

# Racial Representation and Match Outcomes in Orthopedic Surgery: An Analysis of NRMP Data

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**Introduction:** Orthopedic surgery remains one of the least racially diverse specialties in medicine. Despite ongoing efforts aimed at increasing minority representation, prior analyses have shown persistent underrepresentation of minority trainees at multiple career stages. This study examines recent NRMP Match data from 2022 to 2025 cycles to evaluate where the field currently stands with respect to racial equity in orthopedic resident selection and to identify opportunities for continued improvement in promoting equity and inclusivity within the orthopedic workforce.

**Methods:** Publicly available NRMP Match data was analyzed for the years 2022 to 2025. For all reported racial groups we tabulated the number of applicants who applied to orthopedic residency, the number of successful matches, the percent share of the total applicant and match pool, the match rate, and the internal parity index. Finally, we calculated the relative risk of matching into orthopedic residency by racial group, using White applicants as the reference group, along with the 95% CI and p values. All calculations including 95% CI and p values were performed using Microsoft Excel. Significance was determined to be  $p < .05$ .

**Results:** From 2022–2025, 4,899 individuals applied to orthopedic surgery: 67% White, 9% Black, 18% Asian, 4% Other, and 4% who did not answer. The racial composition remained stable overall, though the proportion of White applicants declined from 70% to 62%, with modest increases among Black and Asian applicants. Of 4,157 total matches (overall 85.0%), rates were highest for White applicants (86%) and lowest for those who did not answer (72%), with intermediate rates for Asian (83%), Other (82%), and Black applicants (81%). By 2025, match rates declined notably for Black applicants (69%) and those who did not answer (65%) compared to 86% for White applicants, reflected in lower parity indices (0.83 and 0.79 vs. 1.04). Relative risks were largely comparable through 2024 except for Asian applicants in 2024 (RR 0.94, 95% CI 0.88–0.99,  $p=0.04$ ). In 2025, Black applicants (RR 0.80, 95% CI 0.71–0.90) and those who declined to answer (RR 0.76, 95% CI 0.62–0.92) were significantly less likely to match ( $p < 0.001$ ). Cumulatively, Black (RR 0.94,  $p=0.005$ ) and Asian (RR 0.96,  $p=0.022$ ) applicants remained less likely to match than their White peers.

**Discussion:** From 2022 to 2025, significant racial disparities persisted in orthopedic surgery match outcomes, with Black and Asian applicants matching at lower rates than their White peers. Although representation among applicants showed modest improvement, disparities in selection remain evident and, for Black applicants, appear to be worsening. These findings highlight the ongoing need for targeted interventions including structured holistic review, greater diversity within selection committees, and transparent reporting of equity metrics to foster fairer representation within the orthopedic residency match process.

**Significance/Clinical Relevance:** This study quantifies trends in representation and matching outcomes among difference racial groups within orthopedic surgery, providing data driven insight into whether racial disparities persist at the point of residency selection. This helps to inform ongoing efforts to promote equity and diversity within the orthopedic workforce.

**References:**

1. National Resident Matching Program. (2025) *Charting Outcomes: Demographic Characteristics of Applicants in the Main Residency Match and Soap*. <https://www.nrmp.org/match-data/2025/05/charting-outcomes-demographic-characteristics-of-applicants-in-the-main-residency-match-and-soap/>

**Images And Tables**

Year	Race	RR	95% CI	p-value
2022	Black	1.03	0.94 – 1.13	0.52
	Asian	0.95	0.88 – 1.02	0.14
	Other	0.92	0.77 – 1.11	0.32
	Did Not Answer	0.88	0.74 – 1.06	0.1
2023	Black	1	0.92 – 1.08	0.97
	Asian	0.99	0.93 – 1.05	0.67
	Other	0.95	0.83 – 1.09	0.38
	Did Not Answer	0.96	0.82 – 1.14	0.55
2024	Black	0.99	0.92 – 1.07	0.8
	Asian	0.94	0.88 – 1.00	<b>0.04</b>
	Other	0.92	0.80 – 1.06	0.18
	Did Not Answer	0.96	0.84 – 1.08	0.44
2025	Black	0.8	0.71 – 0.90	<b>&lt;0.001</b>
	Asian	0.98	0.92 – 1.04	0.45
	Other	0.95	0.83 – 1.08	0.38
	Did Not Answer	0.76	0.62 – 0.92	<b>&lt;0.001</b>
2022-2025	Black	0.94	0.90 – 0.99	<b>0.0048</b>
	Asian	0.96	0.93 – 0.99	<b>0.0216</b>
	Other	0.94	0.87 – 1.01	0.05
	Did Not Answer	0.87	0.80 – 0.95	<b>&lt;0.001</b>

**Table 1:** Relative Risk of Matching with 95% CI and P Value (White as Ref) By Racial Group (2022-2025)

Year	Race	Applicants (n, %)	Matched (n, %)	Match Rate (%)	Internal Parity Index
2022–2025	White	3,259 (67%)	2,816 (68%)	86	1.02
	Black	420 (9%)	339 (8%)	81	0.95
	Asian	877 (18%)	731 (18%)	83	0.98
	Other	174 (4%)	142 (3%)	82	0.96
	Did Not Answer	178 (4%)	129 (3%)	72	0.85
<b>Total</b>		<b>4,899 (100%)</b>	<b>4,157 (100%)</b>	<b>85</b>	

**Table 2:** Applicant and Match Data by Racial Group 2022-2025

