

The Montreal Plastic Surgery Residency Bootcamp: Structure and Utility

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Summary: Transitioning from medical school to surgical residency is a difficult endeavor. To facilitate this period, the University of Montreal's plastic surgery program developed and implemented an intensive 1-month bootcamp rotation. It is the only one of its kind and length amongst plastic surgery residency programs in North America. It includes didactic teachings in anatomy, cadaveric dissections, and surgical approaches for an array of procedures. Clinical and technical skills are reviewed with senior residents and attending surgeons. Research opportunities and case scenarios are also covered. An anonymous online 30-question survey was sent to all residents who participated in the bootcamp rotation between 2013 and 2020. Questions evaluated residents' knowledge of anatomy, basic surgical skills, common approaches, flap knowledge, and on-call case management, before and after the bootcamp. Seventeen plastic surgery residents responded to this questionnaire (81%). The majority confirmed that the bootcamp helped them prepare for residency, research, and on-calls, and also helped them expand their knowledge of anatomy and surgical skills. The residents responded positively to the bootcamp's structure and implementation. This study proposes that surgical programs could benefit from a bootcamp rotation at the beginning of their curriculum. The purpose is to facilitate the transition between medical school and postgraduate training, and to ensure a basic level of competence for all junior residents. Further prospective studies could demonstrate the bootcamp's impact in board certification rates and acceptance into fellowship training programs. (*Plast Reconstr Surg Glob Open* 2023; 11:e5337; doi: [10.1097/GOX.00000000000005337](https://doi.org/10.1097/GOX.00000000000005337); Published online 11 October 2023.)

THE BOOTCAMP

Transitioning from medical school to surgical residency does not occur without hardships. It is a period of increased stress and responsibilities.¹ The purpose of

this study is to present the structure and utility of the University of Montreal plastic surgery residency's unique bootcamp rotation.

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Recently, training programs have been evolving to include more competency-based evaluation.² Medical schools have begun integrating bootcamp-type preparatory courses for students transitioning into surgical residency.³ Other surgical fields have developed bootcamp-type training in their curricula.⁴⁻⁷ A bootcamp rotation addresses several resident surgical education obstacles, including work-hour restrictions, limited operative exposure, and the endless knowledge to acquire.

In plastic surgery, the inclusion of specific bootcamp rotations to palliate educational gaps has been emerging. A 3-day program for plastic surgery residents in the United States was developed and implemented in 2015.⁸ A single-center pilot study evaluated the adequacy of their aesthetic curriculum with an 8-week rotation.⁹ Another bootcamp-type curriculum on cleft lip

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education, based on adult learning theories, has been described.¹⁰

Recent advances in the study of adult learning reinforce the interest in such rotations. The majority are based on Kolb’s 1984 experiential learning theory¹¹ and on Miller’s 1990 pyramid for assessing clinical competence.¹² These schemes are well reflected throughout our bootcamp where theoretical knowledge is immediately applied and where residents can progress in a controlled context.

To maximize peer teaching and bonding, in association with the Université du Québec à Trois-Rivières, our bootcamp has been held in a delocalized anatomy laboratory with state-of-the-art utilities. There has been a 10-year collaboration between both universities to offer this accredited rotation.

The bootcamp always takes place over the course of a 4-week period; both PGY-1 and PGY-2 residents would attend. This constitutes four to seven residents per year. The rotation is mandatory and free of calls. Residents benefit from their regular salaries, nonetheless. Regular scheduled grand rounds and teachings are viewed online throughout the month.

All residents participate in daily anatomy teachings (Table 1). Topics orient standard cadaveric dissection for the PGY-1 residents, with a focus on plastic surgery-related anatomy. A step-by-step guide is provided for residents to progress in an organized and sequenced manner. PGY-2 residents practice diverse flap dissections on separate cadavers nearby with detailed instructions. The cadavers are embalmed with the Thiel method, a low-odor embalment method.¹³ They are also injected with latex, which provides better simulation and easier identification and preservation of neurovascular pedicles.

Advanced procedures that are demonstrated and practiced include flaps, aesthetic procedures, alloplastic breast reconstruction, maxillofacial interventions, and hand surgery techniques. Clinical case scenarios are presented. These sessions aid on-call preparation and correlate with daily activities. Meetings, outside of work hours, with company representatives who provide materials during parts of the rotation are included. This part-theoretical, part-practical rotation also offers research opportunities for residents. The use of cadavers is authorized for that purpose, and anatomic variation studies can be performed and are currently underway. Also, informal feedback is given throughout the bootcamp. On the last day, residents sit an anatomy examination and are given formal and thorough evaluations. Year after year, more of these activities, which are distinct from

Takeaways

Question: What is the impact of a bootcamp-type rotation on the transition from medical school to a surgical residency?

Findings: Most residents confirmed that the bootcamp has helped them prepare adequately for residency. They responded positively to the bootcamp’s structure and implementation.

Meaning: Bootcamps align with residents’ desires and needs. Many programs could benefit from adding such a rotation to their curriculum.

standard cadaveric dissection, continue to be added to the curriculum.

An anonymous 30-question online survey was designed and emailed to all residents who participated in the rotation between 2013 and 2020. (See appendix, Supplemental Digital Content 1, which displays the summary of the online questionnaire. <http://links.lww.com/PRSGO/C818>.) A reminder was sent out after 10 days. In total, 17 of 21 (81%) residents responded to the questionnaire within 2 weeks. The survey aimed to retrospectively evaluate the knowledge and preparedness of participating residents before (thus, after medical school) and after the bootcamp. Satisfaction levels were also sought (Fig. 1). Answers were given on a five-point Likert scale.

Responders included participants from every year. Only 41% (n = 7) of responders stated having partially or fully achieved another degree before medical school.

A significant improvement in the preparation level for residency, plastic surgery, anatomy, research, calls, and surgical skills is seen after the bootcamp. The residents also responded positively to the bootcamp’s structure. An estimated 94% (n = 16) felt the 4-week duration, timing, and format was either good or excellent; 88% (n = 15) were pleased about it being off campus with their colleagues.

More than half of participants (n = 10) stated that the quality of anatomy teachings and surgical practice were the bootcamp’s strongest assets (Figs. 2 and 3). Teamwork and plastic surgery-related skills being covered were also very appreciated.

All but one of the responders (n = 16) recommended this rotation to be a part of every Canadian plastic surgery residency program. The only responder not in favor had completed a Bachelor’s degree in anatomy.

Table 1. An Example of a Weekly Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Didactic anatomy teachings				
PM	Cadaveric dissection	Cadaveric dissection Basic skills with staff	Advanced approaches and procedures with seniors/staff	Cadaveric dissection Case scenarios	Cadaveric dissection
Evening	Case scenarios	Peer bonding	Case scenarios	Meeting with company representatives	

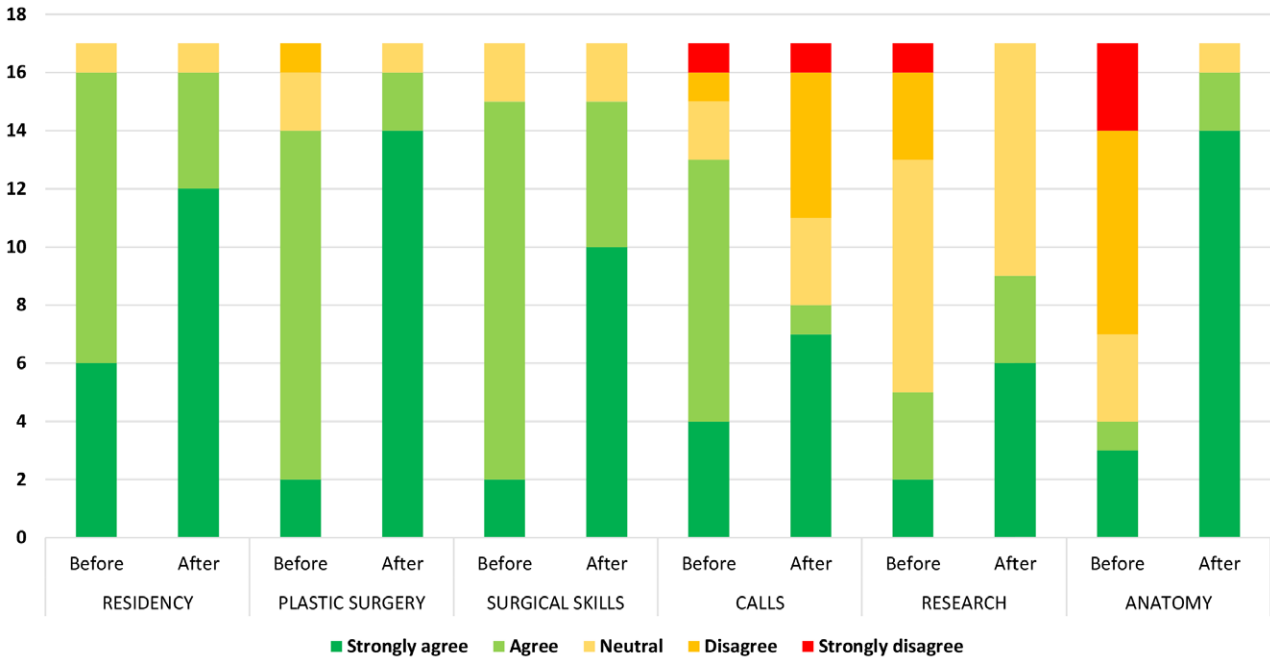


Fig. 1. Respondents' pre- and post-bootcamp preparedness to scopes of residency.

Do you think the anatomy dissection month/bootcamp rotation helped you learn PLASTIC SURGERY-related techniques and approaches?

17 responses

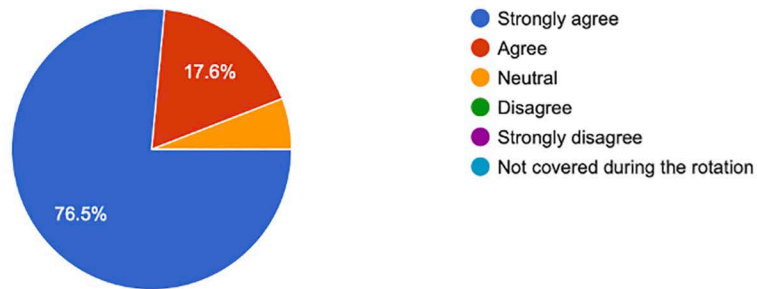


Fig. 2. Respondents' post-bootcamp knowledge of plastic surgery-related techniques.

DISCUSSION

This survey proposes that surgical programs, especially plastic surgery residency programs, would benefit from a bootcamp rotation in their curriculum. Results show the bootcamp helps prepare junior residents better than medical school does. It promotes collegiality and offers research opportunities. The bootcamp's structure favors peer mentoring, which contributes to motivation, nonstressful learning, and growth. This bootcamp also touches on the seven Canadian Royal College's CanMEDS objectives for medical professionals.

Despite its undeniable strengths, this study has its limitations. Its retrospective nature creates a possible recall bias. Having a small number of participants also reduces the power, as well as the nonresponder bias

that resulted. In addition, someone's experience from 2013 might not resemble that of a younger colleague in 2020. The same goes for the next generation of junior residents.

Bootcamps have been of recent interest as a modern update to medical education. Medical schools and surgical programs have created, set up, and studied such rotations. Despite various forms and purposes, they have proven to align with adult learning schemes and residents' desires and needs.¹⁴⁻¹⁸

This study aimed at presenting the first North American plastic surgery residency bootcamp rotation's structure and utility. Future studies could further evaluate the bootcamp's help in being accepted into and preparing for fellowship training. Whether or not this rotation ends

Do you believe the anatomy dissection month/bootcamp rotation helped you learn about the BASICS OF FLAPS?

17 responses

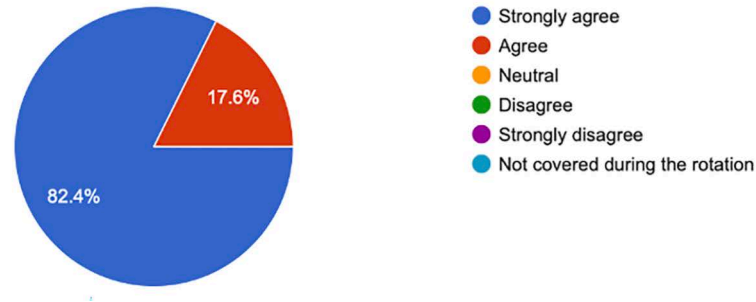


Fig. 3. Respondents' post-bootcamp knowledge of the basics of flaps.

up having an influence on board certification rates could also be assessed.

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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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