Trends in Gender Diversity among Orthopaedic Applicants, Residents, and Faculty
Amanda Mener, Gokul Kalyanasundaram¹, Matthew R DiCaprio¹
¹Albany Medical College

INTRODUCTION:
Orthopaedic surgery residency programs have had the lowest female representation among all specialties in medicine. The cause for this lack of diversity is multifactorial and has spurred national and program-specific efforts to recruit more female residents. Importantly, the female representation among orthopaedic applicants and faculty can influence the female representation among residents, but these populations have not been well studied. We aimed to characterize the trends over time of gender diversity among orthopaedic applicants, residents, and faculty and compare these trends with all other surgical and medical specialties. This information will help to determine if recent efforts to increase diversity among orthopaedic trainees have been successful and what other possible metrics can be implemented to increase diversity in the specialty.

METHODS:
Data on applicants, residents, and faculty of every specialty from 2016 to 2020 were obtained from public reports. Applicant data was published by the American Association of Medical Colleges (AAMC) Electronic Residency Application System, resident data was published annually by JAMA, and faculty data was obtained from the AAMC Faculty Roster. Descriptive statistics were used to analyze trends in orthopaedic applicant, resident, and faculty diversity. Chi-Square tests were performed to compare female representation between orthopaedic applicants and residents. Chi-square tests were also performed to compare aggregate orthopaedic applicant, resident, and faculty data from 2016 to 2020 to applicants, residents, and faculty data of every surgical and medical specialty. Surgical specialties included neurological surgery, obstetrics/gynecology, orthopaedic surgery, otolaryngology, plastic surgery, interventional radiology, general surgery, vascular surgery, thoracic surgery, and urology. Medical specialties included anesthesiology, dermatology, emergency medicine, family medicine, internal medicine, neurology, pathology, pediatrics, physical medicine and rehabilitation, preventative medicine, psychiatry, radiation oncology, and diagnostic radiology. Faculty data was not available for neurological surgery, plastic surgery, interventional radiology, vascular surgery, thoracic surgery, and urology.

RESULTS:
Female representation among orthopaedic applicants increased between 2016 to 2020 from 14.7% to 19.7%. There was a similar increase in female representation among orthopaedic residents from 14.8% to 16.0% and orthopaedic faculty from 18.2% to 20.5%. Orthopaedic surgery had significantly less female representation among residents (16.0%) compared to applicants (19.7%) (p<0.0001). In addition, orthopaedic surgery had significantly lower female representation among applicants and residents between 2016-2020 than every surgical and medical specialty (p<0.01). Furthermore, orthopaedic surgery had significantly lower female representation among faculty compared to all specialties with available data (p<0.01).

DISCUSSION AND CONCLUSION:
Female representation among orthopaedic applicants, residents, and faculty are important metrics to measure the positive effects of diversity initiatives. Female representation among orthopaedic applicants, residents, and faculty has been steadily increasing between 2016-2020 suggesting that diversity initiatives have had positive effects. However, orthopaedic surgery had significantly lower female representation among applicants, residents, and faculty compared to every surgical and medical specialty. The lack of diversity among orthopaedic residents and faculty may stem from the low female representation among applicants to orthopaedic surgery. However, while female orthopaedic applicant representation increased 5% over the last five years, female orthopaedic resident representation only increased 1.2%, which suggests difficulty among female applicants trying to match into orthopaedics. New efforts should focus on early exposure to orthopaedics and mentorship, both of which have been shown to increase female applicants to orthopaedics.