

# Diversity in the US Academic Microsurgery Pathway

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**Summary:** Although the representation of women and ethnic minority students in the US medical schools has recently increased, discrepancies in representation among plastic surgery residents and faculty continue. The state of sex and ethnic diversity in academic microsurgery remains minimally investigated. We aimed to evaluate the sex, race, and ethnicity demographics among academic microsurgeons and identify underrepresentation along the leadership pathway. The US-based microsurgery fellowship programs provided contact information of fellowship graduates from 2006 to 2020. An anonymous electronic survey was distributed, and demographic, training background, mentorship, and career path data were collected. Program websites were reviewed to collect data on academic microsurgery faculty nationwide. We found that women and non-White surgeons reported similar rates of effective mentorship in training. Compared with White surgeons, non-White surgeons had lower probability of holding an academic position directly after fellowship (odds ratio = 0.28,  $P = 0.023$ ) and reported fewer perceived opportunities for professional advancement (61% versus 91%,  $P = 0.007$ ). The majority of academic leadership positions were held by White surgeons (72%). Overall, women faculty were earlier in their careers than men (mean time out of fellowship 7.2 years for women versus 14.8 years for men,  $P < 0.001$ ), signifying a lack of senior female faculty. Male faculty had higher rates of leadership than female faculty (24.7% versus 8.0%,  $P = 0.01$ ). Our results demonstrate that women and non-White surgeons are not adequately represented in academic microsurgery faculty and leadership positions. Future interventions seeking to increase diversity can help improve the delivery of equitable reconstructive care. (*Plast Reconstr Surg Glob Open* 2024; 12:e6282; doi: [10.1097/GOX.00000000000006282](https://doi.org/10.1097/GOX.00000000000006282); Published online 26 November 2024.)

## INTRODUCTION

Increased representation of women and ethnic minorities in academic microsurgery is imperative for the delivery

of equitable reconstructive care. Physician diversity correlates with improved quality and access to care for underserved populations, and minority patients in the care of minority physicians report increased healthcare engagement.<sup>1-6</sup> Although the representation of women and ethnic minority students in the US medical schools has recently increased, discrepancies in representation among plastic surgery residents and faculty continue.<sup>7-11</sup> Women constitute over half of the US medical school graduates, yet represent 40% of plastic surgery residents and 8% of department/division heads.<sup>11</sup> Likewise, Black trainees comprise only 6.1% of medical school graduates, 3.8% of plastic surgery residents, and 2% of plastic surgery program directors and chiefs/chairs.<sup>12</sup> The state of sex and ethnic diversity in academic microsurgery remains minimally investigated. We aimed to evaluate the sex, race, and ethnicity demographics among academic microsurgeons and identify underrepresentation along the leadership pathway.

## METHODS

We obtained fellowship graduate information from 2006 to 2020 among 28 microsurgery fellowship programs

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identified by the American Society for Reconstructive Microsurgery. We sent an anonymous e-mail survey to these graduates in September 2021 to collect information regarding demographics, training, mentorship experiences, and career path. Respondents had 6 weeks to complete the survey.

After collecting survey data, we then reviewed institutional websites to investigate the representation of academic microsurgery faculty. We included clinical faculty in 28 academic microsurgery programs who obtained plastic surgery board certification and completed microsurgery fellowship (220 surgeons). We recorded sex, race/ethnicity, training year, and leadership positions as reported on the institutional websites. When not provided, we determined race/ethnicity using photographs, surname, or corroboration with an acquaintance of the individual or with the individual directly, as previously published.<sup>1</sup>

Data were analyzed using the Pearson chi-square and Fisher exact tests for categorical variables and the analysis of variance and Mann–Whitney tests for continuous variables in R software.<sup>13</sup> Ethical approval was obtained by the institutional review board at the University of Pennsylvania (protocol no. 849468).

## RESULTS

The survey was completed by 74 respondents (23.1% response rate). Survey respondents were 44.6% female. The race/ethnicity of respondents was 59.5% White, 21.6% Asian or Pacific Islander, 2.7% Black, 2.7% Hispanic/Latino, and 4.1% multiethnic/other. Among respondents, 41.9% were within 5 years of fellowship graduation. When asked reasons for pursuing microsurgery fellowship, 46% of respondents reported a desire to gain a particular skill set, whereas 28% of respondents sought to become a more competitive candidate for an academic position. Regarding mentorship, 70% of women reported having an effective mentor compared with 79% of men ( $P = 0.53$ ). However, women microsurgeons had lower odds of having a sex-concordant mentor compared with men [odds ratio (OR) = 0.18,  $P < 0.01$ ]. Moreover, 61% of non-White microsurgeons reported having an effective mentor compared with 82% of White surgeons ( $P = 0.12$ ). Non-White surgeons had lower odds of having an ethnically concordant mentor compared with White surgeons (OR = 0.09,  $P < 0.001$ ). Furthermore, compared with White surgeons, non-White surgeons had lower probability of holding an academic position directly after fellowship (OR = 0.28,  $P = 0.023$ ) and reported fewer perceived opportunities for professional advancement (61% versus 91%,  $P = 0.007$ ). Finally, the majority of academic leadership positions—defined as residency program director, fellowship program director, and/or division chief/department chair—were held by White surgeons (72%), followed by Asian or Pacific Islander (8%), Hispanic/Latino (8%), multiethnic/other (8%), and Black (4%).

In addition to the survey, the review of publicly available data from 28 academic microsurgery programs showed that women held 23.7% of faculty positions. Faculty race/

## Takeaways

**Question:** What is the state of sex and ethnic diversity in academic microsurgery?

**Findings:** Women and non-White microsurgeons have lower rates of demographic-concordant mentors but report similar rates of effective mentorship. Non-White surgeons have lower probability of holding an academic position directly after fellowship and fewer perceived opportunities for professional advancement. The majority of academic leadership positions are held by White surgeons. Women are earlier in their careers than men and similarly have lower leadership rates than male faculty.

**Meaning:** Women and non-White surgeons are not adequately represented in academic microsurgery; future interventions to increase diversity in microsurgery will improve the delivery of equitable reconstructive care.

ethnicity demographics included 67.3% White, 28.6% Asian or Pacific Islander, 1.8% Black, and 2.3% Hispanic/Latino. Overall, women faculty were earlier in their careers than men (mean time out of fellowship for women 7.2 years versus 14.8 years for men,  $P < 0.001$ ), signifying a lack of senior female faculty. Male faculty had higher rates of leadership than female faculty (24.7% versus 8.0%,  $P = 0.01$ ). White faculty also had higher rates of leadership than non-White faculty, although not statistically significant (72% versus 28%,  $P = 0.193$ ).

## DISCUSSION

Our study adds to the understanding of diversity within the field of microsurgery. Women and non-White microsurgeons reported receiving effective mentorship despite lower rates of demographic-concordant mentors. This suggests that successful mentorship is not necessarily predicated on having a demographic-concordant mentor but rather an empowered and invested mentor who provides sponsorship through connections and public endorsement. However, a minority mentee may have to overcome cumulative career disadvantages to acquire this mentorship.<sup>14,15</sup> Women and non-White microsurgeons disclosed fewer perceived opportunities for professional advancement in their early career and occupied fewer leadership positions. In particular, Black and Hispanic/Latino surgeons continue to experience vast underrepresentation in academic leadership positions.<sup>10,12,16,17</sup> Future research must determine what factors contribute to the promotion and retention of women and minority surgeons throughout their careers. Furthermore, our findings demonstrate a sizable attrition of women in academic microsurgery. Early-career women physicians report insufficient mentorship, difficulty achieving work-life integration, and noncollaborative environment as factors that contribute to leaving academia.<sup>18–20</sup> Lack of women in leadership positions can deter other women from pursuing academic positions, which can have long-term impacts on leadership diversity.<sup>21</sup>

Interventions must occur at both relational and institutional levels to increase diversity within microsurgery. Relational attributes refer to supportive partnerships, both with supervisors and peers. Senior mentorship is crucial for career advancement, whereas peer advocacy promotes personal and professional satisfaction. Examples of institutional factors include appointment of women and ethnic minorities to leadership positions and greater institutional focus on diversity, equity, and inclusion initiatives.

This study has several limitations. First, the modest survey response rate resulted in a small sample size, particularly for Black and Latino microsurgeons. This decreased statistical power and limits the generalizability of the study findings. The survey-based nature of data collection was also subject to self-selection bias. Additionally, the authors acknowledge the inherent limitations with strict classifications for race/ethnicity, which may not accurately represent people of multiethnic descent.

Our findings demonstrate that women and non-White microsurgeons are not adequately represented in academic microsurgery faculty and leadership positions. Future interventions seeking to increase diversity in microsurgery can help improve the delivery of equitable reconstructive care.

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## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

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