CEPA 2015 Clinical Exercise Physiology Practice Survey

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ABSTRACT

In 2015, the Clinical Exercise Physiology Association conducted a clinical exercise physiology practice survey. The survey was completed by 1,271 individuals who reported working as a clinical exercise physiologist in the United States without having a concomitant degree or certification in another allied health field (e.g., dietetics). *Journal of Clinical Exercise Physiology*. 2017;6(1):9-16.

Keywords: professional, salary, workforce

INTRODUCTION

The Clinical Exercise Physiology Association (CEPA), an affiliate society of the American College of Sports Medicine (ACSM), was founded in 2007 to advance the profession of clinical exercise physiology through advocacy, education, and career development. A clinical exercise physiologist (CEP) is an allied health professional who utilizes scientific rationale to design, administer, and supervise exercise testing and training programs for individuals with chronic health disorders (e.g. cardiovascular disease, diabetes) (1). Traditionally CEPs have worked in cardiac rehabilitation or pulmonary rehabilitation programs as part of a multidisciplinary team; however, with the growing multitudes of other lifestyle-related chronic health diseases, many CEPs work with clinical populations (e.g. persons with diabetes, obesity, cancer) where exercise can improve the disease condition (2).

The typical academic training and background of a CEP includes a bachelor's and/or master's degree in exercise science/physiology, which often features general courses in anatomy, biology, and chemistry, as well as focused courses in exercise testing, pharmacology, behavioral change theories, and nutrition. The most well-prepared CEPs complete 500 hours (or more) of a clinical exercise physiology internship and earn a clinical exercise certification through ACSM—that is, the ACSM Certified Clinical Exercise Physiologist (ACSM-CEP) or the ACSM Registered Clinical Exercise Physiologist (ACSM-RCEP) certifications.

In 2010, CEPA conducted its first clinical exercise physiology practice survey (3). The goal of this follow-up survey was to collect employment data, including salary, scope of work, patient base, and job responsibilities for practicing CEPs. The purpose of this article is to provide an update on current practices and salary trends for the CEP.

METHODS

In the fall of 2014, an ad hoc committee was established to replicate the CEPA survey conducted in 2010. The survey contained 22 questions consisting of both multiple choice and fill-in-the-blank responses. See Figure 1 of the supplement for the complete survey. While many questions and response choices were identical to those of the 2010 version to allow for easier comparisons, new to the 2015 version were questions regarding hourly pay, academic program,

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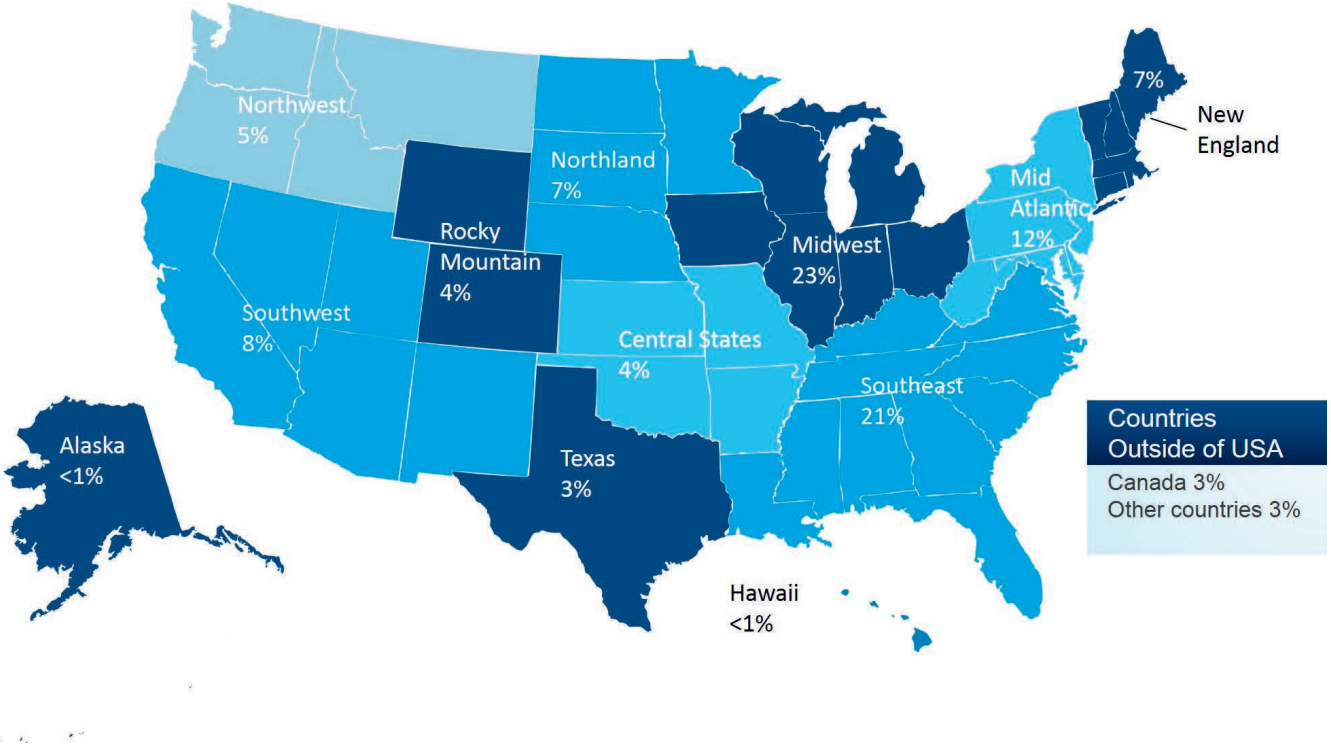
Conflict of interest and source of funding: None.

FIGURE 1. Distribution of respondents from the United States



secondary populations worked with (in addition to the primary population), and state of residency. Survey Monkey (www.surveymonkey.com, Palo Alto, CA) was used to collect anonymous responses.

Information about the survey was disseminated through direct e-mail to both CEPA members and individuals with ACSM-CEP or ACSM-RCEP certifications. Additionally, a website link was available through newsletters distributed by the American Association of Cardiovascular and Pulmonary Rehabilitation. Both the newsletter and e-mail messages stated that the survey was intended for "practicing" CEPs, and individuals were encouraged to share the link with others working in the field. The survey was available over a 2-week period from May to June 2015. Personalized information was not collected as part of the survey.

Survey data were coded and analyzed using SPSS version 22.0 (IBM, Somers, NY). To remain consistent with the 2010 survey, annual salary information was collected as ranges (e.g. $47,501–$50,000). However, instead of reporting the range in the tables, we report the midpoint of each range (e.g. $48,751). In addition, discrete numbers were used for hourly pay rate since the survey asked individuals to directly enter the amount, or if salaried, enter the hourly rate based on a 40-hour per week schedule. Median data, along with the 25th and 75th percentiles (reported in supplemental materials only), were reported. Where appropriate, subjective comparisons were made to the 2010 survey. Additionally, while the 2015 US Bureau of Labor Statistics (US-BLS) does not differentiate between clinical and nonclinical exercise physiologists, because CEPs make up part of the US-BLS survey it was also used as a comparison.

RESULTS

A total of 1,431 individuals responded to the survey. Of these respondents, 160 were not included in the analyses because they had a concomitant allied health degree or license. Excluded from the survey were those with degrees in nursing, athletic training, medicine, physical therapy, radiology, dietetics, and occupational therapy. The most common academic degree reported among those included in the final analysis (n = 1,271) was exercise science/physiology (87%), while the majority of other degrees included a combination of sports, wellness, rehabilitation, exercise, and/or health degrees.

The geographic distribution of respondents from the United States is shown in Figure 1. All 50 US states were represented; the highest number of respondents were from the Midwest (23%) followed by the Southeast (21%), Mid-Atlantic (19%), and West (16%). Eighty of the respondents reported that they live outside the United States. While demographics and job descriptions of these individuals are reported, due to differences in exchange rates and cost of living, salary data for those living outside of the United States was not included in the present analyses.

Demographics for the 1,271 CEPS who responded to the survey are shown in Table 1. Among these CEPs, the majority had a master's degree or higher (63%), were women (70%), and had an ACSM clinical exercise certification (61%). The professional practice of CEPs is shown in Table 2. More than 65% of CEPs reported working at a hospital or medical facility, and the top reported job settings were cardiac rehabilitation (43%), cardiovascular stress testing (8%), and hospital wellness (7%). The most commonly

TABLE 1. Demographics of clinical exercise physiologists.

Characteristic	2015 Survey (n = 1,271)	2010 Survey (n = 813)
Age (y)		
Median	31–35	36–40
25th, 75th percentile	26–30, 41–45	26–30, 46–50
Women (%)	70	68
Work experience (y)		
Median	8–9	10–15
25th, 75th percentile	2–3, 16–20	4–5, 16–20
Highest Academic Degree (%)		
Associate's	1	<1
Bachelor's	36	26
Master's	58	66
Doctorate	5	8
Employer requires ACSM certification (%)	36	59
Clinical Exercise Certification[a] (%)	61	81
Employment Status (%)		
Full-time	75	86
Part-time	15	11
Per diem	3	2
Student/unemployed/not working in field	7	1
Billing Mechanism (%)		
Hospital based	72	78
Physician based	5	9
Private pay	13	5
Other	10	8

[a]Includes individuals who reported current Clinical Exercise Physiologist or Registered Clinical Exercise Physiologist certification from the American College of Sports Medicine.

reported primary patient population that CEPs work with was persons with cardiovascular disease followed by apparently healthy individuals.

The overall median salary for full-time employees was $48,751 (Table 3). Both annual salary and hourly pay rate were higher among individuals with a master's degree compared with those who had a bachelor's degree (Tables 3 and 4). Among all respondents, a clinical exercise certification corresponded to higher pay; however, this difference was larger for respondents with a bachelor's compared with a master's degree (Tables 3 and 4). The advantage of a clinical exercise certification or a higher degree remained constant regardless of subcategory, including gender, or job setting (see supplement).

Hourly wages varied based on geographic location; the states of California and New York had the highest median hourly pay rates, $34.40 and $29.75, respectively (Table 4). Reported hourly wages increased with years of experience (Table 5). Hourly wages also varied among individuals with respect to where they worked. As shown in Table 6, bachelor's degree prepared CEPs working in cardiovascular stress testing yielded the highest hourly rate at $24.88 per hour, whereas master's degree prepared CEPs who worked in commercial/community fitness facility reported the highest hourly rate of $26.00 per hour.

Finally, there was a disparity in wages by sex; men reported an annual salary of $51,251 per year, and women reported $46,251 per year (Table 3). This difference was consistent regardless of academic degree, clinical exercise certification, and years of experience (see supplement). Similar disparities were reported for hourly wages (see supplement).

DISCUSSION

Despite the overall annual salary being similar between the 2010 and 2015 respondents, when comparing salaries based on years of experience the 2015 respondents tended to have higher salaries across most categories (Table 5). The reason for this shift in demographics is unknown, although a simple explanation could be that the field of clinical exercise

TABLE 2. Professional practice of clinical exercise physiologists.

Characteristic	2015 Survey (n = 1,271)	2010 Survey (n = 813)
Primary Work Setting (%)		
Cardiac rehabilitation	43	39
Commercial/community fitness center	12	2
University	10	7
Cardiovascular stress testing	8	5
Hospital wellness	7	7
Corporate fitness/wellness	6	2
Government fitness/wellness/research	5	1
Other hospital/medical program	3	NR
Physical therapy clinic	2	NR
Weight loss or bariatric surgery clinic	2	2
Pulmonary rehabilitation	2	21
Primary/secondary school	<1	NR
Other	<1	6
Direct Patient Contact (%)	77	88
What patient population do you primarily work with?		
Cardiovascular	69	82
Apparently healthy	12	NR
Metabolic	10	16
Neuromuscular/musculoskeletal	5	8
Pulmonary	2	7
Reports Working "Often" With Patient Population[a] (%)		
Cardiovascular	62	NR
Metabolic	62	NR
Pulmonary	48	NR
Neuromuscular/musculoskeletal	26	NR
Apparently healthy	24	NR
Immunologic/hematologic	13	NR

NR = not reported
[a]More than one response was permitted.

physiology is growing, and younger CEPs are coming into the field. This hypothesis is supported by the growing public health concern regarding physical inactivity, which is estimated to contribute to more than 5 million deaths annually and $67.5 billion in attributable costs worldwide (4). However, an alternative explanation (or at least contributing factor) may involve the current landscape regarding the naming of the exercise physiologist (5). The use of the term "exercise physiologist" is found in multiple clinical and nonclinical exercise certifications, across different organizations, with varied accreditations. And while we acknowledge that many individuals work as a CEP without a clinical exercise certification, the difference between a CEP and a non-CEP can be difficult to discern, especially for individuals who work outside the traditional hospital/cardiac rehabilitation setting.

One area of comparison to 2010 that is relatively unchanged is the salary gap reported between men and women. While it is beyond the scope of this report to perform a comprehensive analysis of salary differences between the sexes, we believe it is still important to describe. When grouped by academic degrees, salaries for men were still higher than those for women, despite averaging a similar number of years in the field (10.4 years for women versus 10.0 years for men). However, an important limitation when making these comparisons is the lack of information regarding how long an individual has been employed at an institution. For example, an individual who has several years of experience may only have been employed at their current job for a short time because of being out of the field to care for

TABLE 3. Median annual salary stratified by sex, geographic region, academic degree, and certification among respondents who reported working full-time as a clinical exercise physiologist.

	2015 Survey	2010 Survey
All	$48,751 (n = 945)	$48,751 (n = 749)
Sex		
Women	$46,251 (n = 656)	$46,251 (n = 508)
Men	$51,251 (n = 289)	$53,750 (n = 234)
Academic Degree		
Bachelor's	$43,751 (n = 306)	$41,251 (n = 157)
Master's	$48,751 (n = 586)	$48,751 (n = 421)
Doctorate	$71,251 (n = 53)	NR
Clinical Exercise Certification[a] (All Respondents)		
Yes	$48,751 (n = 560)	$48,751 (n = 471)
No	$46,251 (n = 385)	$43,751 (n = 107)
Clinical Exercise Certification[a] (bachelor's degree)		
Yes	$48,751 (n = 180)	$43,751 (n = 115)
No	$38,751 (n = 188)	$38,751 (n = 42)
Clinical Exercise Certification[a] (master's degree)		
Yes	$48,751 (n = 381)	$51,251 (n = 356)
No	$48,751 (n=204)	$48,751 (n=65)
ACSM United States Region		
New England	$53,751 (n=67)	NR
Southwest	$53,751 (n=67)	NR
Mid-Atlantic	$51,251 (n=116)	NR
Rocky Mountain	$51,251 (n=22)	NR
Northwest	$48,751 (n=45)	NR
North	$48,751 (n=74)	NR
Midwest	$46,251 (n=217)	NR
Southeast	$43,751 (n=216)	NR
Central	$38,751 (n=31)	NR

ACSM = American College of Sports Medicine; NR = not reported
[a]Includes individuals who reported current Clinical Exercise Physiologist or Registered Clinical Exercise Physiologist certification from the ACSM.

children. More information should be collected on this to better interpret these differences.

Increasing evidence of the benefits of exercise has led to greater acceptance in the medical community as well as a greater demand for exercise facilities and credentialed individuals. Based on a 2016 fitness industry analysis report, there are more than 34,000 fitness centers in the United States, and they employ more than 533,000 individuals (4). Considering that there are many certifications for exercise professionals offered by many organizations, this alphabet soup of certifications has led to confusion regarding what credentials should be required for those who work with higher-risk individuals who have multiple medical conditions.

While individuals with an ACSM clinical exercise certification were a target for the present survey (and the 2010 survey), we did allow the survey link to be shared with any professional who self-identified as a CEP. The response rate from individuals without a clinical exercise certification was greater in the present survey (39%) compared with the 2010 survey (19%). Interestingly, in the present survey 26% of respondents (who identified as a CEP) held only the ACSM-EPC credential, a nonclinical certification. Regardless, it was evident that individuals who held one of the two ACSM clinical exercise certifications (i.e. ACSM-RCEP or ACSM-CEP) had a higher pay rate compared with other certified (or noncertified) individuals across different parts of the country, different job settings (e.g. cardiac rehabilitation), and sex.

TABLE 4. Median hourly wage stratified by sex, state, academic degree, and certification among respondents who reported working full-time or part-time as a clinical exercise physiologist.

	2015 CEPA Survey	2015 Bureau of Labor Statistics[a]
All	$24.50 (n = 1,116)	$22.60
Sex		
Women	$24.00 (n = 799)	NR
Men	$26.00 (n = 323)	NR
Academic Degree		
Bachelor's	$22.50 (n = 388)	NR
Master's	$26.77 (n = 666)	NR
Doctorate	$36.25 (n = 62)	NR
Clinical Exercise Certification[b] (bachelor's degree)		
Yes	$24.17 (n = 180)	NR
No	$20.54 (n = 208)	NR
Clinical Exercise Certification[b] (master's degree)		
Yes	$27.63 (n = 430)	NR
No	$26.61 (n = 236)	NR
Select States in the United States		
California	$34.40 (n = 33)	$31.93
New York	$29.75 (n = 40)	$29.22
Massachusetts	$25.91 (n = 30)	$31.78
Wisconsin	$25.52 (n - 55)	$28.08
Ohio	$24.61 (n = 31)	$24.59
Colorado	$24.41 (n = 32)	$20.32
Texas	$24.41 (= 44)	$22.75
Pennsylvania	$23.80 (n = 55)	$20.19
Minnesota	$23.50 (n = 71)	$27.90
Virginia	$22.00 (n = 34)	$18.06
North Carolina	$21.35 (n = 74)	$24.30
Michigan	$21.04 (n = 51)	$22.55

CEPA = Clinical Exercise Physiology Association; NR = not reported
[a]Reported for the broad category of exercise physiologists, not just clinical exercise physiologists.
[b]Includes individuals who reported current Clinical Exercise Physiologist or Registered Clinical Exercise Physiologist certification from the American College of Sports Medicine.

The exact number of CEPs employed across the United States is uncertain. Based on the US-BLS, which does not currently distinguish between a CEP and a nonclinical exercise physiologist, in 2014 half of the estimated 14,500 exercise physiologists mainly worked for hospitals, physician offices, or other health care providers (6). That would suggest that there are ~7,000 practicing CEPs in the United States. Interestingly, the 2015 US-BLS report greatly reduced its estimate of the total number of exercise physiologists working in the United States to 6,620 (6), which illustrates some of the challenges of identifying those who work as an exercise physiologist (clinical or nonclinical). The current number of individuals with an ACSM clinical exercise certification is ~4,000 (https://certification.acsm.org/certstats). Based on this number, and assuming that 39% of the individuals who work as a CEP do not have a clinical exercise certification (based on the current survey), that would translate to roughly 6,500 CEPs currently working across the country.

Limitations

While one of the aims of this report is to compare trends from the two salary surveys, in some instances this comparison is difficult due to the heterogeneity of the 2015 versus the 2010 respondents. Specifically, the 2015 respondents were younger and had less years of experience, two factors that are strongly associated with pay. Inherent error may exist when utilizing self-reported data. Thus, some

TABLE 5. Median annual salary stratified by years of experience and academic degree among respondents who reported working full-time as a clinical exercise physiologist.

Years of Experience	Bachelor's Degree		Master's Degree	
	2015 Survey (n = 368)	2010 Survey (n = 157)	2015 Survey (n = 567)	2010 Survey (n = 421)
<2	$38,751	$38,751	$41,251	$38,751
2–3	$38,751	$33,751	$41,251	$38,751
4–5	$38,751	$36,251	$43,751	$43,751
6–7	$46, 251	$36,251	$48,751	$43,751
8–9	$51,251	$41,251	$46, 251	$48,751
10–15	$51,251	$51,251	$51,251	$51,251
16–20	$53,751	$58,751	$53,751	$53,751
21–25	$53,751	$43,751	$61,251	$61,251
>25	$73,751	NR	$61,251	$70,001

NR = not reported

information presented, especially within the context of the smaller subgroup analyses, should be interpreted with caution. Moreover, as mentioned earlier, individuals contacted for this survey came largely from e-mail lists (and word of mouth) of clinically certified exercise professionals through ACSM, and therefore, selection bias may exist. Despite possible error due to self-report and selection bias, our data presented are consistent with both the 2010 CEPA salary survey and salary information published by the US-BLS.

Future Considerations

While the most common patient group that CEPs work with remains individuals with cardiovascular disease, based upon this survey, CEPs also work with multiple populations, including those with metabolic disorders as well as apparently healthy adults (including athletes). This likely involves performing multiple roles beyond the primary role of working in cardiac rehabilitation or performing stress tests. Thus, in addition to asking about a CEP's primary job/work setting, in the future it might be valuable to also assess other job responsibilities (e.g. administration) as well as learn more about specific patient populations. While the latter was performed to some extent in this report, we suggest even further elucidating this component to determine if CEPs are providing exercise-based programs targeted at disease-specific populations (e.g. exercise programs for cancer, peripheral artery disease, diabetes). Information regarding if an individual has a supervisor or director role may be also helpful when describing salary information. Finally, one important question omitted in this report is that of race/ethnicity. Future reports should include this to determine to what extent racial/ethnic diversity is found among CEPs.

Conclusions

The 2015 CEPA salary survey builds upon the 2010 survey by providing information on current salaries and scope of practice while including new information on hourly rates. Similar to the findings of the 2010 survey, CEPs work primarily in cardiac rehabilitation and cardiovascular

TABLE 6. Median salary and hourly wage for clinical exercise physiologists based on job setting and academic degree among respondents who reported working full-time as a clinical exercise physiologist.

Primary Work Setting	Annual Salary		Hourly Wage	
	Bachelor's Degree	Master's Degree	Bachelor's Degree	Master's Degree
Cardiac rehabilitation	$41,251 (n = 129)	$48,751 (n = 274)	$22.76 (n = 163)	$25.00 (n = 326)
University	NA	$48,751 (n = 50)	NA	$25.00 (n = 51)
Cardiovascular stress testing	$48,751 (n = 35)	$48,751 (n = 47)	$24.88 (n = 40)	$23.98 (n = 52)
Commercial/community	$43,751 (n = 35)	$48,751 (n = 37)	$24.00 (n = 51)	$26.00 (n = 45)
Hospital wellness	$46,251 (n = 23)	$48,751 (n = 46)	$22.25 (n = 26)	$24.04 (n = 51)
Corporate	$43,751 (n = 35)	$51,251 (n = 31)	$19.76 (n = 38)	$24.00 (n = 29)
Other hospital/medical	$43,751 (n = 16)	$53,751 (n = 31)	$21.00 (n = 17)	$24.41 (n = 33)

NA= data not available due to <10 respondents

stress-testing laboratories. However, these two job roles account for slightly over 50% of all CEPs, which indicates that many CEPs work with clinical populations in nontraditional environments, such as other hospital programs (e.g. diabetes, cancer), community fitness centers, and corporate gyms. With increasing emphasis on preventive medicine and lifestyle-based programs, these opportunities may change further over the next 5 years. Finally, as shown by the overall higher pay rates, those individuals who work as a CEP and hold a clinical exercise certification are likely to not only continue to have a monetary advantage but may also have increased opportunities regardless of job setting.

Acknowledgments: The 2015 CEPA salary survey was a collaborative project of the CEPA and its executive board, with leadership by the Salary Survey Working Group. CEPA appreciates the support from the American College of Sports Medicine and the American Association of Cardiovascular and Pulmonary Rehabilitation, with special thanks to Traci Rush, MA, and Jim Whitehead of the ACSM. We are also grateful to the individuals who participated in this survey.

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