

Breaking Barriers: Longitudinal Analysis of Female Match Rates in Orthopaedic Surgery Across Top-Tier Programs

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Background: Despite comprising 50.5% of medical students, women remain underrepresented in orthopaedic surgery. As of 2019, orthopaedics had the lowest rate of female residents among surgical specialties at 15%. While early exposure programs and signaling have helped promote access, some top-tier residencies still match classes without a female resident. Tracking long-term trends in female match rates may highlight opportunities to advance equity and enhance patient care. The purpose of this study was to longitudinally analyze female representation among top-tier orthopaedic programs from 2005 to 2025.

Methods: Using Doximity's Residency Navigator, programs were sorted by reputation, and the top third were included. Gender composition of interns was collected from program websites and social media for each available year. Weighted linear regression assessed temporal trends; two-proportion Z-tests evaluated regional and urbanicity differences.

Results: Among 69 programs, women comprised 23.2% of interns overall. Representation rarely exceeded 20% before 2017, reaching a low of 11.5% in 2006, but surpassed 30% annually since 2022. Female proportion increased by 1.2% per year ($p < 0.001$, $R^2 = 0.77$). Regional variation

persisted (West North Central highest at 30.1%, South Atlantic lowest at 19.5%), but growth was consistent across geography and program size. Significant increases occurred in metropolitan programs (+18.9%, $p < 0.0001$) and select regions. The proportion of interns matching at home programs did not change significantly ($p = 0.68$), though the percentage of these interns who were female increased modestly (0.68% per year, $p = 0.001$).

Conclusion: Female representation at top-tier orthopaedic programs has risen steadily, with a marked inflection after 2017 and exceeding 30% since 2022. These gains likely reflect combined effects of diversity initiatives, preference signaling, and broader cultural movements advocating gender equity. Future research should examine the impact of signaling on accelerating gender diversity and evaluate gender diversity in all orthopaedic residency programs.

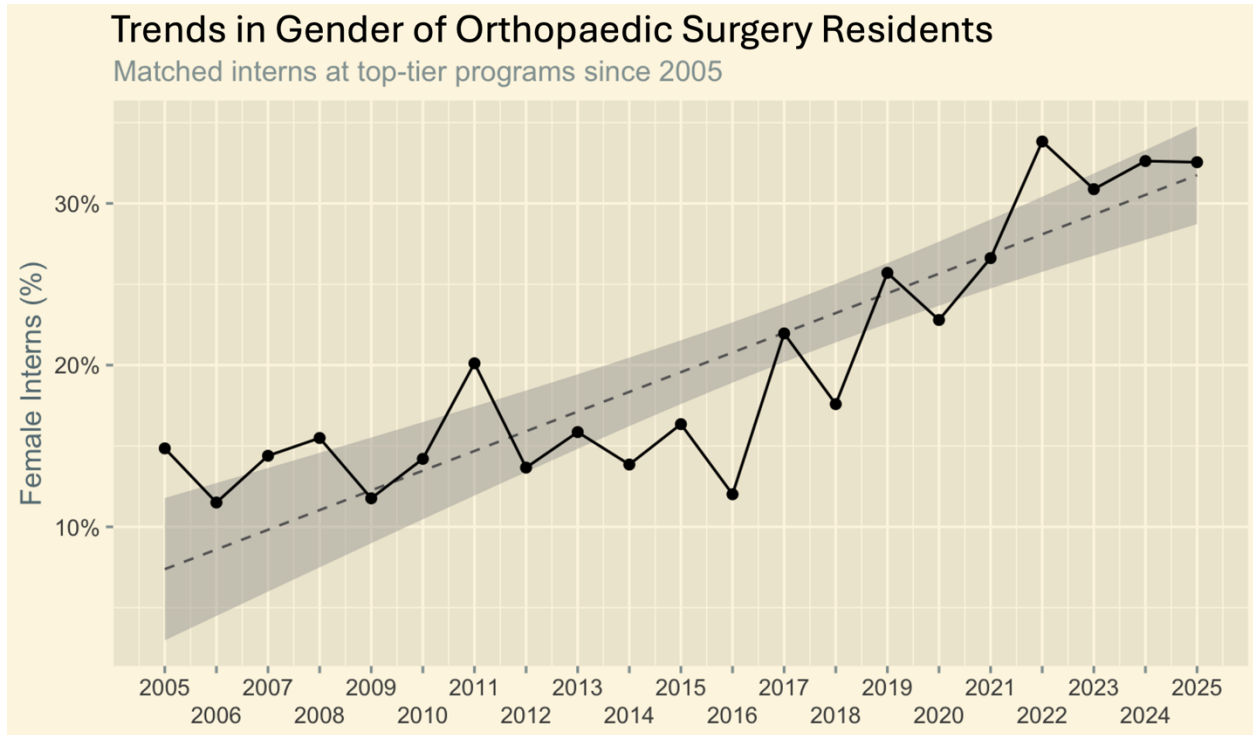


Figure 1. There is a highly significant positive linear trend ($p < 0.001$, $R^2 = 0.77$) in the national proportion of female orthopaedic surgery interns who matched at top tier programs from 2005 to 2025, with an annual increase of $\sim 1.2\%$ per year (weighted by yearly cohort size)

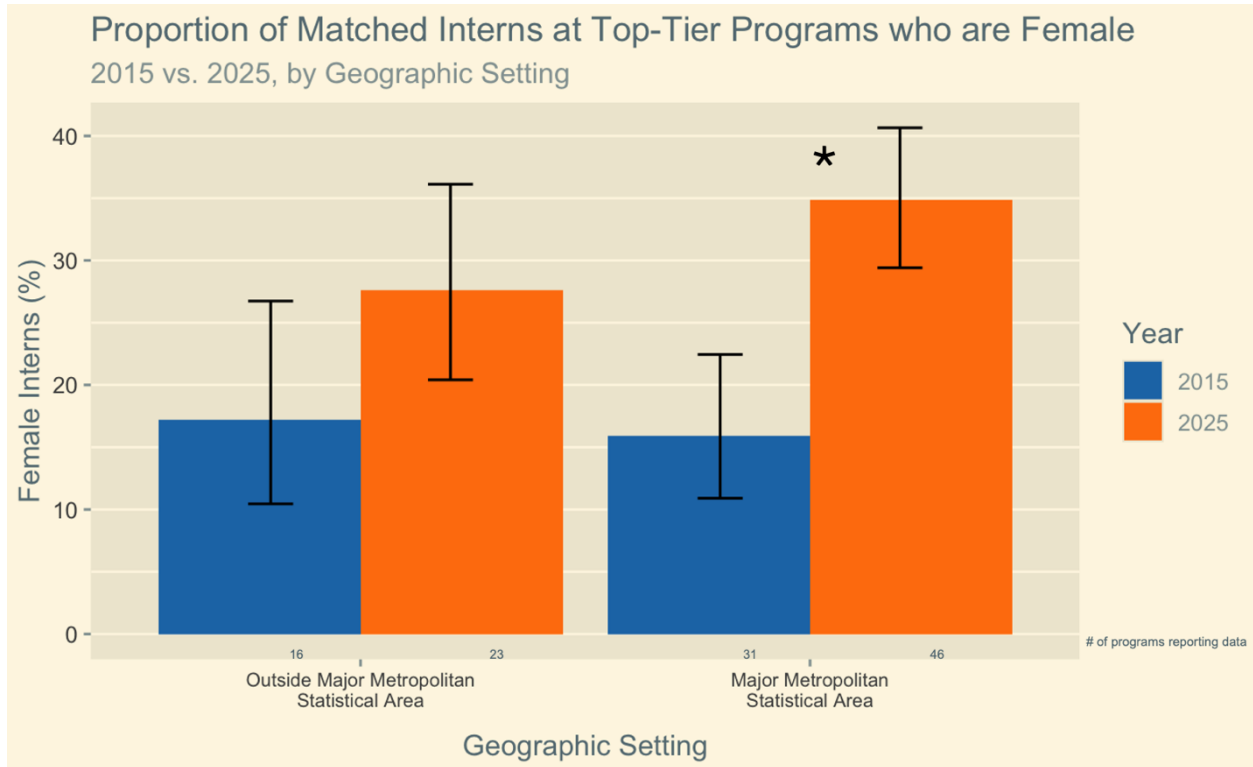


Figure 2. Compared to 2015, the proportion of female interns in 2025 increased significantly at major metropolitan programs (+18.9%, $p < 0.0001$) but not non-metropolitan programs (+10.4%, $p = 0.096$)