students are suffering from their failure to see the big picture. Denying students the opportunity to become credible healthcare professionals is connected to restricting their behavior to yesterday’s thinking. This is important because many academic exercise physiologists may not realize that their behavior of resisting change is actually an exploitation of others. |

It is of great importance for the credibility of exercise physiologists that professional development becomes a common theme in the regional and national meetings. It is one of many ways of dealing with the pitfalls of failing to do so for decades. Gradually, with the rewiring of the mind itself, exercise physiologists should move from thinking of exercise physiology as a research discipline to a coherent and comprehensive healthcare profession. There are reasons for hope. There is opportunity for exercise physiology to be recognized as being at the core of exercise medicine. Exercise physiologists must be taught the origins and nature of professional status, and the obligations necessary to sustain it. The privilege of self-regulation and a shared view of changes in how exercise physiologists think are essential to teaching and using exercise medicine to serve society. Altruism and ethical (professional) conduct are foundational concepts against which exercise physiology is practiced, as is true for all professions.

If we are lucky, the topic of professionalism will go on indefinitely, because it is the only way exercise physiologists can avoid the historical failure of working together to promote and support professionalism in exercise physiology. Yet, no doubt, there will always be those who might say, “If it isn’t broke, don’t try to fix it,” while the ASEP exercise physiologists will say, “We should always strive to improve exercise physiology, whether it seems ‘broken’ or not.” By today’s standards, the latter group is at times referred to as radical thinkers. However, if we pause to define the word *radical*, it means “root.” This means that ASEP exercise physiologists look for the root of their problems.

Many of the ideas that hold professions together are invisible at first, but later become what is expected of everyone. It is just a matter of time that other non-ASEP exercise physiologists see that the ASEP perspective works and they, too, will adopt it. This “thinking” becomes the core behavior that ultimately constitutes the culture (11) of exercise physiology. The future will be defined by exercise physiologists who will not even think about behaving differently. Michael Schwalbe (12) said it this way, “Culture is created in this way. Someone finds a solution to a problem, other people see that it works and adopts it, and eventually the solution becomes ‘what everyone does.’” In short, then, the idea is that the exercise physiologist’s identity with the past cannot be changed is wrong.

Clearly, the past influences us and how we think and act. But, so does the present even if the “new thinking” requires us to stumble forward into our new reality. As old Chinese proverb says, “The first step to becoming an individual is to recognize that you are not one.” This means that as long as exercise physiologists cling to an illusion of sports medicine and exercise science – without examining how or why – exercise physiologists will fail to become all that they could become as healthcare professionals. It is as if the illusion of being a “big time researcher” is so right and satisfying that exercise physiologists have stopped doing the kind of thinking that is necessary to grow personally and professionally.

A colleague put it this way: “What makes it difficult for academic exercise physiologists to change is that – even when they seek it – they must also deal with their desire to resist it to preserve their sense of sanity. After all, change can be ambiguous and risky. Why do it? It is much easier to rely on the shared beliefs and values of what is considered normal – status quo.”

To understand why “status quo” is the act of exercise physiologists playing it safe requires a little information about risk aversion. In brief, to risk thinking differently assumes that the outcomes of the ASEP organization are worth it and the probabilities of retaliation from colleagues are relatively well defined. All of us react to risk in different ways it is often believed that avoiding risk is better. For example, a more risk-averse college teacher with a strong curriculum vitae and years of teaching may make less aggressive moves to support ASEP than a less risk-averse teacher. Both teachers understand the rules of promotion and/or tenure and their odds of doing well if they play the academic game right, but their degree of risk aversion determines whether they are willing to support ASEP. The uncertainty the teachers feel is whether their support of ASEP is worth the risk. It is not about whether it is the right thing to do for the right reason, nor which organization is right, nor how many ethical members are in a particular organization, and so on.

You can perhaps also see how the failed rhetoric (13) of decades of disappointment is helpful in college teachers dealing with the risk of sharing the views and beliefs of a different system. The failure to meet the career needs of the students has pointed to the fact that the old ways of doing things aren’t working. This in itself will eventually challenge the legitimacy of sports medicine’s role in exercise physiology. It is just a matter of time before the power of the leadership will be questioned and, then their legitimacy is likely to collapse. In light of this point, some exercise physiologists might say, “Why then are we so slow in supporting our own professional organization?” The bottom line is this: This sort of thinking isn’t ready to make things happen. Instead, having control over one’s professional life is a function of recognizing the differences and why they matter.

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| *Heart rate is the key prescribing exercise safely. It is especially important to promoting safe exercise for the elderly and the obese clients, and the clients with chronic disease.* |

A new exercise physiology is in the works. There is a difference between exercise science and exercise physiology. The former is like being a physical educator without the opportunity to be one; the latter is like any other healthcare professional that is required to meet certain professional obligations. At the very least, we should not confuse the inconvenience of change with detached personalities as a consequence of hand-me-down jargon that is implausible and unreasonable. The larger point here is that exercise physiologists should be mindful of the steps taken by other healthcare professionals across many decades. This is important, especially as more exercise physiologists see themselves as healthcare professionals and not as trainers or instructors. Anyone can be a person trainer but not everyone can simply choose the professional title, Exercise Physiologist. To agree with this point is to take a big step to move exercise physiology forward.

Where is the curiosity? Where is the mindfulness of something better? What about hope? All three can set the stage for a revolution that will keep exercise physiologists out in the front of others. If this thinking hits the target of your mindset and emotions, then, it is worth the effort to plan where we are going and how we are going to sustain our collective efforts for decades to come. Deciding to join ASEP and supporting the change process is up to you. It seems to me the smartest thing to do is join forces and do what is necessary to promote professionalism in exercise physiology. Why not? Regular physical activity is associated with a decrease in risk of premature death from cardiovascular disease and other chronic disabilities. The board-certified exercise physiologist is the professional of choice to prescribe exercise as preventive therapy.

Board-certified exercise physiologists of the American Society of Exercise Physiologists (www.asep.org/) are prepared to provide a variety of physiological and lifestyle assessments and testing procedures to establish health-fitness status, including aerobic fitness, musculoskeletal fitness (strength, endurance, power, and flexibility), and body composition (body mass index, waist circumference, and skinfold thickness). Measurement of resting, submaximal exercise, and maximal exercise heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP) double product (DP), myocardial oxygen consumption (MVO2), oxygen uptake (VO2), cardiac output (Q), stroke volume (SV), arteriovenous oxygen difference (a-vO2 diff), expired ventilation (VE), frequency of breaths (Fb), tidal volume (VT), and respiratory exchange ratio (RER) are used to guide the design of the exercise prescription.

Evaluating both aerobic power (VO2 max) and anaerobic capacity is necessary to understand on one hand, client’s capacity to transport and use oxygen at the cellular level. While direct assessment is always preferred, it is also correct to use well research regression equations (such as VO2 = (kpm x 2) + 300 and, then, Q = 6.12 (VO2 L·min-1) + 3.4 as well as a variety of equations to estimate numerous other physiologic variables). The board-certified exercise physiologists can use one of many aerobic fitness tests (e.g., the Rockport One Mile Test), and various incremental maximal tests (e.g., the Bruce protocol) to measure VO2 and assess the relationship of related physiologic responses. Then, too, the client’s musculoskeletal fitness can be determined via push-ups, grip strength, curl-ups, and sit-and-reach tests.

Although these tests and dozens of others are important in the exercise physiologists’ efforts to measure the client’s health and well-being, the question is this: Are the college teachers placing sufficient emphasis on the use of these tests in the assessment and care of their clients? Or, are the college graduates simply prone to perform as fitness instructors and/or as a trainer who would not be expected to have studied the scientific body of knowledge that defines the practice of exercise physiology? More often than not, the use of modalities is profession-specific and, therefore, exercise physiology is not approached from a professional point of view, then the college graduates are less likely to conduct themselves as professionals.

It stands to reason that if professionalism in exercise physiology is anything at all, it speaks to the core of credibility; and if credibility is important, professionalism must be taught in the undergraduate through the doctorate curricula specifically for board-certified exercise physiologists.

The ASEP leadership believes that exercise physiologists have the ability to get past their past experiences and rise above them. But, frankly, this means that they must work through the old mental way of thinking. This also means not limiting their destiny by any past experiences. It is not a question of trying to avoid mistakes during the transition. Rather, it is about knowing your own mind, thinking what you desire to be, and placing no limits on achieving your new reality. Do you really want to be a fitness instructor or trainer? No, then, why not be a board-certified exercise physiologist’s healthcare professional?

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| If I told you that I had a formula that would help you live longer, avoid-and even cure-some diseases, relieve stress, and makes you stronger with virtually no bad side effects, you’d probably be willing to pay a lot of money for it…what if I told you it was free?...The truth is, I do have a formula like that…the formula is physical activity-simple exercise.  – Dr. David C. Neiman |

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| What we outwardly are, and what we are to become *depends upon what we are thinking.*  -- Ernest Holmes (14) |

As a healthcare professional, you will have the opportunity to do research, educate, and perform the role of a clinician. You will be in an excellent position to provide healthcare services that help maintain, restore, and promote health and well-being. Your clients will include anyone who is interested in better mind-body health as well as athletes who are engaged in sports training. Treatment is often in the form of exercise medicine both for the mind and the body. You will use metabolic analyzers to determine your client’s VO2 and other physiological indicators of health and fitness. You will also consult and practice with a variety of other professionals for the rehabilitation of individuals with a wide range of symptoms and disabilities (15).

**References**

1. Boone, T. (1008). Exercise As Medicine. ***Professionalization of Exercise Physiologyonline.*** 11:2 (Online). http://www.asep.org/asep/asep/ExerciseASmedicine.html
2. Flesch, R. (1951). ***The Art of Clear Thinking.*** New York, NY: Barnes & Noble Books.
3. Smith, A. (1975). ***Powers of Mind***. New York, NY: Random House.
4. Steele, S.M. and Harmon, V. M. (1979). ***Values Clarification in Nursing.*** New York, NY: Appleton-Century-Crofts.
5. Collier, R. (2012). Professionalism: The Privilege and Burden of Self-Regulation. ***Canadian Medical Association Journal.*** 194(14)1559-1560.
6. Kuhn, T.S. (1962). ***The Structure of Scientific Revolutions.*** Chicago, IL: University of Chicago Press.
7. ***American Society of Exercise Physiologists.*** (2013). Code of Ethics. (Online). http://www.asep.org/?q=organization/ethics
8. ***American Society of Exercise Physiologists.*** (2013). Standards of Practice. (Online). http://www.asep.org/?q=services/standards
9. Boone, T. (2008). The Psychological Meaning of Leadership in Exercise Physiology. ***Professionalization of Exercise Physiologyonline.*** 11:6 (Online). http://www.asep.org/asep/asep/ExercisePhysiologyPsychology.html
10. Boone, T. (2010). The Language of Professionalism in Exercise Physiology. ***Professionalization of Exercise Physiologyonline.*** 8:1 (Online). http://faculty.css.edu/tboone2/asep/LanguageOfProfessionalismInExercisePhysiology.doc
11. Boone, T. (2009). The Culture of Exercise Physiology. ***Professionalization of Exercise Physiologyonline.*** 12:10 (Online). http://faculty.css.edu/tboone2/asep/The\_Culture\_of\_Exercise\_Physiology\_in\_US.docx
12. Schwalbe, M. (2005). ***The Sociologically Examined Life.*** 3rd Edition. New York, NY: McGraw Hill.
13. Boone, T. (2012). Choosing Our Own Future. ***Professionalization of Exercise Physiologyonline.*** 15:2 (Online). http://faculty.css.edu/tboone2/asep/FutureEXERCISEphysiologists.pdf
14. Holmes, E. (1938). ***The Science Of Mind.*** New York, NY: Penguin Putnam, Inc.
15. Boone, T. (2011). Exercise Physiologist. In ***Encyclopedia of Sports Medicine***, Volume 2. Editor: Lyle J. Micheli. Thousand Oaks, CA: Sage Publications, Inc., 455-457.