

Unmatched. What's Next? Is a Preliminary Year of Residency or Research Fellowship Better for Reapplicants to Plastic Surgery?

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Background: Plastic and reconstructive surgery is one of the most competitive residency programs, and given the increased number of applicants for a relatively fixed number of positions, successfully matching is a challenge. Match rates have declined since 2018, with a match rate of ~55% in 2022. Two common options before reapplying are a preliminary year of residency (preliminary year) or a research fellowship. This study investigated which option is more beneficial for reapplicants seeking a successful match.

Methods: This retrospective study included all applicants to an integrated plastic and reconstructive surgery residency from 2015 to 2023. Two cohorts based on reapplication strategy (research fellowship or preliminary year) were created. Demographic, applicant, and match data were collected. Pearson chi-squared, Fisher exact, and Wilcoxon rank sum testing were performed.

Results: In total, 125 reapplicants were included. Seventy-one (56.8%) reapplicants pursued a preliminary year, and 29 (23.2%) completed a research fellowship. Research fellowship reapplicants had a greater mean number of first author publications (8.8 versus 3.2, $P < 0.001$), non-first author publications (11.3 versus 5.9, $P = 0.021$), poster presentations (9.7 versus 6.0, $P = 0.028$), and oral presentations (11.8 versus 6.4, $P < 0.001$). Research fellowship reapplicants were more likely to match into plastic and reconstructive surgery (PRS) than preliminary year reapplicants, with 72.4% ($n = 21$) of research fellowship reapplicants matching into PRS compared with 39.4% ($n = 28$) of preliminary year reapplicants ($P = 0.003$).

Conclusions: Research fellowship reapplicants demonstrated greater research productivity and were almost twice as likely to match into PRS compared with preliminary reapplicants. (*Plast Reconstr Surg Glob Open* 2024; 12:e5955; doi: 10.1097/GOX.0000000000005955; Published online 5 July 2024.)

INTRODUCTION

Plastic surgery is arguably the most competitive specialty in graduate medical education.¹⁻⁵ In 2020, there were 291 applicants to only 180 integrated residency positions, corresponding to 84 programs.⁶ In 2022, 351 applicants applied to 194 positions, with the growth of applicants outpacing the creation of new positions.⁷ Moreover, a recent 5-year analysis found that, compared

with other specialties, 2020 applicants who matched into integrated plastic surgery had the highest United States Medical Licensing Examination (USMLE) Step 1 scores (249), highest USMLE Step 2 scores (256), and the second highest number of abstracts and publications (19.1).³

The structure of plastic surgery training has evolved over time, which may contribute to the increased difficulty of matching. For aspiring plastic surgeons, trainees pursue either an independent or integrated model. The traditional independent model consists of 3 additional years of plastic surgery training after a separate surgical residency.⁸ The newer integrated training model, established in 1995, consists of 6 years of training without a prerequisite residency.^{3,8} The integrated model has gradually become the more popular option.⁸ Simultaneously, between 2019 and 2022, the number of independent programs decreased from 40 to 36, and the number of independent positions decreased from 63 to 57.⁹ Given this decrease, applicants may feel pressured to match immediately after medical

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school. Despite the integrated model becoming more common, the difficulty of matching into integrated programs has only increased. For example, in 2022, the integrated plastic surgery residency was the most competitive specialty with an overall applicant match rate of ~55%.¹⁰ Moreover, the match rate for MD seniors to integrated plastic surgery programs decreased by 23% from 85.7% in 2018 to 62.7% in 2022.¹⁰ This decrease in match rate is occurring despite an overall increase in academic achievement among applicants.¹⁰ Further increasing the stakes is the financial burden of applying and interviewing, as an average applicant spent \$6690 ± \$4045 in the 2018–2020 cycles with each interview costing \$531.²

Given this difficulty, many applicants find themselves in the position of trying to determine what to do after not matching. Many determined applicants will reapply in subsequent cycles. Although the match rate of reapplicants is lower than initial applicants, it is still possible to match as a reapplicant.¹¹ A survey of 2014–2020 reapplicants reported a 50% match rate for integrated reapplicants and 43% for independent reapplicants.¹¹ There are two common options for prospective reapplicants to plastic surgery to pursue: completing either a preliminary year of residency (preliminary year) or a research fellowship. The purpose of this study was to determine if a preliminary year or a research fellowship was more advantageous for reapplicants to integrated plastic surgery.

METHODS

Study Design/Sample

Institutional review board approval was obtained and we report compliance with the Declaration of Helsinki. This was a retrospective cohort study including all applicants to an integrated plastic surgery residency between 2015 and 2023. Applicants were included if they reapplied to our institution during this period. Exclusion criteria consisted of applicants who did not reapply to our program or whose subsequent applications were not available.

Study Variables

Applications were reviewed to collect demographic, applicant, and match data. Demographic data included self-identified gender, international medical graduate (IMG) status, race, medical degree type, and reapplication strategy. Applicant data consisted of Alpha Omega Alpha status, induction to the Gold Humanism Honor Society, number of first author publications, number of non-first author publications, number of poster presentations, number of oral presentations, USMLE Step 1 scores, USMLE Step 2 scores, and number of application attempts. Publications that were submitted to journals but not accepted were not recorded. Match data consisted of whether each applicant matched into an integrated plastic surgery residency or into any other specialty and the year of their successful match. We also recorded if reapplicants matched at the program where they completed their preliminary year or research fellowship. Reapplicants who were offered an open residency position during the match

Takeaways

Question: Is a research fellowship or preliminary year of residency more advantageous for reapplicants to plastic surgery?

Findings: This was a retrospective review of plastic surgery reapplicants to a single institution. Reapplicants who completed a research fellowship were almost twice as likely to match in comparison to reapplicants who did a preliminary year of residency.

Meaning: It is more beneficial for reapplicants to plastic surgery to do a research fellowship than a preliminary year of residency.

cycle (eg, an open postgraduate year 2 position) were counted as successfully matching.

Outcomes

The primary outcome was the match rate into integrated plastic surgery among those who pursued either a preliminary year or research fellowship in between application cycles. Secondary outcomes included successful match rates into fields other than plastic surgery, if the number of research fellowship years affected match success, and if IMG reapplicants demonstrated different match rates.

Statistical Analysis

Statistical analysis was performed using R, version 4.3.1. Reapplicants were enrolled into two cohorts depending on if they completed a preliminary year or research fellowship between application cycles. Reapplicants who completed both strategies were not included in either cohort. Categorical data were stated as frequencies and percentages, whereas continuous data were described as means and SDs. Pearson chi-squared or Fisher exact testing was performed for categorical data. Any contingency tables with greater than 20% of variables estimated to have a count less than five were analyzed using Fisher exact test. Wilcoxon rank sum testing was conducted for continuous data. An α of 0.05 was selected for statistical significance. Bias was reduced by performing only quantitative analyses. Missing data were excluded and not replaced via imputation methods.

RESULTS

There were 895 applications between 2015 and 2023. Of these, 128 reapplicants were identified for potential inclusion. The final applications of three reapplicants were unavailable, so they were excluded, leaving 125 reapplicants for analysis. Two cohorts were generated based on those who pursued a preliminary year or research fellowship between cycles. Of reapplicants, 56.8% ($n = 71$) elected to do a preliminary year and 23.2% ($n = 29$) chose a research fellowship. Additionally, 3.2% of reapplicants ($n = 4$) did both a preliminary year and a research fellowship, and 16.8% ($n = 21$) elected something besides a preliminary year or research fellowship, which was labeled “other” and included returning to a plastic and

Table 1. Demographic Data per Reapplication Strategy

Variable	Preliminary Year of Residency, N = 71*	Research Fellowship, N = 29*	P†
Sex			0.2
Male	47 (66.2%)	23 (79.3%)	
Female	24 (33.8%)	6 (20.7%)	
IMG	14 (19.7%)	9 (31.0%)	0.2
Race			0.092
Asian	10 (14.1%)	6 (21.7%)	
Black or African American	2 (2.8%)	3 (10.3%)	
Hispanic, Latino, or of Spanish origin	10 (14.1%)	0 (0.0%)	
Other	13 (18.3%)	4 (13.8%)	
White	36 (50.7%)	16 (55.2%)	
Degree			0.5
DO	1 (1.4%)	1 (3.4%)	
MBBS	3 (4.2%)	2 (6.9%)	
MD	67 (94.4%)	26 (89.7%)	

*n (%).

†Pearson chi-squared test; Fisher exact test.

reconstructive surgery (PRS) residency abroad or completing a master of business administration. There were no statistically significant differences between cohorts with respect to demographic data. No reapplicants identified as a nonbinary gender. Demographic data for the two cohorts are referenced in [Table 1](#).

There were no statistically significant differences between cohorts with respect to Alpha Omega Alpha status, Gold Humanism Honor Society induction, or number of application attempts. However, research fellowship reapplicants demonstrated an increased number of first author publications (8.8 versus 3.2, $P < 0.001$), non-first author publications (11.3 versus 5.9, $P < 0.001$), poster presentations (9.7 versus 6.0, $P = 0.028$), and oral presentations (11.8 versus 6.4, $P < 0.001$). All reapplicants in both cohorts reapplied either one or two times. The applicant data are seen in [Table 2](#).

The number of people who reapplied during the study period varied year to year but did not differ between cohorts in terms of the distribution of years applied. The greatest number of both preliminary year and research fellowship reapplicants occurred in the 2021 match cycle, with 42 (59.2%) preliminary year reapplicants and 19 (65.5%) research fellowship reapplicants applying.

As demonstrated in [Table 3](#), 39.4% ($n = 28$) of preliminary year reapplicants matched into integrated plastic surgery versus 72.4% ($n = 21$) of research fellowship reapplicants ($P = 0.003$). Furthermore, 73.2% ($n = 52$) of preliminary year reapplicants matched into any specialty, compared with 86.2% ($n = 25$) of research fellowship reapplicants ($P = 0.2$). Of the matched reapplicants into any specialty, 53.8% ($n = 28$) of preliminary year reapplicants matched into plastic surgery and 84.0% ($n = 21$) of research fellowship reapplicants matched into plastic surgery ($P = 0.010$). There was no statistically significant difference with respect to match year between cohorts. Out of the seven reapplicants who applied a third time,

Table 2. Applicant Data

Variable	Preliminary Year of Residency, N = 71*	Research Fellowship, N = 29*	P†
AOA			0.2
No	43 (60.6%)	13 (44.8%)	
No chapter at my school	22 (31.0%)	11 (37.9%)	
Yes	6 (8.5%)	5 (17.2%)	
Gold Humanism			0.3
No	45 (63.4%)	14 (48.3%)	
No chapter at my school	23 (32.4%)	12 (41.4%)	
Yes	3 (4.2%)	3 (10.3%)	
First author publications	3.2 (4.2)	8.8 (9.8)	<0.001
Non-first author publications	5.9 (7.7)	11.3 (14.4)	0.021
Poster presentations	6.0 (5.0)	9.7 (8.5)	0.028
Oral presentations	6.4 (7.0)	11.8 (7.8)	<0.001
Step 1 score	241.3 (15.8)	242.3 (19.6)	0.5
Step 2 score	244.8 (15.4)	243.2 (19.2)	>0.9
Reapplication attempts			>0.9
1	66 (93.0%)	27 (93.1%)	
2	5 (7.0%)	2 (6.9%)	

*(%); Mean (SD).

†Fisher exact test; Wilcoxon rank sum test.

Table 3. Match Data

Variable	Preliminary Year of Residency, N = 71*	Research Fellowship, N = 29*	P†
Matched into PRS	28 (39.4%)	21 (72.4%)	0.003
Matched (any specialty)	52 (73.2%)	25 (86.2%)	0.2
PRS match (of those who matched)	28 (53.8%)	21 (84.0%)	0.010
Match year			>0.9
2019	4 (7.7%)	2 (8.0%)	
2020	2 (3.8%)	1 (4.0%)	
2021	15 (28.8%)	8 (32.0%)	
2022	16 (30.8%)	7 (28.0%)	
2023	15 (28.8%)	7 (28.0%)	

*n (%).

†Pearson chi-squared test; Fisher exact test.

one reapplicant matched after completing 2 years of research ([Table 3](#)).

Reapplicants who matched into fields other than plastic surgery matched into anesthesiology, diagnostic radiology, emergency medicine, general surgery, pathology, and radiation oncology. Preliminary year reapplicants who matched into non-plastic surgery specialties predominantly matched into general surgery (75.0%), and research fellowship reapplicants who matched into non-plastic surgery specialties primarily matched into emergency medicine (50.0%). The distribution of non-plastic surgery matches is in [Table 4](#).

There was no statistically significant difference between research fellowship reapplicants who did 1 research year compared with 2 years in terms of match success. Research fellowship reapplicants who did 1 year matched into plastic surgery at a rate of 68.4% versus 80.0% for 2 years ($P > 0.9$). This held true for matching into any specialty as

Table 4. Non-PRS Specialty Distribution

Specialty	Preliminary Year of Residency, N = 24*	Research Fellowship, N = 4*
Anesthesiology	2 (8.3%)	0 (0.0%)
Diagnostic radiology	0 (0.0%)	1 (25.0%)
Emergency medicine	1 (4.2%)	2 (50.0%)
General surgery	18 (75.0%)	1 (25.0%)
Pathology	1 (4.2%)	0 (0.0%)
Radiation oncology	2 (8.3%)	0 (0.0%)

*n (%).

Table 5. Research Fellows Categorized by Number of Research Years

Variable	1 Year, N = 19*	2 Years, N = 10*	P†
Matched into PRS	13 (68.4%)	8 (80.0%)	0.7
Matched (any specialty)	16 (84.2%)	9 (90.0%)	>0.9
PRS match (of those who matched)	13.0 (81.3%)	8.0 (88.9%)	>0.9
First author publications	6.2 (6.8)	13.8 (13.0)	0.076
Non-first author publications	7.6 (9.5)	18.3 (19.4)	0.036
Poster presentations	8.3 (7.5)	12.2 (10.1)	0.2
Oral presentations	10.6 (8.0)	14.1 (7.2)	0.3
Step 1 score	242.2 (17.2)	242.6 (24.7)	0.6
Step 2 score	242.2 (19.7)	245.0 (19.1)	0.9

*n (%); mean (SD).

†Fisher exact test; Wilcoxon rank sum test.

well. Reapplicants who did 1 year of a research fellowship matched into any specialty at a rate of 84.2% compared with 90.0% for reapplicants who did 2 years of a research fellowship ($P > 0.9$). Two-year research fellowship reapplicants were more likely to have an increased number of non-first author publications compared with 1-year research fellowship reapplicants (18.3 versus 8.3, $P = 0.036$). There was no statistically significant difference between 1-year and 2-year research fellowship reapplicants with respect to Step scores or other research metrics, as seen in Table 5. Compared with preliminary year reapplicants, both 1-year (68.4% versus 39.4%, $P = 0.024$) and 2-year (80.0% versus 39.4%, $P = 0.020$) research year reapplicants matched at a greater rate to a statistically significant degree.

When examining IMG reapplicants, 14 IMG reapplicants did a preliminary year and nine completed a research fellowship. There were no statistically significant differences between IMGs who did a research fellowship or preliminary year with respect to research output, as measured by number of first author publications, non-first author publications, poster presentations, or oral presentations. Furthermore, there were no statistically significant differences between Step 1 or Step 2 scores among IMGs who did a research fellowship or preliminary year. In total, 21.4% ($n = 3$) of preliminary year IMG reapplicants and 66.7% ($n = 6$) of IMG research fellowship reapplicants matched into plastic surgery ($P = 0.077$). Of IMG preliminary reapplicants, 71.4% ($n = 10$) matched into any specialty versus 66.7% ($n = 6$) of IMG research fellowship reapplicants ($P > 0.9$). Lastly, of IMGs who did match,

Table 6. IMG Data

Variable	Preliminary Year of Residency, N = 14*	Research Fellowship, N = 9*	P†
Sex			>0.9
Male	12.0 (85.7%)	8.0 (88.9%)	
Female	2.0 (14.3%)	1.0 (11.1%)	
First author publications	4.9 (4.5)	13.2 (14.3)	0.2
Non-first author publications	10.4 (12.6)	21.2 (21.6)	0.2
Poster presentations	5.7 (6.0)	10.0 (5.2)	0.071
Oral presentations	9.9 (11.0)	15.7 (7.9)	0.10
Step 1 score	237.3 (23.9)	236.1 (18.4)	0.6
Step 2 score	240.6 (20.8)	233.8 (24.4)	0.5
Reapplication attempts			0.6
1	10.0 (71.4%)	8.0 (88.9%)	
2	4.0 (28.6%)	1.0 (11.1%)	
Matched into PRS	3.0 (21.4%)	6.0 (66.7%)	0.077
Matched (any specialty)	10.0 (71.4%)	6.0 (66.7%)	>0.9
PRS match (of those who matched)	3.0 (30.0%)	6.0 (100.0%)	0.011

*n (%); mean (SD).

†Wilcoxon rank sum test; Fisher exact test.

Table 7. Match Location

Matched at Home Institution	No, N = 35*	Yes, N = 14*	P†
All reapplicants	35 (71.4%)	14 (28.6%)	0.002
Reapplication strategy			0.2
Preliminary year of residency	22.0 (62.9%)	6.0 (42.9%)	
Research fellowship	13.0 (37.1%)	8.0 (57.1%)	
IMG reapplicants	6.0 (17.1%)	3.0 (21.4%)	0.7

*n (%).

†Pearson chi-squared test; Fisher exact test.

30.0% ($n = 3$) of IMG preliminary reapplicants matched into plastic surgery compared with 100% ($n = 6$) of IMG research fellowship reapplicants ($P = 0.011$). IMG results are in Table 6.

Upon examining match location, all reapplicants were more likely to match at programs other than where they pursued their preliminary year or research fellowship, as 71.4% ($n = 35$) of matched reapplicants matched at other institutions and 28.6% ($n = 14$) matched at the program where they completed their preliminary year or research fellowship ($P = 0.002$). This is shown in Table 7. However, when completing subgroup analysis based on application strategy, there was no statistically significant difference with respect to if reapplicants matched at the same program as their preliminary year or research fellowship. This was consistent regarding IMG reapplicant match location (Table 7).

DISCUSSION

The purpose of this study was to investigate whether reapplicants to plastic surgery should pursue a preliminary year or research fellowship. Despite a preliminary year being more common, with 56.8% of reapplicants choosing this strategy, our results suggest that a research fellowship

is more advantageous. Research fellowship reapplicants were almost twice as likely to match into plastic surgery compared with those who did a preliminary year (39.4% versus 72.4%, $P = 0.003$). The majority of reapplicants were allopathic, comprising at least 89.6% of both preliminary year and research fellowship reapplicants. Moreover, most reapplicants were US graduates, as IMG reapplicants represented 28.0% ($n = 35$) of reapplications. Simultaneously, the number of IMG reapplicants did not differ to a statistically significant degree between cohorts, with 19.7% of preliminary year reapplicants and 31.0% of research fellowship reapplicants possessing an IMG status. Given that there were no statistically significant differences between cohorts with respect to demographic data, it is unlikely that there were any confounding variables.

It should be noted that research fellowship reapplicants demonstrated a statistically significant increase in research productivity, as measured by the number of first author publications, non-first author publications, poster presentations, and oral presentations (Table 2). These quantifiable applicant metrics may serve as one reason as to why research fellowship reapplicants were more likely to match into plastic surgery compared with preliminary year reapplicants in light of similar examination scores. Another potential theory to explain why research fellowships are more beneficial to reapplicants is that research fellows often have more direct and continual contact with plastic surgery faculty compared with preliminary residents. This increased exposure to plastic surgery departments may lead to stronger letters of recommendation.

Our findings reflect a survey of 2013–2016 applicants that found a match rate of 97% for applicants who completed a research fellowship while in medical school versus 81% for those who did not complete a fellowship ($P < 0.05$).¹² The research fellowship reapplicant cohort from our study did not match at the same rate as those from the 2013–2016 cycles.¹² The increased competitiveness of the current application landscape and differences in how applicants are reviewed during their initial and subsequent applications may contribute to this, but another reason for this finding may include publication lag. *Plastic and Reconstructive Surgery*, the highest impact factor journal in plastic surgery, demonstrates an article submission-to-acceptance time of over a year in the post-COVID era.¹³ Again, research fellowship reapplicants demonstrated increased research productivity compared with preliminary year reapplicants. However, the limited time of a research fellowship for reapplicants compared with those who undergo a research year during medical school likely limits reapplicants' capacity to publish. This publication lag results in the ideal time to undergo a research fellowship being between the second and third years of medical school.¹³

It is worth mentioning that reapplicants did tend to have competitive applications compared with the average matched US MD applicant. The average Step 1 scores of preliminary year and research fellowship reapplicants (241.3 and 243.0, respectively) is below the average 2022 Step 1 score of matched plastic surgery applicants (251), but still significantly above the average 2022 Step 1 score of all matched US MD to any specialty, which was 236.¹⁴ In

addition, the average matched US MD to any specialty in 2022 had an average of 7.9 abstracts, presentations, and publications combined, whereas preliminary year reapplicants had an average of 21.5 and research fellowship reapplicants had an average of 41.6 abstracts, presentations, and publications combined.¹⁴ This corresponds to a 2.7 times increase for preliminary year reapplicants and 5.27 times increase for research fellowship reapplicants in research productivity compared with the average matched US MD 2022 applicant to any specialty.

Another question that often arises for those who do not initially match and pursue a research fellowship is how many years of research they should complete. Our results demonstrate that research fellowship reapplicants who do 2 years of research match at a rate of 80.0% compared with 68.4% for 1-year research fellowship reapplicants, but this was not statistically significant ($P = 0.7$). Therefore, our data suggest that reapplicants only need to pursue 1 year of research. However, dividing the research fellow reapplicants into 1-year and 2-year subgroups did decrease the power of this comparison. Given this, an important consideration is that both 1-year (68.4% versus 39.4%, $P = 0.024$) and 2-year (80.0% versus 39.4%, $P = 0.020$) research reapplicants demonstrated match rates that were notably greater than preliminary year reapplicants.

A substantial amount of reapplicants were IMGs, with 28.0% ($n = 35$) of reapplicants consisting of IMGs. The results of our study should be examined in the context of IMG candidates comprising less than 10% of filled plastic surgery positions.¹⁵ Fourteen IMGs completed a preliminary year and nine did a research fellowship. There were no statistically significant differences between IMG preliminary year and research fellowship reapplicants with respect to research metrics or Step scores. There was no statistically significant difference between IMG cohorts with matching into plastic surgery. However, of those who did match, IMG research fellowship reapplicants were more likely to match into plastic surgery compared with IMG preliminary year reapplicants, as 100% ($n = 6$) of research fellowship reapplicants who matched, matched into plastic surgery versus 30.0% ($n = 3$) of IMG preliminary year reapplicants ($P = 0.011$). The lack of statistical significance between cohorts regarding research and examination score metrics, but improved match success among IMG research fellowship reapplicants, supports the hypothesis that research fellows may benefit from other application components like increased contact time with plastic surgery faculty. Simultaneously, it is worth mentioning that the IMG subgroup analysis may have been underpowered to elucidate differences in research productivity between cohorts.

Moreover, reapplicants are more likely to match at programs different from the locations where they conducted their reapplication plan (preliminary year or research fellowship), with 71.4% ($n = 35$) of reapplicants matching at other programs versus 28.6% ($n = 14$) matching at the same program ($P = 0.002$). Furthermore, this match rate of 28.6% is similar to the general home program match rate among all applicants, which was 24.1% in the 2015–2020 cycles and 36.0% during the COVID match of 2021.¹⁶

Lastly, plastic surgery educators should be cognizant of equity with respect to access to research experiences. A recent survey examined trainees who engaged in extended research experiences before medical school, between the third and fourth years of medical school, or after medical school.⁵ Trainees who pursue extended research experiences are more likely to be from Northeastern medical schools and have parents with more advanced degrees.⁵ As programs continue to evaluate applicants, we encourage them to consider the potential bias for trainees of higher socioeconomic status to participate in extended research experiences.

Our study is not without limitations. For example, our data were limited to applicants who applied to our institution. This may have resulted in certain reapplicants being unintentionally excluded from our analysis. However, the average unmatched applicant applies to the majority of all PRS residency programs, as the average unmatched applicant applied to 78 programs in 2021, which corresponds to 93% of programs.⁴ Another limitation is that our study focused on the 8-year period between 2015 and 2023. Hence, some reapplicants may not have been identified if they reapplied early in this window and their initial application occurred before our enrollment period.

CONCLUSIONS

In conclusion, applying to integrated plastic surgery is an arduous task, and many applicants do not initially match. However, determined applicants should not be swayed, as it is still possible to match upon reapplication. Our study finds that the most successful path for reapplicants is to pursue a research fellowship rather than a preliminary year of residency, and only 1 year of research seems to be necessary to match.

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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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