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Who Is Responsible for Prescribing Exercise Medicine?

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Physical inactivity is an independent risk factor for atherosclerosis, cardiovascular diseases, and diabetes, and low cardiorespiratory fitness is a strong independent predictor of all-cause mortality.

IF EXERCISE IS MEDICINE, then exercise is a drug (1). If medical doctors are responsible for administering drugs to pharmacologically benefit their patients, shouldn't they be responsible for prescribing exercise medicine? If they are responsible, why have they failed so miserably in promoting the beneficial effects of regular exercise for the promotion and quality of health? Why haven't medical doctors used exercise to help their patients improve their health and longevity? Why is the medical profession so dependent on traditional drugs to prevent and treat illnesses? Answers to these questions as well as more related questions and answers from an exercise physiologist's point of view will be presented in this brief article. My purpose in writing this manuscript is to help exercise physiologists see the big picture and their role in healthcare.

Is "Exercise" Medicine?

Even with the recent interest in "exercise is medicine" it is more than reasonable to conclude that the majority of the academic exercise physiologists are not interested. Instead, they think more about research and publishing. Many manuscripts are about athletics and human performance. It is as though the exercise physiologists throughout the academic system can't get away from their roots. After all, they are at heart physical educators and coaches. That is why they think of exercise physiology as the study of acute and chronic adaptations to exercise and training. It has been that way for 70 or more years.

So, how is it possible to think about exercise medicine when publishing research manuscripts to helping athletes run faster, jump higher, and get bigger muscles has been

at the center of everything they have done for decades? No wonder exercise physiology is commonly referred to as a research discipline that drives human performance. Nothing about it for decades has identified the exercise physiologist as “the” person responsible for prescribing exercise medicine. Nothing that is, except the exercise physiologist’s role in prescribing exercise for cardiac patients. Naturally, designing an exercise prescription, either as a concept or its application to post-MI patients, is not the same as exercise medicine. The latter is much more engaging and complex. Aside from the numerous professional and legal considerations tied to safety, it should be clear to everyone that exercise medicine is the use of exercise as a drug.

But, first, from a historical perspective that supports the notion of regular exercise promoting health, is it a new concept? The short answer is “no” because it has been talked about for 2500 years! That’s right. It didn’t begin with the 20th century physical educators. The philosopher Plato (427-347) and Hippocrates (460-370 BC) understood the importance of exercise in promoting and preserving health. Today, it is common knowledge among exercise physiologists who take the time to talk about exercise medicine. Many only do so in the context of personal trainers or fitness instructors. In so doing they show their real colors because the power to heal has both serious medical and legal implications that should be confined to a healthcare profession. That is, producing significant health effects and decreasing the risk of cardiovascular disease, hypertension, chronic obstructive pulmonary disease, obesity, insulin resistance, type 2 diabetes, rheumatoid, osteoporosis, cancer, and depression is not the career for just anyone who is interested in sports, athletic performance, and weight lifting (2).

Secondly, equally important, even if medical doctors were interested in prescribing exercise medicine, are they prepared to do so?

Do they understand volume, intensity, and frequency that define a credible exercise prescription? The short answer is “no” because medical doctors are seldom educated to the indications, contraindications, and side effects

Sedentary living is estimated to be responsible for approximately one-third of deaths due to coronary heart disease, type 2 diabetes, and colon cancer.

of acute and chronic exercise. It isn’t clear that they even understand that there is irrefutable evidence showing exercise reduces the risk of premature death from cardiovascular diseases in healthy persons and in patients. Whether they realize that varying exercise intensity and/or duration results in different health outcomes is unclear. If it is reasonable to conclude that physicians do not have the scientific knowledge that exercise physiologists have to safely prescribe exercise medicine, then, the exercise-induced cardiorespiratory and musculoskeletal adaptations as well as exercise-induced improvement in psychological well being should be evaluated and supervised by exercise physiologists.

Yet, because of the widespread implications that anyone can prescribe exercise, it is difficult for members of different healthcare professions (such as physical therapy) to

not want to incorporate exercise into their PT standards of practice. This is very likely true even among psychologists who have historically stated openly to society that they are the experts of mind-body science, which begs the question: “Are psychologists qualified to oversee exercise medicine (given the effects of exercise training on brain function)?” Frankly, just because exercise increases beta-endorphin concentrations that are linked to improved mood state, cognitive function, quality of sleep, and body image, there is impression that every exercise prescription should accompany a psychologist’s approval. In reflection, is it reasonable that exercise physiologists should be linked elbow to elbow with the psychologist’s conversation with his/her patients when the psychoactive effects of exercise are discussed?

Exercise Contraindications

Are all exercise physiologists regardless of the level of their education aware of the contraindications for exercise? Is the exercise physiologist with an undergraduate degree academically as prepared as the master or doctorate level exercise physiologist when it comes to the contraindications for patients with heart and pulmonary diseases? The bottom line is that if the person to which one is referring to actually graduated with an exercise physiology degree that is accredited by the American Society of Exercise Physiologists (ASEP), that person is expected to be knowledgeable of the exercise contraindications. To be sure of this point, if the college graduate also set for and passed

Physical inactivity is a key factor in the etiology and progression of many chronic diseases.

the ASEP Board Certified Exercise Physiologist (EPC) exam, that person is expected to know and account for exercise contraindications. The ASEP perspective is that the EPC does not need to complete a master’s degree or a doctorate degree to be a credible healthcare professional.

The EPC understands that anyone with aortic stenosis, myocarditis, dyspnea at rest, severe high blood pressure, pericarditis, endocarditis, and fever are conditions that do not warrant exercise, regardless of its beneficial effects. Similarly, it is critical that every exercise physiologist understands the problems with a bout of strenuous exercise, especially given that it can lead to occlusion of coronary arteries. It is also wrong to exercise clients with cancer when their leukocyte, hemoglobin, and thrombocyte concentrations are lower than normal. Conversely, the issue of contraindications isn’t a concern at low intensity (walking) exercise even if it is a client with chronic obstructive pulmonary disease.

The point of exercise medicine is that it should be prescribed as a drug would be prescribed or otherwise the process of increasing physical activity and exercise should belong to personal trainers or fitness instructors. No doubt if that is the case, it can be anticipated that there will be problems with many unfavorable effects. But, does anyone really care? Is a healthcare profession going to take action to promote a healthy lifestyle with exercise prescribed as a drug? Remember, within the notion of a treatment, drugs

are medicine. Exercise physiology is a scientific healthcare profession that is dedicated to clarifying and applying the psychophysiology responses and adaptations to low and moderate exercise. As strange as it might sound, this thinking dates back many decades. It has in the eyes of many across diverse professions grown dramatically. Exercise physiologists have systematically helped the world understand that exercise is the equivalent of taking a medical pill to correct a broad range of clinical conditions (3).

An important application of exercise physiology in the healthcare of citizens of the United States involves the measurement and evaluation of psychophysiologic factors that associate with promoting health and longevity. Unfortunately, much of this new thinking has fallen in the hands of non-exercise physiologists who are not scientifically prepared to perform physiologic testing. They are not prepared to monitor the effectiveness of a training program, especially when it requires measuring 20 or more physiologic variables and accurately evaluate their relationship to each other in response to the exercise prescription. Non-exercise physiologists simply do not have the academic training and laboratory hands-on experiences to perform periodic standardized physiologic testing on their clients. Likewise, this point is true with physical therapists, nurses, and others who are licensed and eager to incorporate exercise medicine into the standards of practice.

Naturally, this thinking does not mean that exercise physiologists must work in healthcare. The ASEP's exercise physiologists' standards of practice speak to athletes of all ages and gender. Sports performance and athletics are important parts of society. Whether it is distance running or gymnastics, coaches and their athletes need the support and knowledge of the board certified exercise physiologist. And, for good reason, exercise physiologists, ASEP certified or not, are constantly engaged in research and application of the scientific literature and thinking that help athletes achieve peak performance and non-athletes (young, middle age, and elderly) achieve better health and increased longevity with decreased incidence of disease and/or disability.

The impact of exercise training indicates that structural and functional adaptations occur in relation to exercise intensity and duration with significant changes in vascular remodeling that helps to modify cardiovascular risk.

Physical inactivity is considered a risk factor for cardiovascular disease in humans and exercise training is associated with a decrease in risk which is similar in magnitude (~30%) to that associated with pharmacological strategies.

-- Dick H. J. Thijssen et al. (4)

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