

The Status of Physical Education in Arizona's Colleges and Universities

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Abstract

One hundred years ago, physical education was nearly universal in American higher education, with 97 percent of institutions requiring it. The standard mostly continued through the 1960s, when 84-87 percent of institutions required it. By 2012, though, the percentage fell to 39.5, and in 2023, researchers reported, via sampling, that 31.7 percent of institutions required all undergraduate students to take physical education, and another 12.1 percent partially required it. Sampling, while statistically sound, has limitations. To better assess the prominence of physical education across America, examining offerings state-by-state is necessary and has been undertaken for several states thus far. This study investigated the status of physical education in Arizonan higher education institutions to compare to other states' data and the recently published national sampling data. The specific graduation requirements of each institution were analyzed. Of Arizona's 29 traditional colleges and universities, 24 (82.75%) offer physical education; none (0%) dictates physical education as a graduation requirement for every student, and 15 (51.7%) have physical education as requirements in particular disciplines or as a general education option. The current trend in higher education is that required physical education is declining, and the results from this study, unfortunately, support this trend. However, most Arizonan higher education institutions offer physical education, and over half allow physical education to count as an option for a graduation requirement. Faculty can use these results to advocate for maintaining and initiating physical education in higher education because the research is clear: Physical education is known to improve students' health and wellness.

Keywords: Basic instruction, graduation requirements, higher education, physical activity, physical education

1 Introduction

In 2019, we issued a call for a detailed study of the status of physical education (also known as basic instruction programs, college and university physical activity programs, physical education requirements, and instructional physical activity programs) in American higher education on a state-by-state basis by analyzing the requirements of each institution's website or published catalog (Heumann & Murray, 2019). Szarabajko et al. (2021) answered that call by looking at the programs within the state of Oregon, and we added

to our previous study on Colorado (Heumann & Murray, 2019) by examining the programs within Utah's tertiary educational institutions (Murray et al., 2021). Ladd (2023) provided information regarding Texas's community colleges and the status of health and health-related physical activity courses within their curricula. In addition to these studies, Szarabajko and Cardinal (2023) updated the national data regarding physical education in institutions of higher education via sampling to draw their conclusions, rather than performing a comprehensive analysis of each institution nationwide that the authors of the previous studies had completed on the state level. In this study, we

examined the physical education in the Arizona higher education institutions to provide the most current information available and compared these findings to the results of the studies mentioned above. The following section is an updated historical review that mimics much of our previous work on this topic (Heumann & Murray, 2019; Murray et al., 2021) but with added information from recently published papers, as this effort is a continuation of our call for state-by-state analyses of physical education in higher education.

1.1 Historical Review

Physical education (often called basic instruction programs, physical activity programs, service programs, etc.) in the United States dates to the 1800s when Amherst College began the first such program in American academe (Allen, 1869). Other institutions followed, and required physical education became nearly universal in American higher education in the 1920s, with 97% of institutions mandating it as a graduation requirement (Cardinal & Casebolt, 2022; Szarabajko & Cardinal, 2023). Since the 1930s, researchers (see Figure 1) have investigated the status of physical education on the national level (Boroviak, 1989; Cardinal et al., 2012; Cordts & Shaw, 1960; Hensley, 2000; Hunsiker, 1954; McCristal & Miller, 1939; Miller et al., 1989; Oxendine, 1961, 1969, 1972; Oxendine & Roberts, 1978; Strand et al., 2010; Szarabajko & Cardinal, 2023; Trimble & Hensley, 1984, 1990). These researchers found that up through the 1960s, 84 and 87 percent of higher education institutions required physical education as a graduation standard. By the 1990s, the percentage fell to the mid-60s, and in 2010 and 2012, it sank to 42.5 and 39.5 percent, respectively (Cardinal et al., 2012; Szarabajko & Cardinal, 2023). The latest study analyzing the national percentage by sampling indicated that 31.7 percent of tertiary educational institutions required all undergraduate students to take physical education, with another 12.1 percent partially requiring it (Szarabajko & Cardinal, 2023). Irrespective of how the data are collected, the national trend is clear: Required physical education is declining in academe, and fewer higher education institutions are mandating it as a graduation requirement.

Szarabajko and Cardinal's (2023) data suggest that most physical education currently in American higher education is voluntary instead of required. More disconcerting, however, is that quality physical education is often being substituted for

voluntary recreational programming (Kim & Cardinal, 2019a; Kim & Cardinal, 2019b), which frequently caters to active and likely, already fit individuals, is, by definition, more recreationally focused than pedagogically driven, is less effective at long-term behavioral change because of low participation rates (Zakrajsek, 1994) and, thus, lower long-term compliance, conflicts with other campus departments (Schneider et al., 2007), and ignores the needs of the sedentary, less-skilled, and indifferent students (Wilson et al., 2020; Wilson, Bhuiyan, et al., 2021). Simply put, recreational programming often ignores "the students who might very well benefit the most" from regular, physical activity and, thus, required physical education (Szarabajko & Cardinal, 2023, p. 2).

Research shows that even though college students note access to a recreation center is of great value to them when they choose an institution to attend (Kampf et al., 2018), historically, few, i.e., 3.43%, consistently use campus recreational facilities (Zakrajsek, 1994). Depending on the accuracy of these data today, many colleges and universities in the United States are failing most students concerning quality physical education by employing voluntary recreational activities (Cardinal, 2017). Research indicates that only 39 percent of students state that they participate in campus recreational activities thrice weekly, at a minimum, and 21 percent indicate that they never participate in recreational programming (Forrester, 2014). These results are supported by recent research from the American College Health Association (2021), where some 42 percent of the student population has been shown to meet the recommended level of physical activity for active adults. While research has limitations, particularly when involving self-reported data, the historically trivial percentage of college students actively engaged in voluntary recreational programming is concerning.

More troubling, however, is that those not active in regular, voluntary recreational activity generally are individuals who have been "historically disenfranchised in society" (Cardinal, 2020, p. 288; Hoang et al., 2016; as cited in Murray, 2021, p. 86); as such, voluntary collegiate recreational programming potentially contributes to the reported health disparities among differing groups (McArthur & Raedeke, 2009; Rababah et al., 2019). These issues are more bothersome, too, because research shows that college students often become more sedentary (Nelson et al., 2007; Small et al., 2013), gain excessive body fat (Pope et al., 2017; Yan & Harrington, 2020), and incur

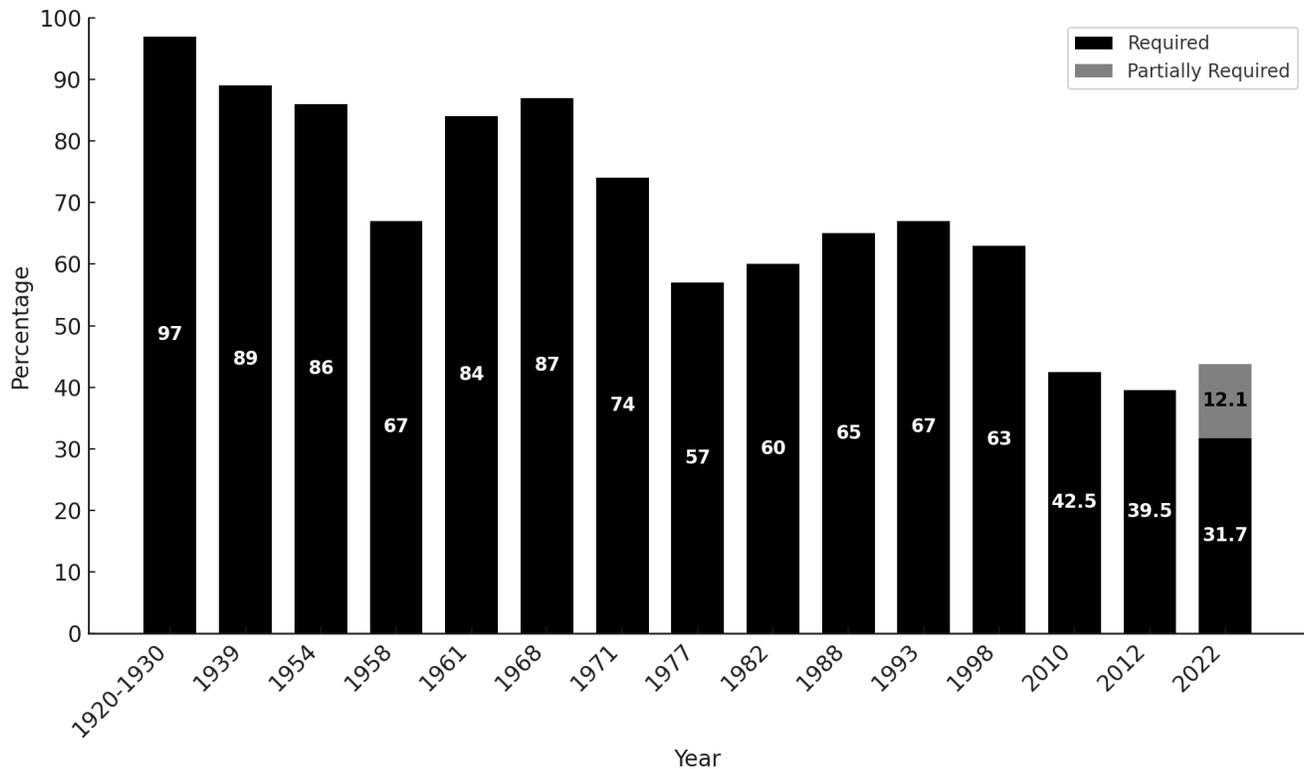


Figure 1: The percentage of American institutions of higher education requiring physical education from 1920 to 2022. Note: Adapted from Cardinal et al. (2012) and Szarabajko and Cardinal (2023).

more distress (Petruzzello & Box, 2020), which contributes to the development of damaging health behaviors, often eventually becoming lifelong habits (Sparling, 2003). These results are the antithesis of what should be expected as the desired outcomes of a well-rounded education, or, as the Latin phrase *cura personalis* – “care for the whole person” in all aspects of a person’s health, including the physical, mental, and spiritual” (Szarabajko & Cardinal, 2023, p. 6) – suggests. The modern-day principle of wellness (Dunn, 1959) epitomizes *cura personalis*. It is listed as a key component of the mission of one of the most influential professional organizations for collegiate recreation: NIRSA: Leaders in Collegiate Recreation (formerly known as the National Intramural-Recreational Sports Association), where it states, “NIRSA believes that collegiate recreation is a significant and powerful key to inspiring wellness in local, regional, and global communities” (NIRSA, n.d.). Paradoxically, the previously mentioned data concerning low usage rates among voluntary collegiate recreational programming indicate an incongruity with the mission and the purported outcomes of collegiate recreation, weakening its effec-

tiveness at best and serving as a severe critique at worst.

As we remarked in Murray (2021), physical education’s value is indisputable, especially for student wellness, as extensive research shows that physical activity is necessary for good health (Centers for Disease Control and Prevention [CDC], n.d.). Physical activity builds cardiorespiratory endurance (Warburton & Bredin, 7), helps with weight management (World Health Organization [WHO], 2010), improves the awareness and actions of collegiate alumni (Pearman III et al., 1997), increases social connectivity (VanKim & Nelson, 2013), cultivates favorable health behaviors (Quartiroli & Maeda, 2016), improves scholastic performance and retention rates (Chang et al., 2014; Sanderson et al., 2018), positively affects mental well-being (Currier et al., 2020; Petruzzello & Box, 2020), fosters public health (Cardinal, 2016), and improves students’ moods (Annesi et al., 2017). In addition to these benefits, Barney et al. (2014, p. 150) explicitly report, “when college students were physically active [in collegiate physical activity courses], tension was relieved, anger lowered, fatigue lessened, depression reduced, per-

sonal satisfaction improved, and vigour increased.” Research also reveals undergraduate students request colleges and universities offer physical activity courses to support their abilities to handle academic, mental, physical, and social demands (Lackman et al., 2015), and participation in these courses “significantly increases the physical activity levels of students and also significantly increases the physical activity enjoyment of students with the most sedentary lifestyles” (Hill et al., 2018, p. 118), counterbalancing the major limitations of volitional collegiate recreational programming. Lastly, scholastic achievement has been shown to relate positively with physical fitness (Donnelly et al., 2016), leaving no doubt about the worth of physical education in higher education.

Regrettably, these truths frequently are disregarded by administrators and faculty in higher education. Physical education faculty members regularly must defend their continuation of physical education requirements despite the prevailing evidence that required physical education is efficacious at enhancing student wellness (Cardinal, 2017, 2020; Szarabajko & Cardinal, 2023). The entire situation is best summarized by Cardinal (2017, p. 535), “Having to continually justify and prove the worth of one’s discipline and its curricular offerings is tiresome, and at times shockingly disappointing, though, especially with the preponderance of the evidence—evidence beyond a reasonable doubt, really—that has been accumulated over the past sesquicentennial.” It seems that the fight is being lost by many physical educators today. Required physical education has been declining in American tertiary educational institutions, with numerous administrators and faculty replacing it with voluntary programming in physical education, dance, campus recreation, or some combination of them (Heumann & Murray, 2019; Murray et al., 2021; Szarabajko & Cardinal, 2023).

Students’ health-related behaviors have been negatively affected by the elimination of required physical education and wellness programming on college and university campuses (Ansuini, 2001; Szarabajko & Cardinal, 2023). A “marked decrease in campus well-being” related to nutritional and exercise-related matters was found within three years of terminating a wellness/physical activity requirement at a state university, and Ansuini (2001, p. 455) asserted, “[t]he magnitude of these results should reaffirm the need for mandatory wellness/activity programming.” In addition, the COVID-19 pandemic altered many college students’ behaviors by making them more sedentary

and adding more mental anguish to their lives (Dziewoir et al., 2021; Wilson et al., 2021). As such, research investigating physical education is currently both germane and worthwhile, especially considering the low percentage of students habitually participating in voluntary collegiate recreational programming with any regularity coupled with the continuing negative effects of the recent pandemic.

Physical education is undeniably valuable, as much research supports its worth (Szarabajko & Cardinal, 2023). Further, historical utilization rates alone show that required programming is more effective than voluntary collegiate recreational programming. However, new data from sampling have been reported, indicating that required physical education is declining nationwide (Szarabajko & Cardinal, 2023). As we recommended in 2019 (Heumann & Murray, 2019), detailed, state-by-state analyses are needed to give an up-to-date and complete picture of the status of physical education in American tertiary educational institutions. Using the previous studies (Heumann & Murray, 2019; Ladd, 2023; Murray et al., 2021; Szarabajko et al., 2021) conducted on the state level for Colorado, Texas, Utah, and Oregon, respectively, as models, this study’s purpose was to assess the status of physical education in Arizona’s tertiary educational institutions.

2 Methods

2.1 Participants

The methodology for determining the participants was the same as what was used for our previous studies on Colorado and Utah (Heumann & Murray, 2019; Murray et al., 2021). Using the website of the National Center for Education Statistics (2023), a listing of all the institutions ($n = 64$) of higher education in Arizona was obtained. Specialized schools, such as computer science, online, post-graduate, and for-profit institutions – a total of 33 – were deleted from the listing because they normally do not offer physical education nor general education courses; institutions with multiple campuses were combined and counted as one institution, where applicable, so that left 29 (6 private; 23 public), traditional, not-for-profit colleges or universities on the list. Of those, 10 were four-year institutions, and 19 were two-year institutions. The definition of a traditional institution was “a brick-

and-mortar school, offering a comprehensive curriculum, with a general education component, often based in the liberal arts” (Murray et al., 2021, p. 86).

2.2 Procedure

Except using the latest-available catalogs (2021-2022) for each institution, the procedures were identical to Heumann and Murray (2019), Murray et al. (2021), and Szarabajko et al. (2021), where each institution’s website was searched for the undergraduate requirements for graduation and physical education courses. As with the previous studies mentioned above, “the operational definition of Tomaino et al. (2001, p. 10) was used for physical education: ‘Physical education was considered any activity or academic course pertaining to health, wellness, sports, or physical activity. For the course to be considered ‘required,’ it had to be listed by the institution as a requirement for graduation. If not, it was considered an elective.’ Additional information, such as the types of courses offered, was collected, and this differed from the two previous studies on Colorado and Oregon that were used as models. To better compare the results of the Oregonian and Utah studies, the availability of a campus recreation or fitness center and accompanying programming was also searched for” (Murray et al., 2021, p. 86). The information gathered and used was publicly available and did not involve human contact; thus, an Institutional Review Board (IRB) review was unnecessary.

2.3 Analysis

The data analysis was identical to Murray et al. (2021, p. 86) and “was conducted by determining the current number of four-year and two-year colleges and universities. After reviewing the catalogs, the total number of programs that required these courses also was calculated. The percentage was then calculated by reporting the total number required out of the total number of institutions at that level.”

3 Results

Table 1 (see Appendix A) lists the requirements for physical education in Arizona’s colleges and universities. Twenty-four (82.75%, i.e., 24 of 29; 70%, i.e., 7 of 10 four-year institutions, and 89.47%, i.e.,

17 of 19 two-year institutions) colleges and universities had physical education offering a broad range of activities to their students (see Table 2 in Appendix B). None (0%, i.e., 0 of 29) of the institutions required physical education, but 51.72 percent (i.e., 15 of 29; 50%, i.e., 5 of 10 four-year institutions, and 52.62%, i.e., 10 of 19 two-year institutions) partially required physical education as a graduation requirement. The definition of partially required was the same one we used previously in our study on Utah’s tertiary educational institutions and was defined as a situation where: “some degrees required some sort of physical education course, or physical education courses were listed as an option to fulfill a specific requirement” (Murray et al., 2021, p. 86). Twenty-six institutions (89.65%, i.e., 26 of 29; 100%, i.e., 10 of 10 four-year institutions, and 84.21%, i.e., 16 of 19 two-year institutions) had a campus recreation or fitness center or associated recreational programming.

4 Discussion

Arizonan higher education institutions do not mandate physical education as a graduation requirement for all undergraduate students. Not a single institution of higher education in Arizona requires physical education for all undergraduates, earning Arizona the lowest rate of required physical education studied to date on the state level (and the lowest rate possible). The neighboring states of Colorado and Utah have rates of 15.6 percent (5 of 32; Heumann & Murray, 2019) and 10 percent (1 of 10; Murray et al., 2021), respectively, and fellow western state, Oregon, has a rate of 14.29 percent (5 of 35; Szarabajko et al., 2021). The lone other state’s rate currently known is Texas, and it is for community colleges only and is 6 percent (3 of 50; Ladd, 2023). The current national rate of higher education institutions requiring physical education is purported to be 31.7 percent (Szarabajko & Cardinal, 2023). The Arizonan rate for required physical education is incongruent with the purported national rate, which makes Arizona an extreme outlier. However, the trend for Colorado, Oregon, Texas (for two-year institutions), Utah, and now, Arizona is that these states all are below the currently reported national rate. Is this just a regional trend? Are states west of the Mississippi River – the traditional landmark separating the East from the West in the United States – less

likely to require physical education? More states must be studied for required physical education at the tertiary educational level to get a clearer position. However, for now, it seems that the western states' rates are well below the levels of their national peers.

Fortunately, not all is lost with respect to required physical education in Arizona's institutions of higher education. Fifteen (51.72%, i.e., 15 of 29; 50%, i.e., 5 of 10 four-year institutions, and 52.63%, i.e., 10 of 19 two-year institutions) of the Arizonan tertiary educational institutions partially require physical education for students in certain disciplines, indicating that physical education is valued and is not as low as initially indicated. This partially required percentage is far greater than the current purported partially required national rate of 12.1 percent. The sum of the required (i.e., 31.7) and partially required (i.e., 12.1) national rates is 43.8 percent. As such, Arizona's summed rate of 51.72 percent is superior to the national summed rate. An even more promising finding is that 82.75 percent (24 out of 29) of the Arizonan colleges and universities offer physical education of some sort (see Tables 1 and 2). This finding is similar to Colorado (27 of 32, or 84.4%; Heumann & Murray, 2019) and Oregon (30 of 35, or 85.7%; Szarabajko et al., 2021), but well below the percentages in Utah (10 of 10, or 100%; Murray et al., 2021) and Texas (49 of 50, or 98% [two-year institutions only]; Ladd, 2023). So, physical education is in over four-fifths of the tertiary educational institutions of Arizona, which is a promising statistic, but the dearth of required physical education is troublesome. This raises the question: Why is required physical education so low in Arizona's tertiary educational institutions? How does the populace of Arizona rate concerning physical activity to the residents of its western neighbors of Colorado, Utah, and Oregon?

According to the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System, Colorado, Utah, and Oregon rank first, second, and seventh, respectively, for physical activity, and Arizona ranks 19th (CDC, n.d.). With Colorado, Oregon, and Utah ranking so highly in physical activity, it may explain why physical education is abundant, but not necessarily required, in their respective tertiary educational institutions. Arizona's rates are bucking this trend somewhat in that it is ranked lower for physical activity at 19 out of 53 entities (i.e., 50 states, the District of Columbia, Guam, and Puerto Rico), has no fully required physical education standard at any institu-

tion of higher education, but does have a near 52-percent partially mandated physical education requirement across all colleges and universities. This trend can be better established as more research is gathered on a state-by-state basis concerning physical education programming in higher education. We are eager to see the relationship between each state's physical activity rating and its tertiary educational physical education programming and believe this to be a fertile area of investigation. The data on Texas's colleges and universities are incomplete because only the two-year institutions' information is available. Texas ranks 40th on the CDC's list for physical activity. Yet, it has a higher percentage of required physical education and has a near-perfect percentage rate (i.e., 98%) for physical education programming availability compared to Arizona's tertiary educational institutions. More data regarding Texas's tertiary educational institutions are needed to make sounder comparisons.

For campus recreational programming, 89.65 percent (i.e., 26 of 29) of Arizona's colleges and universities either have a recreation center or provide some recreational activities or programming. Data on recreational programming were not collected in the studies on Colorado's or Texas's tertiary educational institutions, but 100 percent of Utah's colleges and universities (i.e., 9 of 9, or 100%, for the four-year institutions, and 1 of 1, or 100%, for the two-year colleges), and 65.71 percent of the Oregonian institutions (i.e., 15 of 18, or 83.33%, for the four-year institutions, and 8 of 17, or 47.05%, for the two-year institutions) have recreational programming. By looking at these data, it seems the faculty and administrators in Arizona are replacing required physical education with voluntary recreational programming to meet their students' health and wellness needs. More research is needed in this area, and specific questioning of key administrators and faculty as to why recreational programming and not required physical education is implemented on their campuses is needed. We suppose that because recreational programming is frequently supported by auxiliary student fees, often via a student referendum and not by tuition (Taylor et al., 2003) and that student-affairs administrators often are initiating "a new model" where student well-being is integrated into campus life (NASPA, 2017), administrators are more than happy to go along with this model, especially because of the fiscal benefits. With students willing to essentially tax themselves with a recurring fee for recreational programming, administrators can then reduce or eliminate required physical educa-

tion and reallocate funding to enhance other academic disciplines. The administrators look at it as a win-win scenario: The physical activity needs of the students are addressed, however modestly and in all likelihood ineffectively, with voluntary recreational programming (from a volitional fee, no less), and instructional resources then can be redirected. However, as mentioned previously, the research regarding the effectiveness of voluntary recreational programming has shown it to have modest efficacy, often only for a minority of students, and generally serving mostly the already fit and highly motivated students (Szarabajko & Cardinal, 2023).

Our philosophical view is that physical education should be provided and required of every undergraduate student. In addition, voluntary recreational programming should also be available so that the students can work on the skills they are learning in their physical education courses and make them lifelong habits. We believe educational and recreational programming should work symbiotically and neither be an “either-or” situation nor a parasitic relationship; one should not take away from the other. Instead, the two should work in unison to develop the whole individual, enhance individual student wellness, and help tertiary educational institutions return to the *cura personalis* mission of education.

Limitations occur with all research, and this study had the same limitations as the previous studies investigating tertiary physical education in Colorado and Utah, respectively. We followed the same data-collection techniques we used in Heumann and Murray (2019), and Murray et al. (2021, p. 90), where “all data were taken from the most up-to-date information available from each institution’s website, but the precise offerings for each institution are unknown. Further, the filtering of the institutions based on the traditional brick-and-mortar criterion was a limitation and affected the sample size.”

4.1 Conclusion

American colleges and universities have supported physical education since the mid-1800s. These programs were initiated to prevent illness via physical activity and to promote hygiene. Prevention was the centering theme, so mandating physical education for all students was the norm. In our view, this approach, once again, needs to be effected in today’s academy, as the rates for required physical education have been trending downward for several decades (Szarabajko & Cardinal, 2023).

In 2019, we called for more state-level research on the status of physical education in higher education (Heumann & Murray, 2019). Several authors (Szarabajko et al., 2021; Murray et al., 2021; Ladd, 2023) answered that call by adding Oregonian, Utahian, and Texan information, respectively. This study provides current data on Arizona’s colleges and universities. It adds information on the status of physical education within the institutions of the constituents of the Western Society for Kinesiology and Wellness.

Conflict of Interest

The authors have no conflicts of interest to declare.

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Appendix A

Table 1. *PE and HW Requirements in Various Institutions*

Institution	Type	PE Activity	Required HW	HW Courses	Rec. Center
Arizona Christian University	4-year, Private	None	Partial; only required in coaching emphasis for secondary education. (3 credits)	Introduction to health and fitness, teaching lifetime health and fitness	Yes
Arizona State University (multiple campuses: Cochise, Lake Havasu, Pima, Phoenix Downtown, West)	4-year, Public	None	Partial; application-based movement courses are required in sports science and performance programming major	HPE 179 Lifelong Wellness (Cochise); An Exploration of Well-being, Introduction to health and wellness, optimizing health and performance (Lake Havasu); Self-care for personal wellness, FSS 154 - Healthy Living and Mind-Body Training (Pima); Exercise and wellness seminar, health promotion (Phoenix Downtown); foundations of health and fitness, health and wellness, health promotion, sustainable wellness (Polytechnic); foundations of health and fitness (West); Required for College of Health Solutions majors-Optimizing your health and human performance OR an exploration of well-being	Yes
Arizona Western College	4-year, Public	None	Partial; application-based movement courses are required in sports science and performance programming major	Health and Wellness; Healthy Living	Yes
Central Arizona College	2-year, Public	None	No	HES 100 can be taken as social and behavioral science course in Arizona general education curriculum	Yes
Chandler-Gilbert Community College*	2-year, Public	Only for PT certificate, Exercise Science AAS	Partial; HES 100 can be taken as social and behavioral science course in Arizona general education curriculum; required for Exercise Science AAS	HES100 Healthful Living	Yes
Cochise County Community College District	2-year, Public	None	None	Lifelong Wellness	Yes
Coconino Community College	2-year, Public	None	None	None	No
Dine College	2-year, Public	None	None	None	Yes
Eastern Arizona College	2-year, Public	Partial; offered for general education credit for Associate of Applied Science (2 credit max, dance included)	Partial; offered as an option under Social Sciences which is a requirement for AAS degrees (6-9 credits)	HHP 100 Personal Health (N.B., meets Diversity and Inclusion requirements)	Yes
Embry-Riddle Aeronautical University—Prescott	4-year, Private not-for-profit	None	None	None	Yes
Estrella Mountain Community College	2-year, Public	None	None	Fitness for Life, Weight Training for Wellness	Yes

Continued on next page

Table 1. (continued)

Institution	Type	PE Activity	Required HW	HW Courses	Rec. Center
GateWay Community College (multiple campuses)*	2-year, Public	Partial; option to take courses in recreation for social science credit. Also exercise science can count towards literacy and critical inquiry requirement	Partial; Principles of Physical Fitness and Wellness can be taken as Social-Behavioral Science course in Gen Ed requirements	HES100 Healthful Living, lifetime fitness, leisure and the quality of life, Principles of physical fitness and wellness, meditation and wellness Principles of Physical Fitness and Wellness	No
Glendale Community College*	2-year, Public	Partial; required in AAS in Exercise Science: Health, Fitness, and Sports Performance; Personal Training Certificate requires strength training; Personal Training: Advanced requires strength training and another activity course	AGEC Pathway SB	Healthful Living	Yes
Mesa Community College*	2-year, Public	None	None	Healthful Living	Yes
Midwestern University—Glendale	4-year, Private not-for-profit	None	None	None	Yes
Mohave Community College	2-year, Public	None	None	None	Yes
Northern Arizona University	4-year, Public	Partial; FIT 100 Physical Education P/F courses only count as general elective credits- all are listed as FIT 100 topics; required in health sciences - fitness wellness BS and health sciences - physical education	None	Facilitating Active Living, Mind-Body Health	Yes
Northland Pioneer College	2-year, Public	None	None	None	No
Ottawa University	4-year, Private not-for-profit	None	None	Personal and Community Health	Yes
Paradise Valley Community College*	2-year, Public	Partial; strength training required for AA and personal training certificate	Partial; required for AA in Exercise Science	Healthful Living	Yes
Phoenix College*	2-year, Public	None	None	Healthful Living	Yes
Pima Community College	2-year, Public	None	Partial; coursework required for fitness and wellness certificate program or fitness professional certificate.	Health, Wellness, and Physical Activity; Healthy Living and Mind-Body Training; Self Care for Personal Wellness	Yes
Prescott College	4-year, Private not-for-profit	None	Partial; Holistic Health and Wellness is under Human Dynamics and Interpersonal Literacies Distribution Area; required for holistic health and wellness emphasis	Yoga, Philosophy and Practice, Life Centering; Mindfulness and Mediation Courses, Holistic Health and Wellness	Yes; outdoor recreation
Rio Salado College*	2-year, Public; mostly online, but does have in-person courses in Tempe	None	Partial; can be taken for AGECE SB requirement	Healthful Living	No; but online recreational courses

Continued on next page

Table 1. (continued)

Institution	Type	PE Activity	Required HW	HW Courses	Rec. Center
Scottsdale Community College*	2-year, Public	Partial; strength training and PED 101 course of their choosing for exercise science; strength training required for personal training certificate as well as personal training; advanced certificate (which also requires a PED course)	Partial; HES 100 (Healthful living) is required for exercise science	Healthful Living, Wellness for law enforcement officers; health and wellness coaching in professional resiliency; fitness and wellness for firefighter candidates; personal wellness and safety; principles of physical fitness and wellness	Yes
South Mountain Community College*	2-year, Public	Partial; required for exercise science and personal trainer; advance	Partial; Healthful Living required for Exercise Science	Healthful living; Cultural Aspects of Health and Illness	Yes
Tohono O'odham Community College	2-year, Public	None	None	Personal Health and Wellness; Introduction to Community and Public Health; Health, Safety and Nutrition	No
University of Arizona	4-year, Public	None	None	Public Health courses	Yes
Yavapai College	2-year, Public	None	Partial; Personal Health and Wellness can count for SBS	Personal Health and Wellness; Stress, Lifestyle and Health; Foundations of Mind-Body Exercise	Yes

Note: *Maricopa Community Colleges have the same general education curriculum options, but each campus offers different courses based on the expertise of its faculty.

Appendix B

Table 2. *Physical activity courses offered at Arizona's colleges and universities*

Institution	List of Activity Courses Offered
Arizona Christian University	Weight training for sport (listed for each intercollegiate sport) intercollegiate sports: soccer, basketball, bowling, volleyball, cross country, golf, baseball, softball, tennis, track, football, swimming, acrobatics and tumbling, beach volleyball, swimming, wrestling, cheer, dance.
Arizona State University	Body conditioning, weight training, athletic conditioning, personal fitness, individualized fitness, Indoor court sports, open water scuba diver, varsity rodeo, golf, baseball, basketball, soccer; conditioning, individual fitness: running, walking, swimming, strength and conditioning, weight training, cardio cross training, Zumba, circuit training, indoor cycling, Pilates, strength and flexibility, yoga, kickboxing, tennis, golf, martial arts, self-defense, tai chi chaun, football, baseball, basketball, soccer, softball, volleyball; yoga, circuit training, resistance training, cardio and flexibility; resistance training, cardio and flexibility, soccer, yoga, circuit training, basketball, flag football, core fitness; yoga, resistance training, cardio, badminton (West).
Arizona Western College	Personal Fitness Training, Sambaerobics, Aerobics: Step, Strength and Conditioning Training, Aerobics: Water, Aerobics: Pilates, Speed and Agility Training, Smart Cycling, Golf 1, Golf 2, Tai Chi, Yoga, Judo 1, Judo 2, Karate 1, Karate 2, HAPKIDO, Self-Defense, Desert Hiking, Swimming, Swimming: Beginning, Walking and Jogging, Scuba, Baseball, Softball, Basketball, Football, Soccer, Volleyball, Beginning Resistance Training, Intermediate Resistance Training, Advanced Resistance Training, Varsity Sports.
Central Arizona College	Intermediate weight training, physical fitness: core emphasis, aerobics and weight training, total body conditioning, theory and practice of basketball I (and II), theory and practice of baseball I (and II), theory and practice of track and field I (and II), theory and practice of softball I (and II), theory and practice of cross country I (and II), physical education varsity sports: rodeo sports events I, varsity basketball I, varsity baseball I, varsity track and field I, varsity softball I, varsity cross-country I, varsity basketball II, varsity baseball II, varsity track & field II, varsity softball II, varsity cross country II.
Chandler-Gilbert Community College	Group fitness/aerobics, kickboxing, Latin dance, hatha yoga, yoga, power yoga, restorative yoga, gentle yoga, Pilates, Tai Chi, physical conditioning, bootcamp, stretch and relaxation, body sculpting, Zumba fitness, cycling indoor, cardiorespiratory fitness, strength training, suspension training, physical activities basic, physical activities intermediate, lifetime fitness, weight training for wellness, strength and conditioning for sport performance: basic (intermediate and advanced), Olympic style weight lifting, physical activities: advanced, strength and conditioning for sport performance: elite.
Cochise County Community College District	Body conditioning, body dynamics, weight training (I-II), athletic conditioning (I-IV), personal fitness (I-II), individualized fitness (I-II), indoor court sports and physical fitness, open water scuba diver, varsity rodeo (I-IV), beginning golf, baseball (I-IV), men's and women's basketball (I-IV), soccer (I-IV).
Coconino Community College	Pilates (I-II), cardio-fitness, yoga (I-II).
Dine College	Not listed in catalog under course descriptions.
Eastern Arizona College	Beginning body conditioning I, beginning bowling I, beginning golf I, beginning hiking I, beginning jogging I, beginning jogging-hiking I, beginning cheerleading, beginning racquetball I, beginning swimming I, beginning tennis I, beginning volleyball I, beginning weights I, beginning baseball I, beginning varsity baseball I, beginning basketball I, beginning varsity softball I, beginning varsity volleyball I, beginning varsity basketball I, mountain bike riding I, beginning aerobics I, beginning t'ai Chi Ch'uan I, beginning varsity golf I, beginning varsity tennis I, beginning physioball I, Pilates for fun and fitness I, beginning mixed martial arts I, beginning hatha yoga I, beginning chi gong I, beginning swim aerobics I, beginning strength and flexibility training I, beginning power walking I, beginning softball I, beginning body conditioning II, beginning bowling II, beginning golf II, beginning hiking II, beginning jogging II, beginning jogging-hiking II, beginning cheerleading II, beginning racquetball II, beginning swimming II, beginning tennis II, beginning volleyball II, beginning weights II, beginning baseball II, beginning varsity baseball II, beginning basketball II, beginning varsity softball II, beginning varsity volleyball II, beginning varsity basketball II, beginning aerobics II, beginning t'ai chi ch'uan II, beginning varsity golf II, beginning varsity tennis II, beginning physioball II, Pilates for fun and fitness II, beginning hatha yoga II, beginning chi gong II, beginning swim aerobics II, beginning strength and flexibility training II, beginning power walking II, beginning softball II, physical conditioning and assessment I, physical conditioning and assessment II, advanced body conditioning I, advanced bowling I, advanced golf I, advanced jogging I, advanced jogging-hiking I, advanced cheerleading I, advanced racquetball I, advanced swimming I, advanced tennis I, advanced volleyball I, advanced weight I, advanced baseball I, advanced varsity baseball I, advanced basketball I, advanced varsity softball I, advanced varsity volleyball I, advanced varsity basketball I, advanced aerobics I, advanced varsity golf I, advanced varsity tennis I, advanced hatha yoga I, advanced chi gong I, advanced swim aerobics I, advanced strength and flexibility training I, advanced power walking I, advanced softball I, advanced body conditioning II, advanced bowling II, advanced golf II, advanced jogging II, advanced jogging-hiking II, advanced cheerleading II, advanced racquetball II, advanced swimming II, advanced tennis II, advanced volleyball II, advanced weights II, advanced baseball II, advanced varsity baseball II, advanced basketball II, advanced varsity softball II, advanced varsity volleyball II, advanced varsity basketball II, advanced aerobics II, advanced varsity golf II, advanced varsity tennis II, advanced hatha yoga II, advanced chi gong II, advanced swim aerobics II, advanced strength and flexibility training II, advanced power walking II, advanced softball II, physical conditioning and assessment III, physical conditioning and assessment IV.
Embry-Riddle Aeronautical University—Prescott	None.
Estrella Mountain Community College	None.
GateWay Community College	Pilates, soccer, yoga, baseball.

Continued on next page

Table 2. (continued)

Institution	List of Activity Courses Offered
Glendale Community College	Physical activities: basic, aerobic dance, aikido, adapted PE, aquatic fitness, baseball, basketball, boot camp, ballroom dancing, belly dance, ballet, backpacking, body sculpting, bowling, country dance, camping, cycling - indoor, self-defense, dance sampler, football, fencing, fitness for life, fitness walking, group fitness/aerobics, golf, hip hop, hiking, jogging/running, Japanese swordsmanship, judo, jazz, karate, kickboxing, kung fu, Latin dancing, modern dance, pickleball, physical conditioning, Pilates, Qi Gong, rock climbing, racquetball, resistance training for improved sports performance, salsa, softball, social dance, downhill snow skiing, swimming, soccer, stretch and relaxation, strength training, scuba diving, swing dancing, tango, tai chi, tap dance, tennis, track and field, taekwondo, triathlon training, suspension training, volleyball, west coast swing, weight training for women, gentle yoga, hatha yoga, Iyengar yoga, kundalini yoga, yoga, power yoga, restorative yoga, Zumba fitness, physical activities: intermediate, baseball-intermediate, basketball-intermediate, boot camp-intermediate, ballroom dancing-intermediate, belly dance-intermediate, ballet-intermediate, cheerleaders-intermediate, self-defense-intermediate, football-intermediate, fencing-intermediate, fitness for life-intermediate, golf-intermediate, hip hop-intermediate, hiking-intermediate, jogging/running-intermediate, Japanese swordsmanship-intermediate, jazz-intermediate, karate-intermediate, kickboxing-intermediate, Latin dancing-intermediate, physical conditioning-intermediate, Pilates-intermediate, rock climbing-intermediate, resistance training for improved sports performance-intermediate, salsa-intermediate, softball-intermediate, soccer-intermediate, strength training-intermediate, swing dancing-intermediate, tai chi-intermediate, tap dance-intermediate, tennis-intermediate, track and field-intermediate, taekwondo-intermediate, triathlon training-intermediate, volleyball-intermediate, weight training for women-intermediate, yoga-intermediate, power yoga-intermediate, physical activities: basic, aquatic fitness, boot camp, ballroom dancing, belly dance, body sculpting, cycling-indoor, self-defense, group fitness/aerobics, hiking, kickboxing, kung fu, Latin dancing, physical conditioning, Pilates, Qi Gong, salsa, swimming, stretch and relaxation, Tai Chi, suspension training, volleyball, weight training for women, gentle yoga, hatha yoga, Iyengar yoga, kundalini yoga, yoga, power yoga, restorative yoga, Zumba fitness, Army master fitness, fitness, lifetime fitness, cardiovascular fitness, weight training for wellness, Exercise is Medicine, Strength and Conditioning for Sport Performance: Basic, Intermediate, Olympic Style Weight lifting, baseball-advanced, basketball-advanced, ballroom dancing-advanced, cheerleaders-advanced, football-advanced, golf-advanced, physical conditioning-advanced, salsa-advanced, softball-advanced, soccer-advanced, strength training-advanced, scuba diving-advanced, tai chi-advanced, track and field-advanced, volleyball-advanced, weight training-advanced, yoga-advanced, physical activities: elite, baseball-elite, basketball-elite, football-elite, softball-elite, soccer-elite, track and field-elite, volleyball-elite, strength and conditioning for sport performance: advanced, strength and conditioning for sport performance: elite.
Mesa Community College	Physical activities: basic, aerobic dance, Aikido, baseball, basketball, boot camp, belly dance, backpacking, indoor cycling, self-defense, fitness for life, fitness walking, group fitness/aerobics, hip hop, hiking, jogging/running, kickboxing, Latin dancing, Pilates, rock climbing, salsa, strength training, scuba diving, tai-chi, track and field, Taekwondo, weight training, gentle yoga, hatha yoga, yoga, baseball-intermediate, basketball-intermediate, belly dance-intermediate, golf-intermediate, hip hop-intermediate, Latin dancing-intermediate, rock climbing-intermediate, salsa-intermediate, track and field-intermediate, taekwondo-intermediate, weight training for women-intermediate, yoga-intermediate, lifetime fitness, baseball-advanced, basketball-advanced, salsa-advanced, track and field-advanced, baseball-elite, basketball-elite, track and field-elite, physical education of the atypical.
Midwestern University—Glendale Mohave Community College Northern Arizona University Northland Pioneer College Ottawa University—Surprise	None. None. FIT 100-Physical education (all are topics). Yoga. Weight training, lifetime fitness, non-traditional team sports, yoga, walking for fitness, intro to dance, special topics: physical activity.
Paradise Valley Community College	Backpacking, body sculpting, self-defense, fitness for life, group fitness/aerobics, golf, hip hop, kickboxing, kung fu, physical conditioning, Pilates, Qi gong, soccer, strength training, tai chi, tennis, gentle yoga, yoga, Zumba fitness, physical conditioning-intermediate, soccer-intermediate, tai chi-intermediate, tennis-intermediate, Pilates, fitness, lifetime fitness, cardiovascular fitness, weight training for wellness, physical conditioning-advanced, soccer-advanced, physical activities: elite, soccer-elite.
Phoenix College Pima Community College	Physical activities basic, lifetime fitness, cardiovascular fitness, weight training for wellness. Group Fitness Access I-II, Conditioning: Speed, Agility, and Quickness; Strength and Conditioning for Sport I-II; Individual Fitness: Running; Individual Fitness: Swimming; Weight Training and Cardiovascular Fitness Level I-III; Ballroom/Latin Dance; Belly Dance; Salsa/Latin Dance; Cardio Cross-Training; Zumba; Boot Camp Style Circuit Training; Indoor Cycling; Kickboxing; Pilates; Strength and Flexibility; Yoga; Golf; Tennis; Martial Arts; Basic Self-Defense; Baseball I-II; Basketball I-II; Soccer I-II; Softball I-II.
Prescott College	Canoeing: Introduction to Expeditionary; Introduction to Rock Climbing; Intermediate Rock Climbing; Rock Climbing and Yoga; Rock climbing and geology; Sea Kayaking & Marine Natural History; Search & Rescue; Backcountry skiing and avalanche training; Yoga: Philosophy & Practice.
Rio Salado College	Gentle Yoga; Hatha Yoga; Power Yoga; Lifetime Fitness.

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Table 2. (continued)

Institution	List of Activity Courses Offered
Scottsdale Community College	Physical activities: basic, Aerobic dance, aikido, adapted PE, aquatic fitness, baseball, basketball, bootcamp, ballroom dancing; belly dance; ballet; backpacking, body sculpting, bowling, country dance; camping; cycling-indoor, self-defense, dance sampler, football, fencing, fitness for life, fitness walking, group fitness/aerobics, golf, hip hop, hiking, jogging/running, judo, jazz, karate, Japanese Swordsmanship, kickboxing, kung fu, Latin dancing, life guard training, modern dance, pickleball, physical conditioning, Pilates, qi gong, rock climbing, racquetball, resistance training for improved sports performance, salsa, softball, social dance, downhill snow skiing, swimming, soccer, stretch and relaxation, strength training, SCUBA diving, swing dancing, tango, tai chi, tap dance, tennis, track and field, Taekwondo, triathlon training, suspension training, volleyball, west coast swing, weight training for women, gentle yoga, hatha yoga, Iyengar yoga, kundalini yoga, yoga, power yoga, restorative yoga, Zumba, physical activities: intermediate, baseball-intermediate, basketball-intermediate, boot camp-intermediate, ballroom dancing-intermediate, belly dance-intermediate, ballet-intermediate, cheerleaders-intermediate, self-defense-intermediate, football-intermediate, fencing-intermediate, fitness for life-intermediate, golf-intermediate, hip hop-intermediate, hiking-intermediate, jogging/running-intermediate, Japanese Swordsmanship-intermediate, Jazz-intermediate, Karate-intermediate, Kickboxing-intermediate, Latin dancing-intermediate, physical conditioning-intermediate, Pilates-intermediate, rock climbing-intermediate, Resistance training for improved sports performance-intermediate, salsa-intermediate, softball-intermediate, soccer-intermediate, strength training-intermediate, swing dancing-intermediate, tai chi-intermediate, tap dance-intermediate, tennis-intermediate, track and field-intermediate, taekwondo-intermediate, triathlon training-intermediate, volleyball-intermediate, weight training for women-intermediate, yoga-intermediate, power yoga-intermediate, Army Master Fitness; Cardiovascular Fitness; weight training for wellness, exercise is medicine, special emphasis activities: weight training, Olympic style weight lifting; tradition and practice of yoga III, corrective exercise for athletes: basic, corrective exercise for athletes-intermediate, baseball-advanced, basketball-advanced, ballroom dancing-advanced, cheerleaders-advanced, football-advanced, golf-advanced, physical conditioning-advanced, salsa-advanced, softball-advanced, soccer-advanced, strength training-advanced, scuba diving-advanced, tai chi-advanced, track and field-advanced, volleyball-advanced, weight training-advanced, yoga-advanced, physical activities: elite, baseball-elite, basketball-elite, football-elite, softball-elite, soccer-elite, track and field-elite, volleyball-elite, strength and conditioning for sport performance: advanced; strength and conditioning for sport performance: elite.
South Mountain Community College	Fitness for life, golf, resistance training sport performance-intermediate, softball, soccer, strength training, volleyball, weight training, yoga, physical activities: intermediate; baseball: intermediate; basketball-intermediate; golf-intermediate; resistance training for improved sports performance-intermediate; softball-intermediate; soccer-intermediate; strength training-intermediate; volleyball-intermediate; weight training-intermediate; yoga-intermediate; boot camp; lifetime fitness; special emphasis activities: weight training; strength and conditioning for sport performance: basic; strength and conditioning for sport performance: intermediate; baseball-advanced; golf-advanced; softball-advanced; volleyball-advanced; weight training-advanced; softball-elite; volleyball elite.
Tohono O'odham Community College University of Arizona Yavapai College	Beginning physical fitness; intermediate physical fitness; advanced physical fitness. None. Karate; hatha yoga; intermediate yoga; fitness workshop; water fitness workshop; stretch and flex; total body TABATA; Pilates, mat flex & ball; cardio mix; insanity; total body conditioning; NIA; power Pilates and barre fitness; Zumba; pumping iron; cardio core; aqua fit; water cross training; swimming fitness; warm water exercise; fitness, machine and free weight training; power & Olympic lifting for athletic populations; basketball; tennis; pickleball; competitive swimming; advanced weight training; in recreation management: backcountry navigation and orienteering; backpacking; outdoor survival skills; intermediate backpacking.