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ASEP Board Certified Exercise Physiologists are Exercise Medicine Professionals

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ABSTRACT

Boone T. ASEP Board Certified Exercise Physiologists are Exercise Medicine Professionals. **JEMonline** 2019;4(1):1-8. The purpose of this article is to emphasize that exercise is medicine. When properly prescribed, it is better than the equivalent of a bottle of prescription pills. Exercise medicine is the prescriptive drug for protecting adults against hypertension, cardiovascular disease, type 2 diabetes, certain types of cancer, and much more! Yes, "medicine" in the form of walking for 50 min 3 times·wk^{-1} can promote weight loss, a decrease in blood pressure and cholesterol, a reduction in the body's inflammatory state, and much more. The improvement in overall fitness of the mind and body is real and far-reaching. Life should be about improving function with aging, not about losing function or otherwise life becomes very difficult to tolerate. ASEP Board Certified Exercise Physiologists understand this point very well. That is why they apply the training principles in the **ASEP's Exercise Medicine Text for Exercise Physiologists** when providing healthcare to patients who are predisposed to and/or have chronic diseases. They understand that exercise medicine helps with mental and physical functioning, vitality, independence, and quality of life. There is also strong evidence that exercise medicine improves pathogenesis and symptoms of coronary heart disease, chronic heart failure, hypertension, obesity, dyslipidemia, intermittent claudication, insulin resistance, and type 2 diabetes mellitus. The research that supports exercise medicine is a positive healthcare intervention for osteoporosis, as well as the symptoms of chronic obstructive pulmonary disease, fibromyalgia, depression, and osteoarthritis. There isn't any question that exercise medicine can

prevent, restore, and even cure certain diseases better than the traditional medical use of prescriptive drugs. An important advantage of the ASEP accredited exercise physiology degree is that the students graduate prepared to demonstrate proficiency in exercise medicine assessment, exercise prescription and implementation, counseling for healthier mind, and means to improving health and fitness. There should be a merging of the different academic degrees that have a similarity to the exercise physiology degree so that the college graduates of ASEP accredited exercise physiology academic institution can be in a better position to help society improve the health of individuals young and old.

Key Words: Chronic Diseases, Exercise Medicine, Healthcare

INTRODUCTION

Exercise medicine is the logical step to cutting the cost of treating illness and improving quality of life. Exercise is medicine and when properly prescribed it is better than the equivalent of a bottle of prescription pills. The fact is the pills are likely to not be as good in treating chronic diseases as is the work of an exercise physiologist in prescribing regular exercise that confers short- and long-term health benefits.

Fortunately, the American Society of Exercise Physiologists (ASEP) understood this point of view years ago (1). That is part of the reason the ASEP leaders founded the organization. But, they didn't stop there. They created the first-ever professional definition of exercise physiologists, a code of ethics to guide their professional practice, academic accreditation guidelines for college programs, board certification for exercise physiologists, and standards of practice (2-4). The organization is now 22 years old, and the leadership is continuing to promote exercise physiologists as healthcare professionals.

The network of Exercise Physiologists who are Board Certified represents a collective group of professionals with the academic and hands-on laboratory skills to safely and effectively prescribe the medicine of exercise in the prevention and treatment of ill-health and improve the quality of life of individuals living with chronic disease. After all, it is abundantly clear that exercise changes the way our bodies work at the molecular level. Think about it for a moment. Exercise medicine burns off the excess fat, builds muscles, and overall makes us happier people (5).

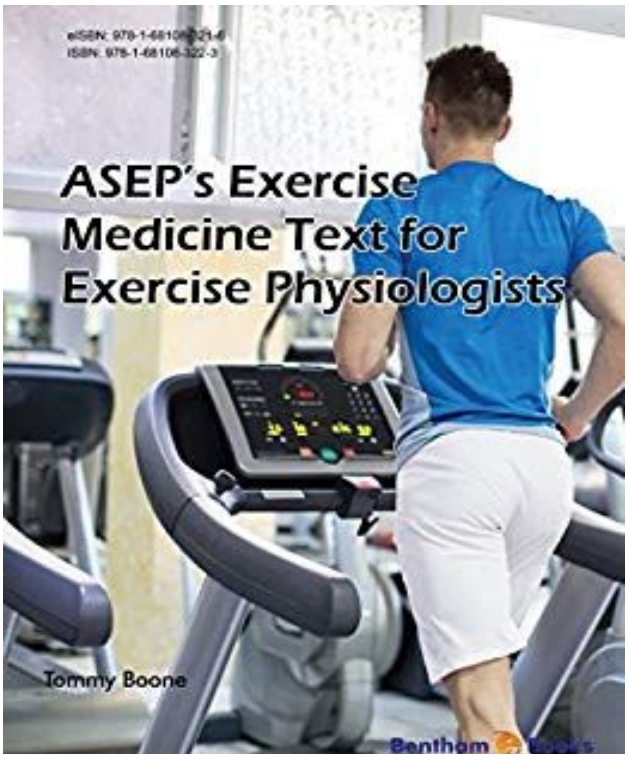
MEDICINE IN THE FORM OF EXERCISE

Exercise medicine is the prescriptive drug for protecting us against hypertension, cardiovascular disease, type 2 diabetes, certain types of cancer, and much more! Yes, "medicine" in the form of walking for 50 min 3 times·wk^{-1} can promote weight loss, a decrease in blood pressure and cholesterol, a reduction in the body's inflammatory state, and much more (6). The improvement in overall fitness of the mind and body is real and far-reaching. Yes, the medical community will no doubt get involved in talking about the benefits of exercise, but it isn't likely that medical doctors are going to move too far from the prescription of pills in the usual containers Americans pay for on a regular basis. I believe this is true even though the prescription of exercise medicine is better for all of us versus the usual over-the-counter pills. Honestly, how many prescription drugs can one person take for this and that disease and the predisposition to other

diseases? The answer is on average about 6 different pills a day and yet, regular exercise of 25 $min \cdot d^{-1}$ every day of the week or 50 $min \cdot d^{-1}$ 3 $times \cdot wk^{-1}$ improves body function, reduces anxiety and depression as well as slows the cognitive decline with aging.

The bottom line shouldn't be hard to grasp, especially given that exercise medicine improves the quality of life while adding years to your life. Imagine waking up and going for a walk instead of taking 6 or more pills. Which is better, the pills or the medicine I am referring to as "exercise", which is likely to be more effective than the prescription drugs (and without negative side effects as well). Imagine, on one hand exercise and on the other or a higher risk of chronic disease. Which do you want? Or, aerobic exercise just 15 $min \cdot d^{-1}$ of moderate-intensity (such as brisk walking) or the daily challenges associated a progressive cognitive impairment with aging? What about resistance exercise training that builds lean muscle mass and strength or continuely suffering from sarcopenia and progressive aging? Would you rather exercise medicine on a regular basic with the help of a qualified exercise physiology healthcare professional or the loss of range of motion (flexibility) of the skeletal muscles with an increase in the risk of falls?

Life should be about improving mind and body function with aging, not about losing function or otherwise life becomes difficult to tolerate. Board Certified Exercise Physiologists understand this point very well. That is why they use the **ASEP's Exercise Medicine Text for Exercise Physiologists** (6) when providing healthcare to patients who are predisposed to or have one or more chronic diseases. They understand that exercise medicine helps with the issues their patients and families care about, that is, mental and physical functioning, vitality, independence, and quality of life.



Exercise medicine is powerfully protective in decreasing blood fats (LDL and triglycerides) that contribute to clogged arteries. It helps in raising HDL cholesterol and decreasing high blood sugar, and it improves insulin sensitivity that indicates a lower likelihood of developing diabetes.

Also, in terms of slowing the aging process that is linked to the decrease in the energy-generating capacity of the mitochondria, exercise medicine helps the cells to produce more RNA copies of genes coding for mitochondrial proteins and proteins responsible for lean muscle development.

THE PROBLEM

Although society is full of obesity and physical inactivity, people of all ages will do just about anything to avoid exercising. Do they understand the long-term effects of chronic inactivity? The short answer is "yes" – at least at a certain level they know that regular exercise (i.e., exercise medicine) is necessary to optimize health and well-being. Does that mean they are going to jump up from the couch and go for a walk in their neighborhood? No, and yet just 150 $min \cdot wk^{-1}$ would help keep them healthy. So, what is the problem? What is keeping billions of people from

acting in their own best interest? No doubt the lack of desire to engage in exercise medicine is much more complex than we think.

Lieberman (7) thinks the lack of exercise is a function of our evolutionary history. He maintains that the most effective way to encourage people to exercise is to make exercise more enjoyable. Whether it is in the workplace, at school, or the community where people live, when people look forward to having fun while exercising, they are more likely to participate and, perhaps, do so on a regular basis. He also concludes that society should do what it can to restore the need to be active throughout our environment. So, in a nutshell, with the increase in technology that influences essentially all aspects of our lives, the problem (it seems to me) is one of "having fun" or at least "contemplating positive and relaxing thoughts" while exercising. If it is not fun and/or relaxing, why do it? If it is somewhat fun and perceived as necessary, maybe there is the possibility of engaging in regular exercise. Either way, the problem of inactivity and early death and/or disability from chronic diseases raises the question, is it worth it even if it isn't that much fun? The answer is "yes" if you want to live a longer and healthier life.

With regard to the "fun" idea, people do many different things to experience a positive feeling of happiness. It might be watching a football game or track event on TV or even reading a great book. Not everyone and in fact not many people enjoy engaging in acts of physical strength and/or endurance (such as lifting weights and/or running distances). You might say the problem is simply that the majority of the people, regardless of age and/or sex, are not interested in being physically active as in exercising on a regular basis. But, an additional part of the problem is that the majority of the people in the United States must get over the idea that they can avoid their responsibility in taking care of their mind and body. The bottom line is that they can't turn a blind eye or a deaf ear to the importance of regular exercise. Thus, part of the role of the Board Certified Exercise Physiologist is to talk about exercise medicine and its role in maintaining and/or enhancing physical fitness and general heath.

LOOKING AHEAD: EXERCISE MEDICINE

Several facts about exercise medicine are worth highlighting over and over. There are many published research papers indicating that exercise improves the mind by decreasing anxiety and promoting a positive mood, improves sex, reduces breast cancer after menopause, and decreases the habit of consuming too many calories. For some individuals, the exercise can be the "light" type, for others, the "moderate" type, and still for others, the "vigorous" type. Regardless of the intensity, however, the key is regular participation in one of the three (i.e., walking for example vs. running) and then the exerciser can expect to experience a decrease in the risk of high blood pressure, diabetes, and high cholesterol.

He or she can also expect to improve the body's consumption of oxygen, which is used in the mitochondria to produce ATP (i.e., energy) for muscle contraction. In this case, light to moderate exercise is more likely to be "aerobic" exercise versus the vigorous type that may compromise the availability of oxygen at the cell level to produce energy sufficient to keep the muscles working without a high level of fatigue. Looking ahead, the question is this: Are you not interested in your health to the point of walking and/or running 20 or 30 $min \cdot d^{-1}$? Just think about the benefits. Aerobic exercise medicine results in stronger muscles, stronger heart, decreased blood pressure, improved circulatory response throughout the body, increased red blood cells that improve the transport of oxygen to the muscles, improved mental health and sleep quality

with a reduction in migraine symptoms, decreased risk of heart disease and other cardiovascular problems, increased bone growth and decreased risk of osteoporosis, increased blood flow to the muscles, increase in skeletal muscular stamina, and an increase in cardiovascular endurance. As to anaerobic exercise (which is still exercise medicine), the benefits are equally important. They are increased expenditure of energy that helps to control the body weight along with stronger muscles, bones, and joints (8).

The long and short of it is this: The ASEP organization has created the necessary professional credentials to move exercise physiology forward as a healthcare profession. The leadership emphasizes quality over profit, an updated and accredited curriculum and laboratory facilities, and Board Certification to distinguish the ASEP exercise physiologist from graduates and/or membership of other programs and/or organizations. They have linked regular exercise, prevention, and public health concerns (particularly as they relate to lifestyle-mediated chronic diseases). There is strong evidence that exercise medicine improves the pathogenesis and symptoms of coronary heart disease, chronic heart failure, hypertension, obesity, dyslipidemia, intermittent claudication, insulin resistance, and type 2 diabetes mellitus (9). There is also very good research that supports exercise medicine as a positive healthcare intervention for osteoporosis, and the symptoms of chronic obstructive pulmonary disease, fibromyalgia, depression, and osteoarthritis. There isn't any question that exercise medicine with the right professional guidance can prevent, restore, and even cure certain diseases better than the traditional medical use of prescriptive drugs.

EXERCISE MEDICINE and the CURRICULUM

Yes, up to this point, the content has been about benefits and the push for exercise medicine. Unfortunately, there are pieces of the puzzle that are yet to be updated. In particular, across the United States, the academic institutions, the academic degrees, and the college graduates' pursuit of a career in exercise medicine are also up in the air. The undergraduate degree in exercise physiology is either an ASEP accredited degree or it is one of a dozen or more degree programs with different degree titles, such as exercise science, sports science, kinesiology, human performance, and others. Many of these degree programs are a transition in title with little change in the original curriculum of the health and physical education degree.

The ASEP leaders characterize the non-ASEP accredited exercise physiology degree programs as being in a state of disarray due primarily to the lack of a specific intended purpose in mind. That is, the degree programs do not provide the students access to a credible career as the exercise physiology degree does after college. In fact, the lack of discussion regarding career opportunities in the academic departments is so bad that the advisors simply tell the students to make application for graduate school (such as, it is time to apply to physical therapy or nursing). Why? The short answer is because the faculty has done nothing to prepare the college graduates to move into a specific career-driven field of professional work. Sad to say, but the professors are primarily interested in doing research, publishing papers, getting access to grants, and attending national meetings. Teaching is of little interest in many academic settings. The professors have been emphasizing research over quality teaching for decades and, frankly, they have no desire to contemplate the differences between the exercise science degree and the exercise physiology degree. Many may even believe that a minor in exercise physiology with a major in kinesiology allows them to refer to their students as exercise physiologists! Such

thinking is sad and disappointing, and it must change along with the inadequate curricula throughout the different degree programs (10-14).

For all of its assumed benefits, the college degree that is not designed with a credible career purpose in mind is a meaningless degree program. There is an urgent need for the faculty of these related degree programs to dedicate time to rethinking degree titles and the respective curricula. They need to equip their students with the right laboratory skills and healthcare knowledge and confidence to promote exercise medicine as a viable career option after college. Students need information about how to start an exercise medicine clinic and the actual specifics and practice of working with and counseling patients and clients (15). The students' lack of behavioral counseling knowledge, lifestyle medicine training, preventive medicine, and/or skills in the business of starting an exercise medicine healthcare business is hugely problematic. The ASEP leadership has been talking and writing about these concerns for years.

Yet, little to almost no serious change in the academic infrastructure has taken place. The present situation is a far cry from the expected behavior of men and women who have the doctorate degree. In fact, it is remarkable that parents are still sending their children to college. Moreover, it is worth asking the following question: Given the present situation, why not just get a generic personal trainer certification from one of the 300 different groups who will be more than happy to take your money? An advantage of the ASEP accredited exercise physiology degree is that the students at graduation are prepared to demonstrate proficiency in exercise medicine assessment, exercise prescription and implementation, counseling for a better mind, and the specifics of improving body health and fitness.

CONCLUSIONS

It is clear from the scientific papers that regular exercise prevents chronic diseases, which lowers the rate of mortality throughout the world. Compared to active individuals, sedentary patients' medical costs attributed to inactivity is in the billions of dollars. Inactivity will break the bank for healthcare spending (16). Such a statement would seem to open the eyes of the medical community, but it hasn't. Little is being done by organized medicine to increase physical activity throughout the United States. Yet, exercise is medicine (or more to the point) exercise medicine should be prescribed by exercise medicine professionals, which are ASEP Board Certified Exercise Physiologists. There should be a merging of the different academic degrees that have a similarity to the exercise physiology degree so that the college graduates of ASEP accredited exercise physiology academic institution can be in a better position to help society improve the health of individuals young and old. I think exercise physiology professors in the academic institutions of exercise science, kinesiology, or human performance should become more active in the change process promoted by ASEP. In fact, it is imperative that the students understand the differences in the academic degree programs, and their role ultimately in healthcare to reduce the risk associated with sedentary living while at the same time increase credible career opportunities for their students throughout the United States.

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