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The Exercise Physiologist's "Prescription Pill" is Exercise

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IT IS SUCH A common statement now that one would think everyone has heard it more than once. Exercise is medicine. It has become commonplace in recent months to hear about the proposal that medical doctors should prescribe exercise to their patients. Imagine, a medical doctor prescribing 45 minutes of aerobic exercise along with stretching and diet instructions. Notice I said "a medical doctor" because it is highly likely that the majority medical doctors are still not interested in doing so. There are many reasons why they aren't interested and, frankly, I would rather they didn't.

Board certified exercise physiologists are scientifically educated to assess myocardial O_2 consumption (MVO_2) during regular exercise, using the regression formula: MVO_2 = .14 (HR x brachial SBP) – 6.3 along with CO_2 rebreathing to estimate cardiac output (Q) and related physiology to assess the client's physical health and prescribe safe exercise.

Exercise physiologists are experts in prescribing exercise. Medical doctors are not. Their specialty is prescribing drugs. Prescribing exercise is not typical for doctors. In fact, for most of the 20th century, medical doctors misunderstood the benefits of athletics and exercise so badly that most argued against both. I remember when they told men who had heart attacks to quick their jobs and do little of nothing thereafter. Looking back, it is strange they didn't know much about the effects of inactivity and sedentary existence. Seldom did the patients get better. Today, it is another story altogether because post-myocardial infarction patients are more likely to be referred to a cardiac "exercise" rehabilitation program. Still, the number of patients participating in rehabilitation is around 15% of the greater than 2 million eligible patients per year. This causes me to wonder whether their mindset towards exercise has changed or not.

Recently, the American College of Sports Medicine [1] got an interesting idea after nearly 60 years being in the exercise science and sports medicine business. Why not treat

exercise as medicine? Why not team up with the American Medical Association and encourage medical doctors to prescribe exercise to their patients? Wow…I'm almost breathless in the efforts of ACSM and its medical doctor past-president to declare first in this race to improve the health of Americans through regular exercise. After all, exercise physiologists have been advocating exercise for decades. To a large degree, exercise physiologists have been responsible for carrying out the scientific research that defines the principles underlying the exercise prescription. Where are the exercise physiologists in this partnership? More specifically, where are the ASEP exercise physiologists? What are they doing to promote regular exercise? My point is they could be much more.

The idea that medical doctors already advise against smoking and, therefore, they should now tell their patients to exercise is neither new nor the equivalent of prescribing exercise. While few, if any, tests would be necessary to tell patients to stop smoking, there are numerous pieces of required laboratory equipment, including but not limited to, a metabolic cart, treadmill and/or bike, in particular that are needed to carry out an individualized exercise prescription. Then, of course, there is the question: "Are medical doctors educated to the physiology of a graded exercise test and specific procedures?" Probably not, no more so than exercise physiologists would be prepared to prescribe medication.

The exercise physiologist's professional education is separate from the exercise science or sports science programs. That is why the EPC certification model under the ASEP leadership is what matters.

http://asep.org/services/EPCexam

Historical Perspective

Exercise physiologists [2] are known for their scientific research, laboratory knowledge, and hands-on skills with patients, particularly in cardiac rehabilitation. Unless anyone has forgotten, they are primarily responsible for the scientific knowledge that exists today in reference to a patient's oxygen consumption (VO_2), cardiac output (Q), heart rate (HR), stroke volume (SV), oxygen pulse (O_2 pulse), arteriovenous oxygen difference (a-vO_2 diff), double product (DP), myocardial oxygen consumption (MVO_2), blood pressure (BP), mean arterial pressure (MAP), systemic vascular resistance (SVR), expired ventilation (V_E), frequency of breaths (F_b), tidal volume (T_V), volume of carbon dioxide product (VCO_2), respiratory exchange ratio (RER), alveolar ventilation (V_A), stroke work (SV), cardiac power output (CPO), and many other measures that deal with muscle development (strength and endurance) and range of motion. For obvious reasons, medical doctors, physical therapists, and others are not experts in developing individualized exercise prescriptions even though they have a thorough background in physiology. So, here is the question: Why not hire an ASEP Board Certified exercise physiologist to assist the medical doctor?

Again, it isn't that medical doctors don't understand the physiology of the body. No one is saying that. However, there is a difference between medicine and understanding physiology in the sense of a treatment effect as applied to the mind and body. Once that is done as a researcher and, then, the data are statistically analyzed to ensure the integrity

of the data set, a professional can reach an objective conclusion. This is what Board Certified exercise physiologists do. They understand the interconnectedness between research thinking and conclusions that are scientifically warranted. They get the importance of the dependent variables in the assessment of the human body at rest and during exercise. They are the experts in applying physiology to the sports training. Their academic education prepares them to engage the disciplines of biomechanics, nutrition, anatomy, psychophysiology, and pathophysiology to ensure that their thinking is on target.

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Change your thoughts and you change the world.
– Harold R. McAlindon, Writer
★★★★★★★★★★

A Lady's Thinking

Recently, I overheard a lady say that she couldn't understand why her medical doctors over the years did not connect or share with her the relationship between regular exercise and health, both mental and physical. At the time, I was taken by the statement, but then I realized that regardless of the fact I was educated to the relationship between the two in the early 60s as an undergraduate student in physical education, and regardless of the fact it has been common knowledge for a very long time, medical doctors have not been advocates of regular exercise. To some extent, a person might think that doing so would be a bit beneath their level of medical training. Well, obviously, given the economics of today, it seems like a real good idea to promote exercise, especially if a price tag can be attached to it.

Given the latter statement regarding the medical doctor's exercise prescription, what will it cost? And, if a doctor prescribes exercise, which is then paid by the patient's insurance company, why can't an exercise physiologist's prescribe exercise and send the bill to the same insurance company? Doesn't it seem appropriate that exercise physiologists would have the same rights? Here again, the relationship between physical activity and health has been known for a long, long time. Why not encourage doctors to tell their patients to exercise just as they would tell them to cut back on the calories or stop smoking for health reasons? This approach is entirely different from doctors prescribing exercise. Instead, why not encourage doctors to refer their patients to Board Certified exercise physiologists to prescribe exercise along with a full and complete cardiovascular, muscular, and lifestyle assessment [3]?

Time of Opportunity

This is a time of great opportunity for exercise physiologists and medical doctors to work together to better manage the health of clients and patients. Both within and outside of the hospital and/or doctor clinic and the various exercise physiology healthcare settings, patients can be systematically evaluated and supported during their adjustments to the new lifestyle changes. Here, there is reason for optimism because exercise physiologists are in an excellent position to work with doctors that no other healthcare profession possesses. Exercise physiologists have a unique set of professional and clinical skills that will enable them to thrive in healthcare.

Increasingly, exercise physiologists now practice independently [4]. As an example, Shane Paulson of Minnesota is such an individual. He owns his own exercise physiology clinic as does Desiree Ahrens of Minneapolis, MN, also of the St. Scholastica's graduate exercise physiology major. They are using their training in academic and laboratory experiences to prescribe exercise to clients with diverse health related conditions. Physical exercise is a powerful medicine for individuals with chronic diseases and health complications, including obesity, high blood pressure, depression, coronary artery disease, cancer, osteoporosis, anxiety, and arthritis. In short, when exercise is properly prescribed and safely carried out, it has the potential of many different drugs to treat and prevent chronic diseases.

Reflection leads to new ideas.
Ideas are viewed as possibilities.
Possibilities lead to encouragement.
Encouragement brings hope.
Hope gives rise to a vision.
Visionary thinking leads to beliefs.
Beliefs become shared action.
Action gives life to a new reality.

Across the United States, exercise physiologists are developing practice niches such as consulting with businesses, providing exercise information and prescriptions to employees and their families. Still others are developing innovative steps to professional services for individuals in assisted living and counseling for job-specific health and fitness development (with the police and firefighters).

What is important to remember is that possessing the EPC by itself is not likely to be enough if Board Certified exercise physiologists do not market the practice of exercise physiology to the healthcare community and society in general. Successful exercise physiologists are entrepreneurs. Whether they like it or not, they are part of the business sector, responsible to generating an income to pay the bills. That is why they must use business skills to market their professional services to existing healthcare entities, referral sources, and clients and patients in rehabilitation and fitness centers. That is why they develop a professional relationship with other exercise physiologists who can serve as role models and mentors.

Exercise physiologists also need a vision of the future of the profession that is consistent with the ASEP perspective. Look to the big picture of healthcare possibilities. Get involved with ASEP and support the work towards greater recognition and acceptance within the community. Share the practice of exercise physiology with other healthcare professionals. Write about it. Talk about it, and when the opportunity arises network with other professionals so that they know the specifics of what you can do for their clients and patients.

Future of Healthcare

The following vision represents the future of the practice of exercise physiology [5]. "While approaching the building to my right, I got the impression of something special about it. I thought it might be a lawyer's office complex or big medical clinic. I parked my car in the one spot that was available, off to the side. As I walked towards the front

of the building, I noticed the sign above the huge entrance. It read "Exercise Physiology Sports and Healthcare Complex."

I was excited to see what was inside. As the door opened, a woman approached me with her hand out. As we shook hands, she said: "Thanks for visiting the future of exercise physiology and healthcare in this country." I was taken by the bold statement. As I was led around the building from one room to the next, I was impressed with the colors and detail of the design process. There were trees and plants of all kinds that glistened in the sunlight. On the wall above the main desk for access and direction to the inner workings of the Complex was one of my favorite quote by Albert Einstein: "Imagination is more important than knowledge."

There were several rooms just to my left with athletes of all ages who were hooked up to metabolic analyzers, other rooms had post-MI patients exercising under the supervision of Board Certified EPs, and still another room with numerous smaller divisions within it with young and middle-age men and women. Some were being counseled for obesity, others for improving lean muscle mass and strength, and still others for various health conditions (such as diabetes, osteoporosis, depression, and cancer). There were more rooms than I had time to see or to ask questions about. From underwater weighing to aerospace and altitude training, there were fancy computer driven exercise testing equipment everywhere. There were rooms dedicated to just computers, statistical software, data-reduction programs, and big-screen assessment tools; all were supervised by EPCs who, I was told, were writing research papers, grant proposals, and other in-house reports.

Exercise as medicine is a powerful concept with its own reality. Shouldn't exercise physiologists think of exercise as medicine? The first-half of their title is "Exercise," in much the same way that the word "Doctor" is taken to mean medicine. Exercise physiology students should also be educated to think

As we moved from the first floor to second, I noticed there were nurses, physical therapists, athletic trainers, and strength coaches working throughout. I was told that they are responsible to the Owner and Director of the Complex, a Board Certified EP. Everything and everyone boked professional. This was especially the case as we turned to my right and enter another hallway. There was an exercise physiologist in the front of a rather large room, talking about faith, spirituality, and health. I was told that counseling by EPCs is a big part of the Complex. As we walked to the end of the hallway and took the stairs to the third floor, on one wall I read: "We are here to help you be stronger mentally, physically, and spiritually."

There were other "writings" and "affirmations" on the walls; all were designed to promote self-esteem, positive thinking, health, and well-being. You had to be there to see it. I was thoroughly impressed. Clearly, they knew what they were talking about. There was a feeling of "something really fantastic" is happening inside the Complex. The EPC who was showing me around said that the future of the profession of exercise physiology has no limits. The doors are open for more opportunity to sustain personal financial stability and, yet do so with a reasonable and fair cost to the client than ever before. She

told me that their recent hires had graduated with a mixture of an exercise physiology and business courses.

There were brochures everywhere. One caught my attention with the title, "A Revolution is Now Taking Place in Healthcare, and EPCs are at The Heart of the Change Process." Then, just as I put the brochure down, a teenager confided to me, "I am down in weight. I'm getting stronger, and I like myself more. My EPC has helped me get over being so angry, resentful, and jealous of others. I don't think it would be the same at a fitness gym." I was told that exercise physiology, as a healthcare profession, allows Board Certified EPs to achieve as much or as little as they are determined to do so. I was told that the image of exercise physiology is one of lifelong learning in both the scientific aspects of sports training and related human endeavors and healthcare, especially in terms of personal satisfaction, opportunity, and caring. Clearly, the community in which the Complex is located has reached out to it and values its presence.

It was all there in this Exercise Physiology Sports and Healthcare business. I left it thoughtfully and significantly excited, not just for those who are helped by it, but for the students who want to be exercise physiologists. As I made my way back to my car, I passed a high school athlete bouncing a ball, a mother with her young child, maybe 5 or 6 years old, a lady who looked to be in her 80s, and man and his wife who looked anxious and would appear to benefit from counseling. As I looked back they were entering the Complex. It was then that I understood the inscription on the outer wall of the building, The "Prescription" that Rescues YOU.

> People who cannot invent and reinvent themselves must be content with borrowed postures, secondhand ideas, fitting in instead of standing out.
>
> – WARREN BENNIS

Frankly, I was deeply touched and wondered how many other things I had missed. I should have known this all along, for I was told that the owners of the Complex had a deep visceral interest in and dedication to exercise as the core ingredient to athletic performance and effective healthcare. As I got in my car, I found myself reflecting on the fact that exercise physiology was more than acute and chronic changes to regular exercise. I drove away wondering how many other things I had failed to see or experience. Why has it taken so long to discover the power of exercise to build, sustain, and to heal. Then, at that moment, I knew I needed to help others develop their ability to see what they had failed to see."

The future of healthcare is preventative medicine, which fits rather well with the vision of the ASEP exercise physiologists. The EPC exercise physiologist will work with individuals before they become part of the critical care system. Whether it is decades of inactivity, tobacco or alcohol abuse, obesity, or depression, the "exercise pill" will be administered by the only healthcare professional with a solid scientific background for prescribing exercise safely and appropriately. Thus, make no mistake about it, that professional is the EPC exercise physiologist.

Breaking the Cycle of Sickness

Exercise physiology isn't about reactive treatments as is the case in contemporary healthcare. It is all about helping people deal with their healthcare issues before they become a major problem. It is about breaking the inactive lifestyle that is fundamentally the problem in promoting sickness and injury. Breaking the cycle of sickness is possible through a properly prescribed exercise program, which is also supported by a credible educational component. Imagine the savings in health and real dollars simply by prescribing regular exercise. After all, it is irrefutable that exercise is medicine!

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Exercise is medicine, and exercise physiologists therefore are part of the healthcare/medical practice.

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Helmke [6] reported in 2005 that, "Approximately 25 percent of all doctor visits and 55 percent of all emergency room visits are deemed to be unnecessary. Since the average doctor visit in the U.S. costs $60 and the average emergency room visit costs $383, a great deal of money is being spent unnecessarily." These figures represent a very significant point, especially as it relates to regular exercise. Rather than visiting the doctor for complaints that often stem from the effects of a lack of exercise, just think what the benefit would be from regularly visiting the Exercise Physiology Healthcare Clinic. In addition to living a healthier lifestyle by engaging in the appropriate intensity and duration of exercise, Board Certified exercise physiologists can help with weight control and stress management.

Since it is common knowledge that many Americans are struggling to pay their medical bills and health insurance with the economy the way it is, exercise physiologists understand that the focus should be on maintaining good health. This point couldn't be more important today when it comes to measuring blood pressure, which is exactly what exercise physiologists do. If the measurement is high, then the client can be instructed to see a medical doctor. This is extremely important.

Interestingly, however, a study, published in the May issue of Hypertension, captured the provision and use of medical care services in private physician offices in the United States. The authors of the paper [7] looked at whether the blood pressure cuff was brought out, whether appropriate types of medication were prescribed, and whether treatment achieved its goal. The findings are almost unbelievable. Only 39 percent of patients who are treated were at the recommended blood pressure levels. Blood pressure was measured in only 56 percent of all patient visits. That rises to 93 percent in visits by patients diagnosed with hypertension. The study also found that only 20 percent of hypertensive patients who also have diabetes or kidney disease had their blood pressure controlled.

Can you imagine what they will do with prescribing exercise? Frankly, it would be much better for society if exercise physiologists provided community-level preventive health care programs for older Americans. As described earlier, combining a healthcare clinic philosophy with a holistic mind and body center provides a focus on wellness and preventative medicine with serious healthcare implications for society. As healthcare

providers of the young and older populations, Board Certified exercise physiologists can help identify the potential for health problems and, then, put into practice prevention and/or maintenance guidelines. Certainly, it makes more sense to pay a little up front in prevention strengthening programs than to pay $40,000 to repair a hip fracture. And the icing on the cake is that regular exercise has a profound influence on the brain, helping to combat stress, depression, and anxiety.

Imagine the year is 2020, and you have your own healthcare clinic. All your years of education, all your hopes, have been driven by taking responsibility for your own future. Imagine that you have all the mental and physiology resources and talents working with you. The success of everything you have done depends largely on your integrity and passion to help others. You feel good about yourself and about exercise physiology as a healthcare profession. Imagine also that you are a recognized professional in the healthcare community. Having proved yourself before physicians and others that the use of exercise to prevent and/or treat disease and dysfunction, you are now in position to mobilize your heaviest artillery (mind-faith-body medicine).

Seeing the future comes with a price. It is very much like leadership, in fact, as Drucker [8] said, "Leadership must be learned and can be learned…." Seeing the future must be learned and, clearly, it can be learned by exercise physiologists. It is all about being responsible, just as ASEP is all about the future of exercise physiology. Looking beyond what is comfortable today is the price we pay for envisioning the future. The world is changing and exercise physiologists must change with it. Believing in who you are is another price every exercise physiologist has to pay to live up his or her dreams. Remember, "If you think you can or can't, you are right."

Still another price and, perhaps, the biggest price to pay is recognizing that the sports medicine way is obsolete for exercise physiologists and that new leadership (ASEP) is required. So, don't wait or sit around expecting someone else to do your work. You can do it.

> ***Key Point.*** Waiting for permission to begin…is not characteristic of leaders. Acting with a sense of urgency is. If you're going to lead now or in the future, the first thing you've got to do is launch a voyage of discovery.
>
> – James M. Kouzes and Barry Z. Posner

Imagine YOUR Future

You are a leader in exercise physiology. Everything about you is different by choice. You have decided what you want, what you value, and your actions demonstrate that you are willing to go after your dream. You have a clear vision and, therefore, a shared reality of exercise physiology as a healthcare profession. You have paid the price for your success. You understand the value of the ASEP Board Certification and how it protects the exercise physiologist's professional integrity. You are in position to testify to others that the exercise physiology Standards of Practice includes, but is not limited to, "administration, counseling, delegation, evaluation, supervision, and teaching of the exercise physiology scientific body of knowledge including, in particular, the use of

exercise as medicine health, wellness, and rehabilitation." You understand that the ASEP Code of Ethics is essential to the professionalism in exercise physiology, and that the Code provides a means by which professional standards of practice are established, maintained, and improved.

To imagine that you have it is akin to believing you can do it. Belief is everything. If you think you can make it, you will. If you think you can't, then taking counsel of your insecurity will probably defeat you. Be tenacious and disciplined in your desire to be a professional exercise physiologist. Hence, if you believe in paying the price for success, you will find that becoming successful is in your future. It is indeed as Mahony [8] has written, "When the power to will is developed properly we become possessed of an individual character, prepared to fulfill the ends for which we were created. It is the most important attainment of the human spirit. Whoever has the power to will strongly enough has within him the gift of miracles."

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