Assessing the History of Physical Activity Education's Future: Innovations, Praxis, and Evidence

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Abstract

Known events occur in life that are associated with steep drop-offs in physical activity behavior. One such event is the transitional period between late adolescence and early adulthood, particularly the completion of high school and start of college or university. The reduction associated with this transition has been reported to be as high as 62.5 percent. In the United States the National Physical Activity Plan recommends strategies and tactics that – if implemented at scale – would improve upon this situation. The strategies and tactics proposed span nine societal sectors, one of which is Education. Within Education, Strategy 5 states, "*Colleges and universities should provide students and employees with opportunities and incentives to adopt and maintain physically active lifestyles*." There are six tactics recommended for this strategy, the first of which is: "*Provide physical activity opportunities through courses that contribute to graduation requirements for undergraduate students.*" Contrary to this tactic, there is evidence that physical activity education graduation requirements have diminished over time on college and university campuses in America. In an effort to curb this situation and to promote sustainable development in this area, the scientific evidence supporting the short- and long-term value of these courses will be reviewed and recommendations for future research and praxis will be advanced. The accumulated evidence presented can serve as the basis for a policy and/or advocacy document on college and university campuses that are undergoing review, thwarting off challenges, or proactively trying to add a requirement. This presentation is built in seven sequential sections.

Introduction

There is indisputable evidence that physical activity is good for people. In spite of this, too few people engage in physical activity behavior on a regular basis. Quality physical activity education, which the Bloomberg School of Public Health at Johns Hopkins University, Baltimore, Maryland, identified as one of the "100 Objects That Shaped Public Health" during the past century << https://www.globalhealthnow.org/object/physical-education-class>>, is, by design, aimed at giving people the requisite knowledge, skills, and abilities necessary for living a healthy, active lifestyle.

More often than not, references to quality physical activity education refer to K-12 educational settings. But, as noted 120 years ago (Report of the First National Convention of the A. A. A. P. E., 1899, p. 217), *"...although the interests of physical education in lower schools are in some respects of paramount importance, yet it is the institutions of superior education, the colleges and universities, that we naturally and gratefully look for inspiration and guidance."*

The Dawning of An Innovation

The first full-fledged college and university level physical activity education program in the United States began in earnest in the mid-19th century at Amherst College, Amherst, Massachusetts. The program was envisioned by the Reverend William Augustus Stearns, D.D., 5th President of Amherst College, who was disturbed by the poor physical constitution of students at the institution. His conviction resulted in the "Amherst Plan", which required that students partake in physical education, 4 days per week for 30 minutes per day during their freshman through senior year. The program was administered and taught by Edward Hitchock, Jr., M.D., who went on to become the first President of the Association for the Advancement of Physical Education, now SHAPE America, in 1885. As a supplement to the physical training, Dr. Hitchock also delivered lectures on various health topics, including human anatomy and

physiology. Furthermore, in an effort to document the program's efficacy, he systematically measured and monitored each student's progress. This served to spawn the anthropometrics scientific movement.

The innovations begun at Amherst College more than 150 years ago reveal *"…an enduring truth about innovations: it involves new combinations of idea, knowledge, skills, and resources"* (Dodgson & Gann, 2018, p. 11). Innovations are different from creativity and invention, per se, in that they are *"…ideas successfully applied…"* (p. 13).

Advancing the application of physical activity education in school settings, including colleges and universities, was Dudley Allen Sargent, M.D., of Harvard University. He wrote convincingly about the need and place for required physical activity education at the dawn of the 20th century. Ultimately, by the late 1920s and early 1930s, an estimated 97% of colleges and universities had implemented a physical activity education requirement.

The program begun at Amherst College was the genesis of the discipline now known as kinesiology in the United States. It demonstrates the power of what people with ideas – and the determination, resources, and support necessary to implement those ideas – are capable of.

Physical Inactivity, An Enduring Challenge

While some of the health concerns (e.g., infectious and communicable diseases) that disturbed President Stearns of Amherst College a sesquicentennial ago have been eradicated or reduced substantially, chronic diseases have emerged as a contemporary concern. Chronic diseases, also known as lifestyle-mediated diseases, develop slowly over time. Once the consequences of the disease(s) are revealed, it may be too late to fully restore health and wellness. Regardless, positive physical activity experiences are beneficial for most people, irrespective of health status, life stage, or social circumstance. That is, one of the most

important health behaviors people can engage in to mitigate the development of and treat or partially treat an array of lifestyle-mediated diseases is physical activity.

Unfortunately, the physical activity trends are not good. Physical activity declines in both females and males between 9th and 12th grade, with fewer than 25% of adolescence meeting the moderate-to-vigorous physical activity guideline of 60 minutes a day. And steep declines in physical activity seem to occur during the transition from high school to college.

Among college and university students, the American College Health Association reported that 24.6% reported doing no moderate-intensity aerobic or cardio exercise for ≥30 minutes during the past 7 days. Over the same timespan, 44.4% reported doing no vigorous-intensity aerobic or cardio exercise for ≥20 minutes, and 55% reported not doing 8-10 strength-training exercises for 8-12 repetitions. However, the majority (59.7%) of college and university students reported being interested in receiving information about physical activity from institution. Yet, only 57.3% had received such information from their institution. Moreover, among all adults (inclusive of adult-aged college and university students), only 23.6% meet the complete (i.e., aerobic and muscular) federal guidelines for physical activity.

Is this a Failure of the Physical Activity Education Innovation?

Required physical activity education in American colleges and universities seems to be at an all-time low, with <40% having a requirement. This is in direct opposition to what is recommended. For example, in the pretext pages of the Surgeon General's report on health and physical activity, the Secretary of Health and Human Services, Donna E. Shalala, wrote: *"Schools and universities need to reintroduce daily, quality physical activity as a key component of a comprehensive education."* Other experts have voiced similar opinions.

Additionally, having a required physical activity education program is recommended in the National Physical Activity Alliance Plan. Specifically, the plan recommends the following

strategy within the Education sector: "*Colleges and universities should provide students and employees with opportunities and incentives to adopt and maintain physically active lifestyles*." There are six tactics recommended for this strategy, the first of which is: "*Provide physical activity opportunities through courses that contribute to graduation requirements for undergraduate students.*"

What Evidence is there to Support [Required] Physical Activity Education?

One institution reported that within 3 years of dropping their physical activity education requirement, negative trends in student health were observed. Qualitatively, students who complete such courses have reported increased awareness and knowledge about physical activity and healthy living, short- and long-term increases in positive health-promoting behaviors, and increased self-perceptions about their own capacity to engage in a healthy, active lifestyle. Non-experimental studies consistently demonstrate that the courses result in improved behaviors, with some evidence that face-to-face delivery formats are superior to online courses. Moreover, institutions that offer elective courses seem to be attracting those students who are already physically active, competent, and intrinsically motivated, whereas the required arrangement attracts students of all activity levels, skill levels, and across the motivational spectrum. Retrospective alumni studies also demonstrate that students who enrolled in physical activity education courses while in college or university are more likely to demonstrate better knowledge, attitudes, and habits post-graduation.

A slight majority (54.5%) of quasi-experimental studies also support the value of such coursework. Specifically, they demonstrate immediate post-course and short-term (i.e., 2-months post-course) improvements in students' health and physical activity behaviors. Some of the different results appear to be due to quality control issues, with courses delivered using active learning and theory-guided lessons resulting in the most improvements.

In the only true experimental study assessing this situation, women's physical activity improved, whereas men's did not. Unfortunately, the changes observed were not sustained over time. However, the mediators of behavior change were sustained, suggesting that the study participants did learn behavioral and cognitive skills that could be employed in the future. On the downside, the course was associated with an increased drive for thinness among the women enrolled.

Physical Activity Education's Distinct Place in the Curriculum

Howard Gardner, an educational theorist and professor at Harvard University, introduced the theory of multiple intelligences in the early 1980s. In the theory he acknowledged the distinctiveness of bodily-kinesthetic intelligence. That is, humans use their body in whole or in part to solve problems and to create.

Gardner's idea is consistent with observations made within the field of evolutionary biology. In evolutionary terms, the human body did not (or has yet) to evolve to survive in an environment of abundance. Rather, it evolved in an environment where scarcity was the norm. This has resulted in what is known as the mismatch hypothesis. Essentially, to survive and thrive in today's world, people need to be taught behavioral and cognitive skills that are counter to their biological impulses. As the previous section implies, physical activity education alone is unlikely to be enough. However, it is clearly necessary.

The Renaissance of Physical Activity Education Requirements

Earlier it was noted that innovations are *"…ideas successfully applied…"* Within academia, though, applied work is not always rewarded as handsomely as theoretical work. In its ongoing quest for credibility within the educational, political, and scientific worlds, those working in kinesiology have sometimes abandoned or deemphasized applied work. Physical

activity education provides a means for applying the empirical and theoretical knowledge that has been generated to a broad range of people in need.

Closing the gap between knowledge production and its application is an important aim of education. This is consistent with a proverb that states, *"To know and not to do is not to know."* College and university level physical activity education programs provide an opportunity to do just that. Considering the unique life-course needs of the students, tailoring the lessons to those needs (and others) on the basis of contemporary psychological theories (e.g., self-determination theory, transtheoretical model), and assessing novel short- and long-term outcomes, as well as mission-centric outcomes are important features for assuring that physical activity education programs maximally contribute to sustainable development and allow people to fully experience the joy of movement and the accompanying positive health outcomes associated with engaging in a healthy, active lifestyle.

Conclusion

Chuck Corbin, Ph.D., Professor Emeritus, Arizona State University, recently reminded all in kinesiology (a.k.a., physical education, exercise and sport science, etc.): *"I advise all young scholars to seek a diversity of experiences, including educational experiences. Knowing and experiencing art, music, work, etc. help to ground you and help you to understand the workings of the world. It is also necessary, I think, to use your experience to see where our field is headed in the future. Learning about the past (history) is important; read and learn about it"* (cited in Zhu, 2018, p. 399). Inspired by his words, I have attempted elucidate the history of required physical activity education, particularly as an important public health innovation, and the theoretical rationale and scientific evidence that support its ongoing (i.e., sustainable) development. The topic relates to the 9th annual Institute of Physical Education International Conference theme – "Creative Innovations in Sports for Sustainable Development."

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