

# An Update on the Independent Plastic Surgery Match (2019–2022): Trends, Predictors, and Program Leaders' Perspectives

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**Background:** A previous study by the authors noted a decline in independent plastic surgery residency programs and rising applicant participation. This study provides updates on match trends and influential predictors, and gathers program leaders' views on the future of the independent track.

**Methods:** Match data (2019–2022) were obtained from the San Francisco match after American Council of Educators in Plastic Surgery approval. Variables influencing match success were analyzed, and program leaders were surveyed about desirable applicant traits and program trajectories.

**Results:** From 2019 to 2022, 243 of 428 applicants matched. Programs and positions declined by 10% and 9.5%, respectively. Applicants rose to 42.3%, but match rates fell from 82% to 56%. Osteopathic graduates doubled, whereas international graduates increased to 53.8%. Successful matches were associated with US allopathic medical school graduates, university-affiliated general surgery residencies, eight or more interviews, United States Medical Licensing Examination scores greater than 230, and high post graduate year (PGY) 1–3 American Board of Surgery In-service Training Examination scores (PGY1–64.7%, PGY2–61.2%, PGY3–60.7%;  $P < 0.05$ ). Of surveyed programs, 55.6% aimed to continue running the independent track in the next year. Conversely, 7.4% planned to discontinue in the next year, 22.2% within 2–5 years, 7.4% within the next decade, and 7.4% were unsure.

**Conclusions:** Although support for the independent plastic surgery track remains, program participation diminishes as applicant interest increases, intensifying match challenges. Increasing number of interviews improves match potential. Program leaders display varied commitments, with looming plans for some programs to discontinue offering this track. Applicant evaluation pivots on strong recommendations, research, and test scores. (*Plast Reconstr Surg Glob Open* 2024; 12:e6030; doi: [10.1097/GOX.0000000000006030](https://doi.org/10.1097/GOX.0000000000006030); Published online 6 August 2024.)

## INTRODUCTION

Plastic surgery training has two distinct pathways: the integrated and the independent tracks. The independent track is the traditional training pathway, consisting of a minimum 3-year independent plastic surgery program

completed after a general, orthopedic, otolaryngology or neurological surgery residency.<sup>1</sup> The more contemporary integrated track consists of a 6-year training program after the completion of medical school. With the rise of the integrated track, independent program numbers and positions have declined, as highlighted by our prior work from 2010 to 2018.<sup>2</sup> Additionally, previous scholarship surveying program directors (PDs) suggest further plans to decrease the number of programs and positions, as early as this upcoming year.<sup>1</sup> Despite this decline, applicant interest in the independent track continues to grow, intensifying the competitiveness.<sup>3,4</sup>

Much of the contemporary literature focuses on factors contributing to a successful integrated match. Previous studies have underscored elements like Alpha Omega Alpha (AOA) honor society membership, high United States Medical Licensing Examination (USMLE) scores,

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research productivity, and enrollment in a top-tier medical school as pivotal contributors to a successful integrated match.<sup>3,5–12</sup> Although there exists literature on achieving a successful independent match,<sup>2,3,12–17</sup> the recent shift toward integrated programs necessitates updated insights. It is imperative to determine if historical success indicators still apply and to understand the program leadership's vision for the future of independent track programs.

This study serves as an update to a prior study by the authors considering trends from the 2010–2018 independent plastic surgery match. The goals of this study were two-fold: to analyze program trends and applicant characteristics from the 2019 to 2022 match and obtain insight into the trajectory of the independent track by surveying its current leaders. With this study, the authors hope to aid residents in this competitive match process and assess the future of this training pathway.

## METHODS

### Match Data

With American Council of Educators in Plastic Surgery approval, the independent match data for 2019–2022 was obtained from the San Francisco (SF) match. Information including applicant counts; programs; positions; and various applicant demographics, such as medical school background, residency type, interviews, United States Medical Licensing Examination scores, publications, AOA status, Gold Humanism status, and American Board of Surgery In-service Training Examination (ABSITE) scores, were collected and analyzed. This study was approved by the institutional review board (protocol #851924) at the University of Pennsylvania.

### Survey

A 13-question voluntary, anonymous survey was created and sent to PDs, chairs, and chiefs across all plastic surgery programs providing an independent track (Fig. 1). The questions were designed to elucidate attitudes, desired applicant qualities, and future directions regarding independent programs, and included both multiple-choice and free-response questions. Our survey was crafted using the online REDCap survey platform. A digital link to the survey, accompanied by an invitation for participation, was disseminated via email. The initial survey invitations were dispatched on March 24, 2023. To enhance response rates, a reminder email was sent each week. The survey acceptance window spanned 8 weeks post initial communication. Data were collected and managed in a secure REDCap database.

### Statistical Analysis

Outcomes between matched and nonmatched cohorts were compared using chi square and Fisher exact tests for categorical variables, and Mann-Whitney U and *t* tests for continuous variables, as appropriate. Multivariate logistic regression was used to identify independent variables predicting a successful match outcome. To identify optimal in-service scores, we used a logistic regression model, factoring in a subset of the data with complete cases across

## Takeaways

**Question:** What are the trends and predictors in the independent plastic surgery match, and its future outlook?

**Findings:** Analyzing 2019–2022 San Francisco match data revealed declining programs and positions alongside rising applicant numbers. Success was linked to US allopathic graduates, university-affiliated general surgery residencies, more than eight interviews, United States Medical Licensing Examination scores more than 230, and high PGY1–3 American Board of Surgery In-service Training Examination scores. Surveys revealed mixed commitments of program leaders toward the track and emphasized strong recommendations and academic performance for applicants.

**Meaning:** This study offers insights into the evolving landscape of the independent plastic surgery residency match, highlighting key factors for applicant success and varied perspectives on the track's future.

key variables. Multiple predictor variables were included in the model to account for potential confounding factors. Using the predicted probabilities of match success from this regression, a receiver operating characteristic curve was constructed. The Youden index was then used, combining both sensitivity and specificity to pinpoint the most accurate cutoff values for predicting optimal scores, thus enhancing the reliability and precision of our model's predictions. For determining the optimal number of interviews, total number of interviews was treated as an independent predictor of match success. The optimal interview count was then ascertained in a similar fashion as optimal scores. All statistical analysis was performed using the R programming language, version 4.3.1 (R Core Team, Vienna, Austria).

## RESULTS

All applicants who participated in the independent plastic surgery match from 2019 to 2022 were included in this study. A total of 428 applicants initially entered the match, of whom 346 applicants submitted a rank list. Among these, 243 candidates successfully matched (70.2%). Applicant and program characteristics are demonstrated in Figure 2. Over the period from 2019 to 2022, the match rate decreased from 82% to 56%. During this time, the number of applicants increased by 42.3%, whereas the number of independent plastic surgery residency programs and positions decreased from 40 to 36 (10%), and 63 to 57 (9.5%), respectively. The number of graduates from osteopathic and international medical schools increased from six to 12 (100%), and 13 to 20 (53.8%), respectively.

Characteristics of applicants who matched versus those who did not can be seen in Table 1. Matched applicants demonstrated a significant difference in US allopathic medical school graduation, university-associated general surgery program training, Gold Humanism induction, higher USMLE Step 1 scores, total average number of interviews completed, and average length of rank list

## Independent Plastics Match Survey

Please complete the survey below.

1) Are you a Program Director (PD), Chief, or Chair?  Program Director  
 Chief  
 Chair  
(Select all that apply)

2) Please indicate which track you trained under:  
 Integrated  
 Independent  
 Coordinated (3 years plastic surgery, 3 years general surgery)

3) Are you currently at an institution with an integrated program, independent track/program, or both?  
 Integrated  
 Independent  
 Both

4) If you have an integrated program, what year did the integrated program initiate at your institution?  
1950 \_\_\_\_\_ 2022  
(Place a mark on the scale above)

5) If you currently DO NOT have an independent plastic surgery track/program, did your institution have one in the past?  
 Yes  
 No  
 Currently have an independent track/program

6) What year did you eliminate the independent track/program from your institution?  
1950 \_\_\_\_\_ 2022  
(Place a mark on the scale above)

7) Do you foresee doing away with your independent track/program in the near future?  
 Yes, in the next year  
 Yes, in the next 2-5 years  
 Yes, in the next 6-10 years  
 No  
 Unsure

8) Why do you want to do away with the independent track/program?  
\_\_\_\_\_

9) What do you think is/are the major benefit(s) of keeping an independent track/program at your institution?  
\_\_\_\_\_

10) Please rank the following in order of importance when ranking your top-rated candidate for an independent plastic surgery position? (1 - most important, 6 - least important)

a. Letters of recommendation reflecting good character traits  
1      2      3      4      5      6  
              

b. Letters of recommendation reflecting strong clinical performance in their current categorical residency (ie general surgery, ENT, etc)  
              

c. USMLE scores  
              

d. General Surgery/ENT/Ortho In-service Scores (ie ABSITE)  
              

e. Research experience  
              

f. Other  
              

If other please specify other \_\_\_\_\_

11) Historically, how satisfied have you been, in general, with the OPERATIVE performance of an independent candidate upon beginning your independent track/program?  
 Very satisfied  
 Fairly satisfied  
 Slightly satisfied  
 Not at all satisfied

12) Historically, how satisfied have you been with the CLINICAL JUDGEMENT performance of an independent candidate upon beginning your independent track/program?  
 Very satisfied  
 Fairly satisfied  
 Slightly satisfied  
 Not at all satisfied

13) In your opinion, is there a difference in overall performance of the average graduating independent resident vs. integrated resident upon graduation from your program?	Independent	Integrated	No difference	Not applicable
Better clinical judgement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better technical performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better research output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better in-service scores	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Likely to pursue private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Likely to pursue academic practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Likely to pursue additional fellowship training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Fig. 1.** A survey comprising 13 questions was distributed to program leaders within plastic surgery programs that have an independent track.

( $P < 0.05$ ). There were no significant differences in average number of peer-reviewed publications, USMLE Step 2 scores, or AOA status. A notable difference in ABSITE scores was observed between these groups, as shown in Table 2. However, this difference was evident only during the applicants' post graduate years (PGY) 1-3 and not in their PGY4 or PGY5 years.

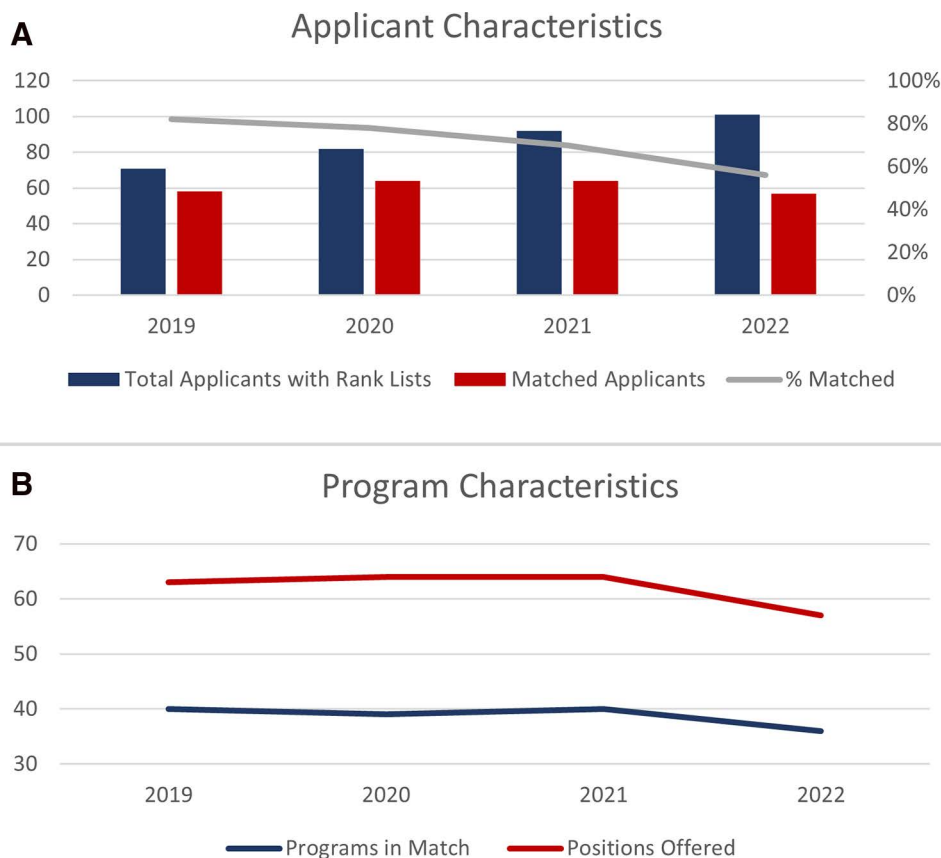
Overall, univariate analysis demonstrated a significant association between US allopathic graduates, university-trained residencies, number of interviews completed, application rank length, USMLE step 1 scores, and ABSITE scores with a successful match ( $P < 0.05$ ). By multivariate analysis, interview count was an independent match predictor (AOR: 1.45, confidence interval: 1.27–1.65,  $P < 0.001$ ). In the analysis of interview counts, we found that the optimal threshold for predicting a successful match was attending at least eight interviews, echoing our authors' previous results. The optimal ABSITE scores for a successful match were identified as 439 (66th percentile) for PGY1, 535 (71st percentile) for PGY2, and 584 (75th percentile) for PGY3 (Table 3).

A total of 22 programs (55%) participated in the survey, with 27 (43.5%) responses received. Surveys were completed primarily by PDs (48.1%,  $n = 13$ ), followed by PD/chiefs (25.9%,  $n = 7$ ), chiefs only (18.5%,  $n = 5$ ), and chairs only (7.4%,  $n = 2$ ). Most program leader respondents were trained through the independent track (63%,  $n = 17$ ), with an equal number trained via the integrated track (18.5%,  $n = 5$ ) and combined/coordinated track (18.5%,  $n = 5$ ).

A majority (59.3%,  $n = 16$ ) of institutions offered both independent and integrated tracks. In contrast, 37.0% ( $n = 10$ ) operated the independent track exclusively, whereas a single institution (3.7%) provided only the integrated track. Regarding the future prospects of their independent track, 55.6% ( $n = 15$ ) of leaders had no intentions of discontinuation. However, 7.4% ( $n = 2$ ) anticipate discontinuation within the next year, 22.2% ( $n = 6$ ) within 2–5 years, 7.4% ( $n = 2$ ) within the next decade, and 7.4% ( $n = 2$ ) unsure (Table 4).

When asked about their satisfaction with the operative performance of independent candidates at the onset of their training, 29.6% ( $n = 8$ ) reported being very satisfied, 55.6% ( $n = 15$ ) fairly satisfied, and 14.8% ( $n = 4$ ) slightly satisfied. With regards to clinical judgment, 55.6% ( $n = 15$ ) of leaders reported being very satisfied, 37.0% ( $n = 10$ ) were fairly satisfied, and 7.4% ( $n = 2$ ), indicated they were slightly satisfied (Table 4).

Program leaders ranked applicant characteristics on a scale from 1 (most important) to 6 (least important; Table 5). Letters of recommendation (LORs) emerged as the most crucial criterion. Notably, LORs emphasizing strong clinical performance were top-rated, with 68.0% of respondents rating them a 1, indicating their utmost importance. LORs highlighting positive character traits were close behind, with 66.7% of leaders assigning them a rating of 2, suggesting their significance. ABSITE scores occupied the mid-tier, with 46.2% of leaders giving them a 3 and 26.9% a 4. Research productivity appeared less pivotal; 40% of leaders rated



**Fig. 2.** Applicant and program characteristics in the independent match, from 2019 to 2022, as reported by the SF match.

**Table 1. Applicant Characteristics**

N (%) or Mean (SD)	Unmatched (N = 103)	Matched (N = 243)	Total (N = 346)	P
Medical degree type				<0.05
MD	84 (81.6%)	221 (90.9%)	305 (88.2%)	
DO	19 (18.4%)	22 (9.1%)	41 (11.8%)	
International medical graduate				<0.05
Yes	31 (30.1%)	47 (19.3%)	78 (22.5%)	
No	72 (69.9%)	196 (80.7%)	268 (77.5%)	
GS residency training program type				<0.05
University	37 (37.0%)	125 (52.5%)	162 (47.9%)	
Community	63 (63.0%)	113 (47.5%)	176 (52.1%)	
AOA inductee	5 (4.9%)	23 (9.5%)	28 (8.1%)	0.20
Gold humanism inductee	1 (1.0%)	14 (5.8%)	15 (4.3%)	<0.05
Step 1 score	226.94 (13.48)	232.06 (14.67)	230.68 (14.52)	<0.05
Step 2 score	239.20 (11.74)	242.37 (13.96)	241.53 (13.46)	0.06
No. publications	8.30 (13.93)	9.87 (20.80)	9.37 (18.82)	0.73
No. distributions	35.82 (5.67)	36.02 (5.88)	35.96 (5.81)	0.32
Total interviews completed	4.59 (3.47)	12.76 (5.93)	10.33 (6.50)	<0.001
Application rank length	5.00 (4.86)	12.62 (5.84)	10.35 (6.57)	<0.001

them a 4 and 32% a 5. Similarly, USMLE scores were not the top focus: 37.5% of leaders rated them a 5, and 25.0% a 4. Factors like geographic ties, grit, interview performance, work ethic, extracurricular passions, and dedication to the specialty also played a role in their evaluations.

Program leaders were asked to compare integrated and independent residents directly in the following areas: clinical judgment, technical performance, research output, in-service scores, and likelihood to pursue private practice, academic practice, and fellowship (Table 6; Fig. 3). A majority perceived no difference in clinical



**Table 2. ABSITE Scores**

N (%) or Mean (SD)	Unmatched (N = 103)	Matched (N = 243)	Total (N = 346)	P
<b>PGY1</b>				
Score	397.47 (48.41)	439.60 (69.34)	426.93 (66.54)	<0.001
Percentile	49.76 (18.68)	64.74 (21.09)	59.93 (21.48)	<0.001
<b>PGY2</b>				
Score	481.35 (53.95)	515.75 (59.05)	505.12 (59.58)	<0.001
Percentile	45.58 (22.53)	61.16 (23.73)	56.21 (24.41)	<0.001
<b>PGY3</b>				
Score	543.69 (55.46)	567.39 (56.51)	559.92 (57.14)	<0.05
Percentile	49.43 (26.35)	60.68 (26.55)	57.14 (26.94)	<0.05
<b>PGY4</b>				
Score	571.72 (50.88)	567.36 (59.41)	568.90 (56.07)	0.95
Percentile	54.39 (28.13)	50.42 (31.24)	51.82 (29.95)	0.85
<b>PGY5</b>				
Score	592.00 (24.43)	556.50 (67.39)	575.29 (51.18)	0.27
Percentile	60.44 (17.78)	42.88 (34.25)	52.18 (27.44)	0.31

**Table 3. Optimal ABSITE Cutoff Scores**

Year	Optimal Cutoff: Standard	Optimal Cutoff: Percentile
PGY1	439	66
PGY2	535	71
PGY3	584	75

judgment (63.0%, n = 17) and technical performance (48.1%, n = 13) between the two groups. However, they predominantly believed integrated residents showcased better research productivity (74.1%, n = 20) and achieved superior in-service scores (81.5%, n = 22). When considering career trajectories, most felt independent residents leaned more toward private practice (59.3%, n = 16), whereas integrated residents were more inclined to academic (55.6%, n = 15) and fellowship (59.3%, n = 16) pursuits. Taking all into account, 40.7% (n = 11) of leaders believed that there was no overall performance disparity between the two groups.

## DISCUSSION

There has been a gradual shift in the focus of plastic surgery training away from the independent track, and toward the integrated track.<sup>7,18</sup> However, the independent track remains a staple in the training of the next generation of plastic surgeons.<sup>19</sup> Due to this growing focus on the integrated track, current literature has predominantly focused on the integrated track match.<sup>5-9,20-25</sup> The aim of this study was to describe overall trends in the independent track match, increase knowledge about factors influencing a successful match, and survey program leaders about future directions of the independent track. Our analysis demonstrated that the number of independent programs and positions has continued to decrease, despite an increase in the number of applicants, making a successful match challenging. Graduating from a US allopathic medical school, training at a university-affiliated general surgery program, number of interviews completed, application rank length, USMLE scores, and PGY1–3 ABSITE scores were associated with a successful match. Interview count was an independent match predictor and optimized

**Table 4. Program Characteristics and Survey Results**

N (%) or Mean (SD)	Overall (N = 27)
<b>Track trained</b>	
Coordinated (3 years plastic surgery, 3 years general surgery)	5 (18.5%)
Independent	17 (63.0%)
Integrated	5 (18.5%)
<b>Program types available</b>	
Both	16 (59.3%)
Independent	10 (37.0%)
Integrated	1 (3.7%)
Year integrated program was instituted	2009 (±11.05)
<b>History of independent track at institution</b>	
Currently have an independent track/program	25 (92.6%)
Not selected	1 (3.7%)
Yes	1 (3.7%)
Year of independent track elimination	2018
<b>Plans to end independent track</b>	
No	15 (55.6%)
Unsure	2 (7.4%)
Yes, in the next 2–5 years	6 (22.2%)
Yes, in the next 6–10 years	2 (7.4%)
Yes, in the next year	2 (7.4%)
<b>Satisfaction with operative performance of independent candidates at the start of program</b>	
Fairly satisfied	15 (55.6%)
Slightly satisfied	4 (14.8%)
Very satisfied	8 (29.6%)
<b>Satisfaction with clinical judgement of independent candidates at the start of program</b>	
Fairly satisfied	10 (37.0%)
Slightly satisfied	2 (7.4%)
Very satisfied	15 (55.6%)

with a minimum of eight interviews. When surveyed, program leaders expressed positive sentiments about the independent track and quality of residents; however, a noteworthy percentage of respondents reported plans to eliminate this track in the future.

A decrease in available independent positions and an increase in applicants has led to a drop in the match rate from 82% to 56%. With this increase in competitiveness,

**Table 5. Applicant Characteristics Ranked by Level of Importance**

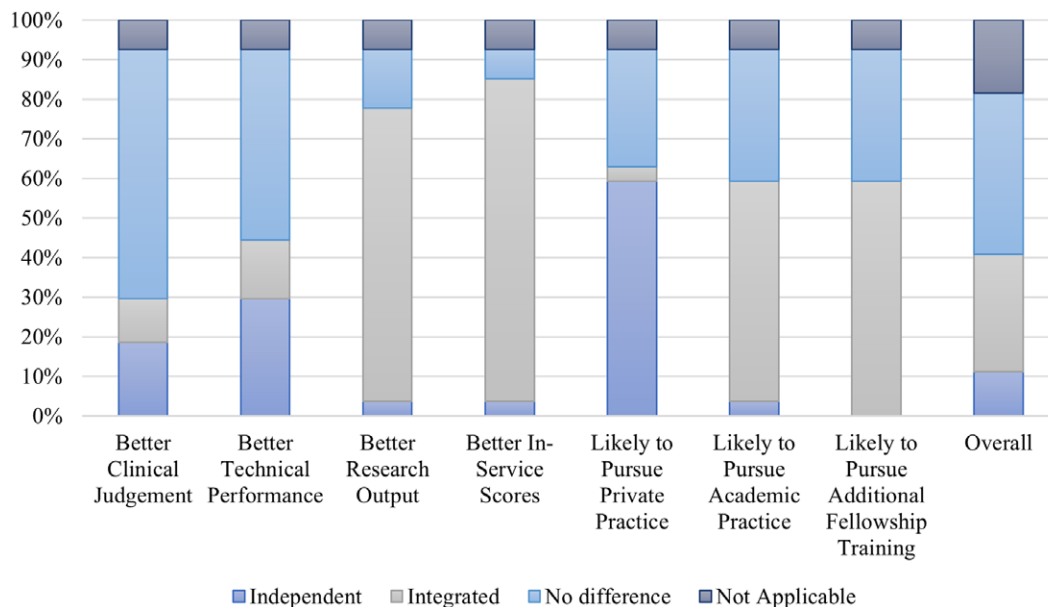
N (%)	Overall (N = 27)
LORs reflecting positive character traits	
1	2 (8.3%)
2	16 (66.7%)
3	3 (12.5%)
4	1 (4.2%)
5	1 (4.2%)
6	1 (4.2%)
LORs reflecting strong clinical performance	
1	17 (68.0%)
2	3 (12.0%)
3	2 (8.0%)
5	1 (4.0%)
6	2 (8.0%)
USMLE scores	
1	2 (8.3%)
2	2 (8.3%)
3	1 (4.2%)
4	6 (25.0%)
5	9 (37.5%)
6	4 (16.7%)
ABSITE scores	
1	1 (3.8%)
2	2 (7.7%)
3	12 (46.2%)
4	7 (26.9%)
5	3 (11.5%)
6	1 (3.8%)
Research experience	
2	1 (4.0%)
3	6 (24.0%)
4	10 (40.0%)
5	8 (32.0%)

it has become critical to identify factors associated with a successful independent match. Scholarship on the independent match underscores a handful of these elements: greater number of interviews, high USMLE Step 1 scores, strong LORs, and a strong interview performance.<sup>2,3,13,26-28</sup> Malafa et al<sup>13</sup> reported that a higher number of interviews was associated with a successful match, and that number of applications submitted was associated with an increase in number of interviews. Specifically, the match rate reached 96% for those with five or more interviews, and 100% for those who attended 13 or more interviews. Our analysis demonstrated that eight or more interviews were associated with a successful match, showing an increase in competitiveness over time as compared with the previous literature.<sup>13,27</sup> Kokosis et al,<sup>28</sup> focusing on international medical graduates, reported similar trends to US graduates, emphasizing the significance of higher USMLE Step 1 scores, top-tier medical school performance, and extensive research experience in boosting the odds of a match. The results of our study are in line with the previously reported data on the independent match. Sarac et al<sup>3</sup> noted the intrinsic limitations for current surgical residents aiming for an independent match, such as their immutable USMLE Step 1 scores. Applicants are also unable to change what medical school they graduated

**Table 6. Survey Results Comparing Independent versus Integrated Residents**

N (%)	Overall (N = 27)
Better clinical judgement	
Independent	5 (18.5%)
Integrated	3 (11.1%)
No difference	17 (63.0%)
Not applicable	2 (7.4%)
Better technical performance	
Independent	8 (29.6%)
Integrated	4 (14.8%)
No difference	13 (48.1%)
Not applicable	2 (7.4%)
Better research output	
Independent	1 (3.7%)
Integrated	20 (74.1%)
No difference	4 (14.8%)
Not applicable	2 (7.4%)
Better in-service scores	
Independent	1 (3.7%)
Integrated	22 (81.5%)
No difference	2 (7.4%)
Not applicable	2 (7.4%)
More likely to pursue private practice	
Independent	16 (59.3%)
Integrated	1 (3.7%)
No difference	8 (29.6%)
Not applicable	2 (7.4%)
More likely to pursue academic practice	
Independent	1 (3.7%)
Integrated	15 (55.6%)
No difference	9 (33.3%)
Not applicable	2 (7.4%)
More likely to pursue additional fellowship training	
Integrated	16 (59.3%)
No difference	9 (33.3%)
Not applicable	2 (7.4%)
Overall	
Independent	3 (11.1%)
Integrated	8 (29.6%)
No difference	11 (40.7%)
Not applicable	5 (18.5%)

from and their current residency affiliation. Given these constraints, candidates should pivot their attention to ABSITE scores and widen the scope of their applications, thereby amplifying their chances of securing more interview invitations. Furthermore, high ABSITE, Plastic Surgery In-service Training Examination, and USMLE scores have been associated with success on American Board of Surgery examinations; thus, achieving high scores on in-service examinations may serve to increase both odds of a successful match and future board certification success.<sup>29-31</sup> Our data support the previous literature, showing that factors including PGY1-3 ABSITE scores, number of interviews, and application rank length were associated with a successful match. Resultantly, ensuring a strong performance on examination scores and broadening programs applied to are in an applicant's control and may increase the odds of a successful match.



**Fig. 3.** Pictorial representation of Table 6, showing survey results comparing integrated vs independent track residents in terms of clinical judgement, technical performance, research output, in-service scores, and likelihood to pursue private practice, academic practice, or additional fellowship training.

The results of our survey align with the current literature. Respondents underscored the significance of LORs highlighting strong clinical performance and positive character traits, consistent with the previous literature in both the integrated and independent plastic surgery match.<sup>3,10,26</sup> Although survey participants assigned lower importance to USMLE scores and research productivity, our data revealed a positive correlation between USMLE Step 1 scores and successful matches. Moreover, although ABSITE scores were deemed moderately important by respondents, our analysis demonstrated that ABSITE scores during PGY1–3 were associated with a successful match. This suggests a leaning toward subjective evaluation metrics over objective measures, a trend somewhat at odds with established associations.<sup>2,3,18,26–28</sup> We hypothesized that this discrepancy may be due to using examination scores as cutoff metrics, with LORs and interviews as decisive factors in applicant selection. Previous research indicates the use of USMLE cutoff scores in integrated programs.<sup>3,5,10</sup> Therefore, test scores may function as a gateway metric, rather than as a primary selection criterion.

When surveyed about the future of the independent track at their institutions, program leaders were split on the longevity of this pathway. Most reported plans to maintain their programs; however, a sizeable number reported plans to sunset their programs over the next 1–10 years. Ovadia et al<sup>1</sup> reported similar findings, with 46.7% of respondents planning to decrease independent positions or eliminate the independent program in total. They hypothesize a decline in seven positions in the near future, leading to a subsequent drop of greater than 10% in independent positions.<sup>1</sup> These results are in line with the gradual decline of independent positions seen since

2012, which, based on our results, are hypothesized to continue.

Despite plans to eliminate the independent track in the future, current program leaders express satisfaction with their independent residents. In areas of clinical judgment, most conveyed high satisfaction. However, this sentiment waned when discussing operative skills, with 29.6% being very satisfied. This reduced satisfaction might stem from the pronounced learning curve that independent residents face early in their training. As previously reported by the authors, independent residents may require 1–2 years of training to match the proficiency of integrated residents at the same PGY level.<sup>2,32,33</sup> This learning curve may become steeper as the foundational principles of general and plastic surgery continue to differentiate.<sup>19,34</sup> Current general surgery training emphasizes endoscopic and minimally invasive techniques, whereas plastic surgery expands into disciplines like microsurgery, hand, and craniofacial surgery.<sup>19,34–38</sup> Thus, as these two specialties further diverge, it may be more difficult for independent residents to close this knowledge gap.

When prompted to compare integrated and independent residents, many respondents viewed both groups as comparable in clinical judgment, technical prowess, and overall performance. However, integrated residents were perceived to have better research productivity and higher plastic surgery in-service scores. Additionally, integrated residents were seen as more inclined towards fellowship pursuits and academic careers. Conversely, independent residents were reported more apt to go into private practice. The existing literature reinforces these findings, suggesting a tendency for integrated residents to gravitate toward fellowships and achieve full professorship, while independent counterparts lean more toward private

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practice.<sup>39–41</sup> Ovadia et al<sup>1</sup> theorized that the shorter training duration for integrated residents might push them toward fellowship for greater operative exposure. Notably, although research productivity before residency was not a predictor of research productivity in the early years of attending practice, as per Jinka et al, the time devoted to research during residency and fellowship training substantially increased this productivity.<sup>42</sup> Thus, although program leaders hold independent and integrated residents in similar regard, our data highlight distinct career trajectories for each group, with independent residents favoring private practice and integrated more likely to remain at academic medical centers.

There are limitations to this study. Our analysis was limited by the data available via the SF match, with applicants deciding what information, such as AOA status, to disclose, possibly influencing results. Additionally, analysis of crucial factors such as LOR quality, activities/extracurriculars, and depth of research experience was not feasible. The survey-based approach of our study also introduces potential biases, notably response bias. It is conceivable that those with pronounced views on the integrated versus independent residency debate might be more inclined to participate, thereby skewing the overall sentiments. Despite these limitations, we believe that our study accurately represents the factors associated with success in the independent match, the overall trends seen during the period of 2019–2022, and the program leader's sentiments on the independent match.

Although the number of independent plastic surgery programs declines, there is a continued interest and role for this pathway within plastic surgery. Our data suggest that independent residents perform at the same level as their integrated counterparts, bringing strong clinical judgment and technical skills, combined with a definitive desire and commitment to advancing a career in plastic surgery.

## CONCLUSIONS

With the shifting of focus toward the integrated track, this study aimed to provide contemporary information about the independent track match and applicant characteristics, while elucidating sentiments of program leadership regarding the future of the independent track. Our study underscores a declining trend in program participation and available positions, while overall applicant interest has continued to rise, making it more difficult to match. To succeed, applicants benefit from attending a US allopathic medical school, training in a university-affiliated general surgery program, achieving high USMLE Step 1 scores, and performing well on the PGY1–3 ABSITE. Obtaining eight or more interviews also improved match success. Program leaders stress the importance of LORs that speak to an applicant's character and clinical skills. Program leaders see no difference in skill levels between independent and integrated residents, highlighting that neither pathway is superior. Although some independent track programs are considering discontinuation, the independent pathway continues to play a vital role in training future plastic and reconstructive surgeons.

## DISCLOSURES

Jeffrey Janis receives royalties from Thieme and Springer publishing and is a co-founder of the Plastic Surgery Central Application. All the other authors have no financial interest to declare in relation to the content of this article.

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