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Racial and Ethnic Diversity of Athletic Trainers in National Collegiate Athletic Association Institutions, 2008–2018: A Retrospective Study

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Context: Athletic trainers (ATs) are the most visible members of the sports medicine team and are responsible for the health and well-being of student-athletes. However, the representation of Black, Indigenous, and people of color (BIPOC) ATs in National Collegiate Athletic Association (NCAA) member institutions has not been studied.

Objective: To quantify the representation of BIPOC ATs in National Collegiate Athletic Association (NCAA) member institutions.

Design: Cross-sectional study.

Setting: National Collegiate Athletic Association's Demographic Database.

Patients or Other Participants: Team athletic personnel at NCAA member institutions.

Main Outcome Measure(s): Chi-square tests were used to assess differences in racial and ethnic frequencies across division, calendar year, and gender. Linear regression models were calculated to examine changes in racial and ethnic distributions of head and assistant ATs over time.

Results: Most NCAA ATs were categorized as White (88%), which was reflected in both head (90.8%) and assistant (87.2%) AT positions. Black ATs made up the largest proportion of a specific racial or ethnicity group within BIPOC ATs (3.4% of head ATs, 4.6% of assistant ATs), with the next most prevalent being Hispanic (2.8% of head ATs, 3.9% of assistant ATs). Historically Black Colleges and Universities showed higher proportions of BIPOC ATs in both the head and assistant categories than non-historically Black institutions. Division I schools had the greatest AT racial or ethnicity diversity in comparison with Divisions II and III ($P < .0001$). In our linear regression models, we found increases in many of the racial or ethnic categories for both head and assistant ATs.

Conclusions: We demonstrated that BIPOC ATs represented a small proportion of the ATs currently working at NCAA member institutions. Although BIPOC ATs have increased over the past 10 years, a large racial and ethnic discordance gap still exists between student-athletes and the ATs caring for them.

Key Words: collegiate athletes, underrepresented minorities, sports medicine, racial demographics

Key Points

- Racial and ethnic diversity is lacking among athletic trainers employed at National Collegiate Athletic Association member institutions.
- These findings call for more vigorous engagement at the national level to attract and retain athletic trainers from diverse backgrounds to best meet the health care needs of the diverse student-athletes they serve.

Athletic trainers (ATs) play a central role in the sports medicine team's care of National Collegiate Athletic Association (NCAA) athletes. As well as being on the frontline of athletes' musculoskeletal care, they often have more individual interactions with student-athletes (SAs) than the other sports medicine team members (eg, team physicians, psychologists, or dietitians), as they are responsible for a multitude of roles in their position. In addition to providing sport-related injury diagnosis, management, and rehabilitation, ATs offer athletes injury-prevention tenets, guide them in illness avoidance, promote well-being, and screen for mental and emotional health concerns. In a study[1] examining the social support of collegiate athletes, the authors found that, both preinjury and postinjury, ATs were identified by athletes as providing a higher level of perceived support (listening, emotional support) than the athletes' assistant and head coaches. Thus, the dynamics and interactions between SAs and their AT often form a key relationship for athletes during their collegiate careers.

Over the past decade, the proportion of non-White NCAA SAs has increased from 30% to 36%.[2] However, significant disparities in ethnic or racial diversity among the athletic staff persist. The Institute for Diversity and Ethics

in Sport[3] examined the diversity of other athletic department positions for the 2018–2019 academic year, including head coaches, athletic directors (ADs), senior female administrators, and faculty athletic representatives. The vast majority of athletic administrators were identified as White: 87.6% of head coaches, 89.3% of ADs, 86.5% of senior female administrators, and 91.2% of faculty athletic representatives (this excluded historically Black Colleges and Universities [HBCUs] but otherwise included male and female teams from all 3 NCAA divisions).

A paucity of published literature has addressed the racial or ethnic demographics of current collegiate ATs. As the demographics of college students and therefore collegiate athletes will likely continue to become more diverse, the expected change should be reflected in those caring for these athletes. In 2000, the Editor-in-Chief of the *Journal of Athletic Training*, the preeminent journal in the athletic training field, wrote in an editorial, "Our record on diversity with regard to race and ethnicity is abysmal," noting that, of the National Athletic Trainers' Association (NATA) members who provided their racial or ethnic information, 78% identified as White, 1% Black, 2% Hispanic, 2% Asian or Pacific Islander, and 1% as American Indian or Alaskan Native. He called for the field to address this challenge and diversify its membership.[4] Within the resultant 20 years, little follow-up work has examined trends within the athletic training profession. A 2018 NATA report indicated that, among ATs, less than 21% of the membership self-identified as an underrepresented minority race or ethnicity (4.26% Black, 5.46% Hispanic, 3.73% Asian or Pacific Islander, 0.48% American Indian or Alaskan Native, 1.98% multiethnic).[5] The objective of our study was to examine the racial or ethnic demographics of ATs employed at NCAA member institutions and evaluate the racial or ethnic trends over time as well as the differences across NCAA divisions and college types. Our hypothesis was that fewer non-White ATs would currently be in head AT positions but that this proportion would increase over time.

METHODS

This was a retrospective study of the NCAA Minority Opportunities and Interests Committee's Demographic Database of NCAA Member Institutions' Athletics Personnel.[6] Starting in 1990, the NCAA collected annual demographic information from each of its member institutions.[7] In 1995, submission was made voluntary and data were collected every other year. Since 2007–2008, annual reporting of race and ethnicity data has been required for NCAA compliance. Data from 2008 through 2018 were extracted from the database in December 2018. The University of Rochester Medical Center Institutional Review Board exempted this study from formal institutional review board review.

The NCAA sends out an annual survey to all member institutions. The individuals responsible for completing the survey and returning it to the NCAA may vary. At some institutions, individuals self-identify and report to the coworker responsible for collecting the information. At other institutions, an individual may make this determination about department coworkers. The response rate is 100% due to the NCAA mandate. Our primary study outcome was the demographics of head and assistant AT staff positions by race, ethnicity, and gender at NCAA member institutions. The positions of head and assistant AT were delineated on the data report. A nonresident alien racial category accounted for less than 2% of the data, and those data points were excluded from the final analyses. Race and gender were predetermined categories on the annual reporting sheets (Appendix).[2] We defined *Black, Indigenous, and people of color* (BIPOC) as Black, Indigenous, Hispanic or Latino, Asian, or individuals of more than 1 ethnic background or racial background. The NCAA used the category *Hispanic/Latino* in the database rather than separating ethnicity from race.

Table 1. Demographic Characteristics of National Collegiate Athletic Association ATs in 2018

Characteristic	ATs, No. (% of Total)		
	Total	Men	Women
Head ATs			
White	1025 (90.8)	709 (69.2)	316 (30.8)
Black	39 (3.4)	20 (51.3)	19 (48.7)
Hispanic	32 (2.8)	24 (75.0)	8 (25.0)
Asian	23 (2.0)	14 (60.9)	9 (39.1)
American Indian or Alaska Native	1 (0.08)	1	0
Two or more races	9 (0.79)	5 (55.6)	4 (44.4)
Total	1129	773 (68.5)	356 (31.5)
Total BIPOC	104 (9.2)	64 (8.3)	40 (11.2)
Assistant ATs			
White	3401 (87.2)	1593 (46.8)	1808 (53.2)
Black	179 (4.6)	71 (39.7)	108 (60.3)
Hispanic	151 (3.9)	94 (62.3)	57 (37.7)
Asian	120 (3.1)	66 (55.0)	54 (45.0)
American Indian or Alaska Native	7 (0.17)	3 (42.9)	4 (57.1)
Two or more races	44 (1.1)	19 (43.2)	25 (56.8)
Total	3902 (100)	1846 (47.3)	2056 (52.7)
Total BIPOC	501 (12.8)	253 (50.5)	248 (49.5)
Overall total BIPOC	605 (12.0)	317 (52.4)	288 (47.6)

Abbreviations: AT, athletic trainer; BIPOC, Black, Indigenous, and people of color.

Statistical Analyses

Descriptive statistics were used to examine differences in frequencies between racial and ethnic populations. Chi-square tests were calculated to assess frequency differences between NCAA division and gender and race, and Fisher exact tests were used where appropriate. We constructed individual univariate linear regressions models to examine the change over time between 2008 and 2018. Models were generated separately for all racial categories for both the head and assistant AT positions. The level of statistical significance was set at $P < .05$ for all analyses.

RESULTS

Most NCAA ATs overall were categorized as White (88%), which was also reflected in both the head (90.8%) and assistant (87.2%) positions (Table 1). A greater proportion of assistant ATs was BIPOC (12.8%) than head ATs (9.2%). Black ATs were the largest proportion of a specific racial or ethnicity group among BIPOC ATs (3.4% of head ATs, 4.6% of assistant ATs), with the next most prevalent being Hispanic (2.8% of head ATs, 3.9% of

Table 2. Demographic Characteristics of National Collegiate Athletic Association ATs at Historically Black Colleges and Universities in 2018

Characteristic	ATs, No. (% of Total)			
	Total	Men	Women	Black, Indigenous, and People of Color
Head ATs				
White	34 (63.0)	21 (61.8)	13 (38.2)	
Black	18 (33.3)	6 (33.3)	12 (66.7)	
Other race[a]	2 (3.7)	0	2	
Total	54	27 (50.0)	27 (50.0)	20 (37.0)
Assistant ATs				
White	58 (69.9)	30 (51.7)	28 (48.3)	
Black	23 (27.7)	8 (34.8)	15 (65.2)	
Other race[a]	2 (2.4)	0	2	
Total	83	38 (45.8)	45 (54.2)	25 (30.1)

Abbreviation: AT, athletic trainer.

[a] Predetermined classification by the National Collegiate Athletic Association.

assistant ATs). Historically Black Colleges and Universities showed higher proportions of BIPOC ATs in both the head and assistant categories than non-HBCU institutions (Table 2). The frequency (37.0% versus 9.2%) of BIPOC head ATs at HBCUs was more than 4 times that of non-HBCUs ($P < .00001$). Similarly, the frequency of BIPOC assistant ATs at HBCUs was twice that at non-HBCUs (30.1% versus 12.8%, $P = .00008$).

From 2008 to 2018, the overall number of assistant NCAA ATs increased from 2380 to 3902 (63.9% increase), and the number of head ATs increased from 1037 to 1129 (8.9% increase). The number of BIPOC assistant ATs increased from 225 in 2008 to 501 in 2018 (123% increase), while the number of BIPOC head ATs only increased from 80 in 2008 to 104 in 2018 (30.0% increase). However, despite these changes, the overall frequencies of BIPOC remained fairly consistent (Figure; Appendix).

In our linear regression models, we found increases over time in many of the racial or ethnic categories for both head and assistant ATs. The effect estimate for assistant ATs overall from 2008 to 2018 was $\beta = 173.06$ ($P < .0001$; Table 3), indicating an increase of 173 assistant ATs for each additional year. Results for head ATs also showed evidence of an increase, though not as large as for assistant ATs ($\beta = 4.47$, $P < .05$). Comparing the assistant AT models, White males had the largest effect estimate ($\beta = 59.15$, $P < .0001$), followed by White females ($\beta = 69.15$, $P < .0001$). We also saw increases over time for many of the BIPOC groups, but the magnitude of the effect was smaller, including Black females ($\beta = 6.17$, $P < .0001$) and other-race males ($\beta = 5.92$, $P < .0001$). White females' effect estimate was greatest for head ATs ($\beta = 4.86$), followed by Hispanic males ($\beta = 1.70$).

Differences were present in race or ethnicity and gender across the 3 major NCAA categories at both the head and assistant AT positions (Table 4). Division I schools had the greatest AT racial or ethnic diversity in comparison with Division II and Division III, and Division III had the lowest proportions of BIPOC ATs in both head and assistant positions ($P < .0001$). A greater proportion of BIPOC ATs overall and female BIPOC ATs were in assistant AT positions than head AT positions.

DISCUSSION

Improving racial and ethnic diversity is a key challenge for health care organizations. Known benefits from racial and ethnic concordance of health care providers with patients include greater patient satisfaction,[8,9] increased perceived quality of care,[9,10] higher-level cultural competency of the provider,[11–13] and increased use of needed health services,[8] but the results from other research have been more inconclusive.[14] The gender concordance of athlete with AT has been noted to be important for athletes' comfort and care. This was true for general medical conditions, psychological conditions, and musculoskeletal

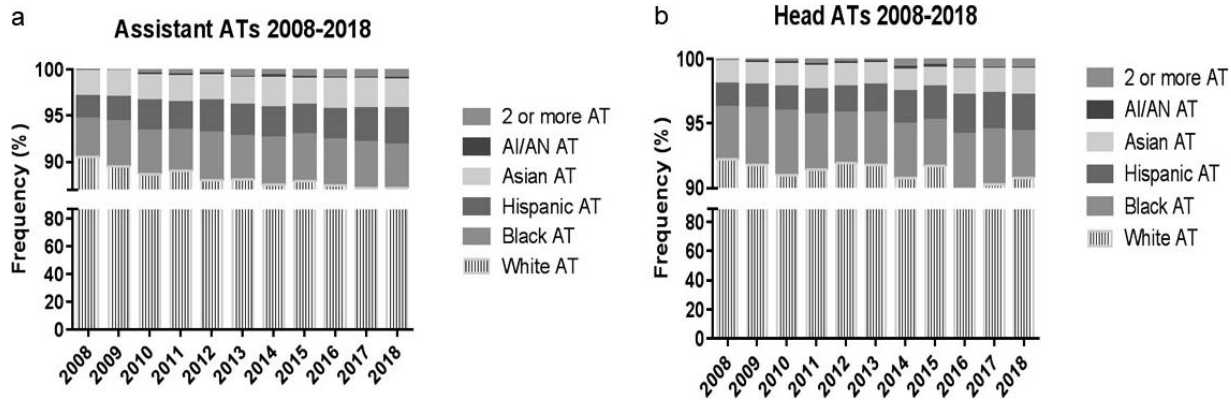

Figure. Frequencies of race or ethnicity of a, assistant and b, head National Collegiate Athletic Association athletic trainers (ATs), 2008–2018. Abbreviations: AI, American Indian; AN, Alaskan Native.

Table 3. Change Over Time by Race and Gender of National Collegiate Athletic Association ATs, 2008–2018

Race and Sex	β	SE (β)	*t* Value	*P* Value	Change, %
Head ATs					
All head ATs	4.47	1.58	2.83	.02	+10
White male	−0.39	0.91	−0.43	.68	<+1
White female	4.86	1.21	4.01	.0031	+25
Hispanic male	1.70	0.12	14.68	<.0001	+100
Hispanic female	−0.05	0.14	−0.40	.70	+14
Black male	−1.05	0.24	−4.40	.0017	–26
Black female	0.71	0.31	2.29	.05	+36
Other race male	0.82	0.20	4.04	.0029	Asian, +8 American Indian or Alaskan Native, +100 ≥2 races, +500
Other race female	0.32	0.13	2.52	.03	Asian, +80 American Indian or Alaskan Native, 0 ≥2 races, +100
Assistant ATs					
All assistant ATs	173.06	8.32	20.80	<.0001	+133
White male	59.15	2.62	22.57	<.0001	+57
White female	69.15	4.84	14.28	<.0001	+58
Hispanic male	3.98	0.73	5.42	.0006	+161
Hispanic female	3.21	0.27	11.86	<.0001	+171
Black male	2.29	0.61	3.80	.0042	+33
Black female	6.17	0.79	7.76	<.0001	+112
Other race male	5.92	0.68	8.67	<.0001	Asian, +74 American Indian or Alaskan Native, +200 ≥2 races, +1800
Other race female	4.88	0.39	12.43	<.0001	Asian, +54 American Indian or Alaskan Native, +100 ≥2 races, +1150

Abbreviation: AT, athletic trainer.

Table 4. Race and Gender Differences of ATs Across National Collegiate Athletic Association Divisions, 2018

	Division, No. (%)			
Characteristic	I	II	III	*P* Value
Head AT				
Race				<.0001
White	346 (88.8)	272 (89.5)	407 (93.3)	
Hispanic	14 (3.5)	11 (3.6)	7 (1.6)	
Black	19 (4.9)	11 (3.6)	9 (2.1)	
Other	10 (2.6)	10 (3.3)	13 (3.0)	
Total BIPOC	43 (11.1)	32 (10.5)	29 (6.7)	.0601
Gender				<.00001
Male	312 (80.2)	198 (65.1)	263 (60.3)	
Female	77 (19.8)	106 (34.9)	173 (39.7)	
BIPOC female	14 (3.6)	13 (4.3)	13 (3.0)	.6428
Total	389 (34.5)	304 (26.9)	436 (38.6)	
Assistant AT				
Race				<.0001
White	1962 (84.5)	607 (88.5)	832 (93.0)	
Hispanic	107 (4.6)	26 (3.8)	18 (2.0)	
Black	125 (5.4)	28 (4.1)	26 (2.9)	
Other	127 (5.5)	25 (3.6)	19 (2.1)	
Total BIPOC	359 (15.5)	79 (11.5)	63 (7.0)	.00001
Gender				<.0001
Male	1198 (51.6)	291 (42.4)	357 (39.9)	
Female	1123 (48.4)	395 (57.6)	538 (60.1)	
BIPOC female	169 (7.3)	41 (6.0)	38 (4.2)	.0061
Total	2321 (59.5)	686 (17.6)	895 (22.9)	

Abbreviations: AT, athletic trainer; BIPOC, Black, Indigenous, and people of color.

injuries.[15] The concordance of racial or ethnic background, or both of the SA with his or her AT may be an additional relevant factor in the wellbeing of athletes. Within intercollegiate athletics, the diversity of SAs is rising. This gives rise to a demand for more culturally competent ATs. Although the percentage of non-White SAs across all divisions was 36%, the highest proportion of non-White ATs was much lower at non-HCBUs, far from a parallel representation of the population they serve.

This is one of the few studies to examine the demographics of health care professionals at NCAA member institutions. Specifically, White ATs still made up most of the AT positions at both the head and assistant levels. While most racial or ethnic groups saw increases in assistant AT position numbers from 2008 to 2018, this effect was inordinately greater for White ATs than for all other demographic groups. Among head AT positions, the effect estimate for White females at the head AT level was the greatest, almost 3 times that of the next greatest β coefficient (Hispanic males). This seems to highlight that diversity investment may have had more success in reducing gender disparities (for White female ATs) than improving racial or ethnic diversity. Our data also showed that, although the overall number of ATs from all racial and ethnic backgrounds is increasing at both the head and assistant position levels, within these increases, BIPOC AT frequencies remained fairly consistent and appeared to be changing mainly within the BIPOC category (ie, an increase in a BIPOC demographic group was balanced out by a concurrent decrease in other BIPOC groups).

Men filled most head AT positions for all race or ethnic backgrounds. The largest gender disparity for both the head

and assistant positions in our data was among Hispanic ATs, with men accounting for greater proportions of both the head and assistant positions than female Hispanic ATs. In comparison, Black females had the most parity, filling nearly equal head AT positions as Black males and holding a large advantage over Black males in assistant AT positions. Interestingly, greater AT position diversity existed in Division I institutions, which was opposite the distribution seen in gender studies.[16] Historically Black Colleges and Universities had much more diversity than non-HBCUs, but it was unclear if this was due to these ATs preferring to work in a more diverse setting versus biased hiring practices at non-HBCUs.

To increase diversity, obstacles to parity must first be identified. Goodman et al[17] qualitatively examined factors that contributed to female ATs persisting in the field at the NCAA Division I level. Factors that positively influenced female ATs to persist in the field at the Division I level included autonomy within their role; solid social support from the athletic department, coaches, and colleagues; and the satisfaction of returning injured athletes to their sports.[16] Although not specific to athletic training, the NCAA Ethnic Minority Female Barriers Report[18] shed light on some of the concerns faced by those in a variety of roles within collegiate athletics. Of the 529 respondents, 83.9% indicated they were in administration. The most often identified obstacles to ethnic minority women being in leadership positions were (1) lack of ethnic minority women currently in leadership roles, (2) job availability, and (3) stereotyping of women in athletics. More than half (55%) responded that they felt some athletic administrators only hired those of the same race or ethnicity as themselves. This group of women working in athletics departments had low levels of satisfaction with "extent of involvement in departmental decision making" and salary. Approximately 44% stated they were discriminated against based on their race or ethnicity. Among the factors for accepting a position, common responses such as salary, location, and work-life balance were important. Interestingly, less obvious answers were also prioritized by this group, including support of women's athletic programs, a reputation for diversity and inclusion, and the opportunity to live or work in a racially diverse community.[18] Female and minority ADs, although a different population than ATs, operate in the same environment, and they reported encountering more barriers to becoming ADs than did White men, including occupational segregation, despite self-efficacy being similar across the demographics. The recent trend of collegiate ATs being increasingly employed within health care organizations, in contrast to previously being housed in athletic departments, may have implications for hiring practices in the field. Employment policies and procedures for recruitment, promotion, and retention may vary between these employers based on institutional initiatives or inherent biases, and a large health care system may promote greater racial and ethnic equity than a smaller athletic department community.

We might expect explicit racism to play a role in the continued lack of diversity in athletic administration, yet Myles[19] proposed that "stereotypical beliefs, discriminatory acts, and racist attitudes are no longer primary factors limiting Blacks from entering or advancing in the profession." Instead, barriers to diversity are more implicit (eg, racial microaggressions). These unconscious biases are possible reasons for the lack of diversity among ATs, as the general population applying for senior roles in athletic administration is likely exposed to the same barriers. Specific barriers noted were the "old boy's network," positional segregation, and lack of mentoring.[20] Student AT clinical experience placements may be a way to combat these barriers. Purposeful clinical placements may help to affirm underrepresented minority ATs' career choices while fostering the environment for career-long mentorship relationships with preceptors. Another approach that may address racial and ethnic barriers is to promote practices that increase cultural competency of all athletic training students, and study-away or -abroad programs have been highlighted as potential mechanisms.[21,22] Onsite AT coverage in secondary schools is well established to improve health outcomes, and an additional benefit would be to increase exposure to the athletic training field among a larger population of prospective candidates. Authors of recent studies showed that only 66% of secondary schools had access to athletic training services and schools with coverage were more likely to have low proportions of students from economically diverse backgrounds,[23] leaving a large proportion of young athletes potentially unaware of the athletic training field as a future career option.[24]

This is the first study, to our knowledge, examining the racial and ethnic diversity of NCAA ATs at the national level. Although the percentage of non-White assistant ATs has increased over the past 10 years, more strides need to be made with respect to head ATs. These findings suggest that NCAA institutions should explore possible barriers, confront weaknesses such as unconscious biases and microaggressions, and actively focus on recruiting, retaining, and promoting racially and ethnically diverse employees. The Professional Football Athletic Trainers Society has an Ethnic Minority Scholarship Program that not only offers a financial award but provides the opportunity to work at a National Football League summer training camp, creating an employment and career exposure pathway for minority ATs. Similar initiatives may open the door to groups that are less represented in the athletic training workforce and could be replicated in other professional and collegiate athletic organizations.

Because of the current barriers, investment in NCAA AT diversity is necessary, as diversity in health care has proven benefits in patient satisfaction with care[9] and improving creativity and innovation.[8,25] Organizations such as the NCAA Office of Inclusion and the NATA Ethnic Diversity Advisory Committee are working to promote diversity.[12] Future steps could include assessing the racial or ethnic concordance of ATs with athletes by sport type, gender of the sport, and geographic location. Researchers should also investigate and identify specific barriers encountered by BIPOC ATs and current diversity approaches and reassess the effectiveness of these initiatives in the years to come.

LIMITATIONS

Racial and ethnic categories were predefined by the NCAA for this survey, so our analyses and categorizations were limited to these categories (eg, *Hispanic* was considered a race in the classification system, although it

is an ethnicity). We were also limited by the fact that these data were likely collected by different individuals in various roles at the institutions; therefore, this information may not have been collected and then shared with the NCAA in a uniform manner. For instance, if this information was gathered based on the reporting individual's assumption of a staff member's racial or ethnic background, a misclassification might have occurred (either undercount or overcount). Even if an AT self-reported, he or she may not have felt that the multiple-choice options accurately reflected his or her race. An example of this was the vastly increased percentage in ATs categorized as 2 or more races; this could have reflected either more ATs in this category or greater acknowledgment of multiracial backgrounds now than in 2008. Thus, a main limitation is that we cannot assess the reliability or accuracy of the data collection, as institutions were deidentified in the process.

CONCLUSIONS

We demonstrated that BIPOC ATs represented a small part of the profession currently working in the NCAA. Representation was greater at the Division I level and at HBCUs. Although an increase in non-White NCAA ATs has occurred over the past 10 years, a large racial and ethnic discordance gap still exists between SAs and the ATs caring for them. We sought to increase awareness of the lack of diversity within the field of athletic training to highlight and support efforts aimed at further promoting inclusion. These findings call for more vigorous engagement at the national level to attract and retain ATs from diverse backgrounds to best meet the health care needs of the diverse SAs they serve.

Appendix. National Collegiate Athletic Association Race or Ethnicity Category Definitions

American Indian or Alaska Native = a person having origins from North America and who maintains cultural identification through tribal affiliation or community recognition.

Asian or Native Hawaiian or Pacific Islander = a person having origin from the Far East, Southeast Asia, the Indian Subcontinent, or Pacific Islands such as Hawaii, Guam, or Samoa.

Black = a person having origin in any of the Black racial groups of Africa (except those of Hispanic origin).

Hispanic or Latino = a person of Cuban, Mexican, Puerto Rican, Central or South American, or other Spanish culture or origin.

White = a person having origins from Europe, North Africa, or the Middle East (except those of Hispanic origin).

Two or more races = a person identifying with more than 1 race or ethnicity category.

Unknown = a person whose race or ethnicity is unknown.

Nonresident alien = a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis.

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