Professional Doctorate in Clinical Exercise Physiology

COUNTERPOINT: Future or Fallacy?

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zemek and colleagues (1) have proposed that the entry-level degree for clinical exercise physiologists (CEPs) in the United States be elevated to a professional doctorate—i.e., Doctor of Clinical Exercise Physiology (DCEP). They argue that this is necessary because of an increasing focus on *healthy living medicine* for the primary and secondary preventive treatment of chronic diseases and to accommodate the expanding population of individuals with multiple comorbidities (1). They go on to state that elevating CEP education to a doctoral level could be beneficial to efforts aimed at obtaining CEP licensure and compensation from health insurance providers for CEP-led services (1). The didactic and practicum curriculum they propose is robust. Graduates would be well-prepared for a career as a CEP. So, is DCEP the future for CEPs, or is it fallacy?

Many health care professions in the United States have a professional (also known as a clinical or practice) doctorate as either the entry-level degree or a postentry advanced degree that is supported by each profession's national organization (Table 1). In contrast, a Doctor of Philosophy (PhD) degree is research-focused and represents the highest academic qualification within a field, such as a PhD in exercise physiology. However, a PhD is generally not equivalent to a professional doctorate. One exception is psychology, where a PhD in psychology meets the degree requirement to become a licensed psychologist. Physicians and dentists are examples of professions with a long history of requiring an entry-level professional doctorate; others are relatively new, such as physical therapists. A few professions (e.g., nurse practitioners) that do not currently require a professional doctorate to enter the field have national efforts to move toward that standard. Finally, professional doctoral programs are offered at select academic institutions for professions (e.g., dietitians and physician assistants) that do not currently have national organizational support.

There are common themes among health care professions that require (or are moving toward) a professional doctorate. These include the ability to practice independently and interact with other doctoral-level professionals, reimbursement for services by health insurance providers, and direct access (without a referral) by consumers that might support private practice. According to the Association of Specialized and Professional Accreditors, "[t]he creation of professional doctorates is a legitimate response to the changes in scope and complexity of practice within the professions" (2).

Beyond the professions that have historically required a professional doctorate (e.g., physician, dentist), critics opine that moving toward more advanced, entry-level degree requirements represents nothing more than *degree creep*—i.e., "requiring higher degrees than are needed to perform a job" (3). But these critics are not just stubborn, living-in-the-past curmudgeons. In their 2008 report, "Out of Order, Out of Time: The State of the Nation's Health Workforce," the Association of Academic Health Centers state, "elevation of minimum credentials highlights competition to shape the market without regard to infrastructure threats" (4). While

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TABLE 1. Health care professions and professional doctorate degrees in the United States.

Professions in which a professional doctorate is required to enter the profession

- Audiologist—Doctor of Audiology (AuD)
- Chiropractor—Doctor of Chiropractic (DC)
- Dentist—Doctor of Dental Surgery (DDS) or Doctor of Medicine in Dentistry/Doctor of Dental Medicine (DMD)
- Optometrist—Doctor of Optometry (OD)
- Pharmacist—Doctor of Pharmacy (PharmD)
- Physical Therapist—Doctor of Physical Therapy (DPT)
- Physician—Doctor of Medicine (from Latin Medicinae Doctoris; MD) or Doctor of Osteopathic Medicine (DO)
- Podiatrist—Doctor of Podiatric Medicine (DPM)
- Psychologist^a—Doctor of Psychology (PsyD) or Doctor of Philosophy in Psychology (PhD)

Professions in which a professional doctorate is not required to enter the profession, but there is national support for it as an entry-level degree or a postentry advanced degree

- Clinical Laboratory Scientist—Doctor of Clinical Laboratory Science (DCLS)
- Medical Physicist—Doctor of Medical Physics (DMP)
- Nurse Practitioners—Doctor of Nursing Practice (DNP) or Doctor of Philosophy in Nursing (PhD)
- Occupational Therapist—Doctor of Occupational Therapy (OTD)
- Social Worker—Doctor of Social Work (DSW) or Doctor of Philosophy in Social Work
- Speech-Language Pathologist—Doctor of Speech-Language Pathology (SLPD)

^aRepresents fully licensed psychologist

^bRecommended by the American Speech-Language-Hearing Association; see https://www.asha.org/Academic/Guidelines-for-the-Clinical-Doctorate-in-SLP/

they acknowledge "the increasingly sophisticated health care environment," they state that the elevation of health care worker credentials has contributed to rising health care costs, created discord between professionals protecting their *turf* and desiring more respect, and limited career options for students considering a profession in health care (4). Increasing the minimal credential to practice exacerbates the everworsening problems of high health care costs and health care worker shortage (4).

In the United States, a professional doctoral degree takes 3 to 4 years to complete for an individual with a bachelor's degree and could be longer if prerequisite coursework is not completed during undergraduate studies. While the cost to complete the DCEP program proposed by Ozemek et al. (1) is unknown, physical therapy may be a useful reference. According to the Commission on Accreditation in Physical Therapy Education (5), the median total direct cost for completing a Doctor in Physical Therapy degree during the 2016/2017 school year in the United States was \$59,210 among public schools and \$105,857 among private schools. Importantly, these *do not* include living expenses, such as rent, food, transportation, health insurance, entertainment, etc. In 2018 the median salary for physical therapists was \$87,930 (6).

Aggregated data on the cost of a master's degree in clinical exercise physiology is not available. Based on data for the 2016/2017 school year from the National Center for Education Statistics (7), the total direct costs (not including living expenses) per year for a graduate program (all disciplines) was \$11,617 per year at public schools and \$24,712 per year at private schools. Assuming a DCEP takes 3 years at the same yearly rate, this would be a total direct cost of \$34,851 (public school) to \$74,136 (private school). In 2018 the median salary for exercise physiologists was \$49,270 (6). Salaries for CEPs would have to increase by at least 50% in order for the educational cost-to-salary ratio to remain constant.

Admittedly, it is not fair to focus on the barriers. An important reason Ozemek et al. (1) propose the DCEP is to address changing needs in health care; specifically, the increasing number of patients with multiple comorbidities. They emphasize the increasing prevalence of patients with obesity, more sedentary time, poor dietary habits, advanced diabetes, hemodialysis, and advanced cardiac procedures who are participating in secondary prevention programs, as well as worse outcomes observed in patients with multiple comorbidities (1). They also emphasize that current training of CEPs might be insufficient to be "effective autonomous practitioners for a precision approach to care and managing clinically complex patient cases in a way that optimizes [healthy living] behaviors and improvement with prescribed interventions (e.g., exercise training significantly improving cardiorespiratory fitness)" (1). These points seem inconsistent with the environment in which many CEPs have worked for over 20 years.

In the absence of empirical data on job tasks of CEPs in the United States, I will briefly describe the Preventive Cardiology unit of the Henry Ford Hospital and Medical Group with a focus on cardiac rehabilitation and clinical exercise testing. Bachelor's and master's prepared CEPs work autonomously in the phase 2 cardiac rehabilitation program and care for about 800 patients annually; over 50% are obese and about 20% have advanced heart failure. Complex cases are familiar to these staff, including patients on dialysis or with a left ventricular assist device, and those who have experienced a sudden coronary artery dissection. Because patients are referred from a tertiary care facility, patient acuity is often high. In addition, master's and doctoral prepared CEPs administer and provide a preliminary interpretation of over 700 symptom-limited exercise tests each year. The vast majority are cardiopulmonary exercise tests in patients being considered for advanced heart failure interventions. CEPs also work autonomously with patients with cancer and as study coordinators for industry-sponsored clinical trials, which sometimes require phlebotomy. Other than registered dietitians who provide nutrition lectures in cardiac rehabilitation, there are no other health care professionals working directly in this unit. Based on interactions with individuals outside of Henry Ford, the responsibilities and autonomy granted to CEPs are not unique to this program, although they are not common either. It is more likely that CEPs work side by side with registered nurses, frequently with equal responsibility and autonomy. To summarize this case example, with proper academic training, internship, and early and ongoing mentoring, today's CEPs are well prepared to manage the concerns expressed by Ozemek et al. (1). Admittedly, the DCEP curriculum they outlined (1) would benefit aspiring CEPs, but it is important to note that "...education for many professions extends beyond the classroom to real-life on-the-job training" (3).

Preparation for a career in health care is based on 3 pillars: (a) academic curriculum, (b) mentored practicum, and (c) certification. Based on a 2015 survey, the highest degree held by CEPs who were employed full time was 32% bachelor's, 62% master's, and 6% doctorate (8). In addition, 59% of those individuals reported a clinical exercise certification from the American College of Sports Medicine (ACSM) (8). The only clinical exercise certification offered by the ACSM today is the Certified Clinical Exercise Physiologist (ACSM-CEP) certification. To be eligible to sit for this exam an individual must have a bachelor's degree (or higher) in clinical exercise physiology and 1,200 hours (600 hours for those with a master's or doctorate) of hands-on clinical experience. The missing item in the above is accreditation of academic programs.

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The health care professions that are frequently compared to CEPs (e.g., physical therapists, registered dietitians) require students to graduate from an accredited academic program. Accreditation ensures that minimal standards are met across academic programs. Accreditation of graduate degree clinical exercise physiology programs began in 2004 (9). There is no accreditation for undergraduate clinical exercise physiology programs. The accreditation is provided by the Commission on Accreditation of Allied Health Education Programs (10). As of January 1, 2020, there are just 8 accredited master's degree programs in clinical exercise physiology in the United States (10). Eight programs in 16 years is tantamount to no accreditation. Many believe that academic accreditation is the most important thing that is needed to advance the profession for CEPs. In fact, the lack of accredited programs was one of the major barriers to advancing a CEP licensure bill in Massachusetts in 2012 (R. Berry, MS, Henry Ford Hospital; personal communications). The problem of a lack of accreditation can be seen in the disparate preparation of students from different academic programs, with some undergraduate curriculums superior to graduate programs.

In conclusion, I commend Ozemek and colleagues (1) for their forward thinking and enthusiasm in their proposal of the DCEP. They state that they hope this will "promote discussion among key stakeholders in the professional preparation of DCEP" (1). Respectfully, it is too early to discuss DCEP because it is not clear there is a need. What the CEP profession does need *today* is accreditation of academic programs. Without accreditation, DCEP programs will simply add to the confusion. Bachelor's and master's degree programs need to be accredited and the ACSM-CEP certification needs to be limited to students who graduate from accredited programs. Only after a timeline has been established for these items might it be worthwhile to begin a discussion among national leaders of whether there is a need for the DCEP.

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