

Analysis of References on the Plastic Surgery In-Service Training Exam

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Background: The Plastic Surgery In-Service Training Exam is a knowledge assessment tool widely used during plastic surgery training in the United States. This study analyzed literature supporting correct answer choices to determine highest yield sources, journal publication lag, and journal impact factors.

Methods: Digital syllabi of 10 consecutive Plastic Surgery In-Service Training Exam administrations (2006 to 2015) were reviewed. The most-referenced articles, journals, and textbooks were determined. Mean journal impact factor and publication lag were calculated and differences were elucidated by section.

Results: Two thousand questions and 5386 references were analyzed. From 2006 to 2015, the percentage of journal citations increased, whereas textbook references decreased ($p < 0.001$). *Plastic and Reconstructive Surgery* was cited with greatest frequency (38.5 percent), followed by *Clinics in Plastic Surgery* (5.6 percent), *Journal of Hand Surgery* (American volume) (5.1 percent), and *Annals of Plastic Surgery* (3.8 percent). There was a trend toward less publication lag over the study period ($p = 0.05$), with a mean publication lag of 9.1 ± 9.0 years for all journal articles. Mean journal impact factor was 2.3 ± 4.3 and lowest for the hand and lower extremity section (1.7 ± 2.8 ; $p < 0.001$). The highest yield textbooks were elucidated by section.

Conclusion: Plastic surgery faculty and residents may use these data to facilitate knowledge acquisition during residency. (*Plast. Reconstr. Surg.* 137: 1951, 2016.)

Questions on the Plastic Surgery In-Service Training Exam are written by committee members of the American Society of Plastic Surgeons and administered to residents and practicing surgeons in the United States. For residents, the Plastic Surgery In-Service Training Exam affords an opportunity for self-evaluation against a national norm and preparation for the boards.¹ For practicing surgeons, the Plastic Surgery In-Service Training Exam affords 30 continuing medical education credits and the opportunity to stay up-to-date with the latest advances in plastic surgery.² Trainees reasonably infer that tested material reflects the Society's vision for core curriculum training in plastic surgery. Given its ubiquitous presence among training programs in the United States, the Plastic Surgery In-Service

Training Exam has emerged as a cornerstone in plastic surgery resident education.

Nevertheless, despite its relevance to plastic surgery education, the Plastic Surgery In-Service Training Exam is understudied. Insights into the references recommended by question writers may be useful for faculty, residents, and test-takers. In addition, a list of classic articles, high-yield journals, and textbooks may be useful for curricular design and independent study.

The American Council for Graduate Medical Education defines medical knowledge as a core

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competency domain for which residents should receive evaluation during residency.³ Outlined at the turn of the century, these monumental reforms in graduate medical education have not been adequately studied in plastic surgery.⁴ Specifically, given the role of the Plastic Surgery In-Service Training Exam in measuring knowledge acquisition during plastic surgery residency, we sought to develop an educational resource for future trainees. To do so, we analyzed 10 consecutive Plastic Surgery In-Service Training Exam administrations to determine (1) the most-referenced articles, (2) the highest yield journals and textbooks, (3) the publication lag of journal references, and (4) the impact factors for referenced journals. We hypothesized that sectional differences and trends over time would exist in these parameters. Residents and faculty may use these data to determine high-yield literature sources for Plastic Surgery In-Service Training Exam preparation, thereby facilitating core competency training in medical knowledge during plastic surgery residency.

METHODS

Divided into four unique sections (i.e., comprehensive, hand/extremity, craniomaxillofacial, and cosmetic/breast), the Plastic Surgery In-Service Training Exam is designed to cover topics on the entire scope of plastic surgery. Ten consecutive Plastic Surgery In-Service Training Exam syllabi were reviewed (2006 to 2015), for which approval by the institutional review board was not required. A 10-year period was selected to obtain a comprehensive analysis of Plastic Surgery In-Service Training Exam references and to elucidate trends over time. Evaluators analyzed the recommended references for credited responses and generated a database for 2000 questions over the study period.

Plastic Surgery In-Service Training Exam questions are written and selected by means of a rigorous, peer-review process. A chairperson heads each section and assigns committee members to write questions in specific areas of expertise. Questions are vetted for scientific objectivity and testing performance in conjunction with the National Board of Medical Examiners. For each question, committee members are required to write an explanation with a list of recommended references that support correct answer choices. These references served the basis of our study.

The overall Plastic Surgery In-Service Training Exam structure underwent minor changes during the study period. In 2010, the cosmetic

section was modified to breast and cosmetic, and the hand section was changed to hand and lower extremity. The comprehensive and craniomaxillofacial sections remained unchanged. Sections were categorized according to recent titles to facilitate intersectional comparisons. Certain questions are omitted from scoring each year because of poor statistical performance or inaccuracies. We included these questions to capture the entire scope of intended references provided by American Society of Plastic Surgeons question writers.

References were categorized by Plastic Surgery In-Service Training Exam year, section, type, source title, and article title. Reference type included journals, textbooks, or miscellaneous (e.g., Web sites, pamphlets, drug inserts). Publication lag was calculated for each journal article as the number of years between publication and Plastic Surgery In-Service Training Exam appearance. The publication lag was not calculated for textbooks given the high frequency of version updates and the higher degree of publication lag compared with primary literature sources.

Journal impact factors were recorded from Thompson Scientific Journal Citation Reports (Thomson Reuters, New York, N.Y.) and were assigned to journal references by year. Although an imperfect measure of journal impact, journal impact factor has an important influence on biomedical research in the United States.⁵ An algorithm, journal impact factor is a measure of the frequency with which an average article of a particular journal has been cited over a given period. Journal impact factor is calculated each year by dividing the number of citations received by the number of articles published during the previous 2-year period.

Reference variables were presented descriptively with percentages and means \pm SD. The independent variable was year of examination, and temporal trends were analyzed by means of linear regression, with number of textbook and journal references as the dependent variables. Differences between exam sections regarding the characteristics of journal references used to support correct answer choices were elucidated by means of chi-square analyses and post hoc analyses with Fisher's exact tests. Intersectional differences in average publication lag, journal impact factors, and number of references per question were elucidated by analysis of variance and post hoc Tukey tests. Statistical tests were calculated on STATA 13 (StataCorp, College Station, Texas), two-tailed, and considered significant for values of $p < 0.05$.

RESULTS

Two thousand questions and 5386 references were analyzed. The average number of references per question was 2.69 ± 1.02 (range, zero to 11), with no difference by section ($p > 0.05$). References comprised 3980 journal citations (73.9 percent; 1.99 ± 1.34 per question), 1285 textbook references (23.9 percent; 0.64 ± 0.87 per question), and 120 miscellaneous articles (2.2 percent; 0.06 ± 0.29 per question). Figure 1 shows temporal trends from 2006 to 2015. Journal citations increased from 63.1 percent of all references to 84.7 percent ($r^2 = 0.841$, $p < 0.001$). At the same time, textbook references decreased from 36.5 percent to 11.4 percent ($r^2 = 0.853$, $p < 0.001$).

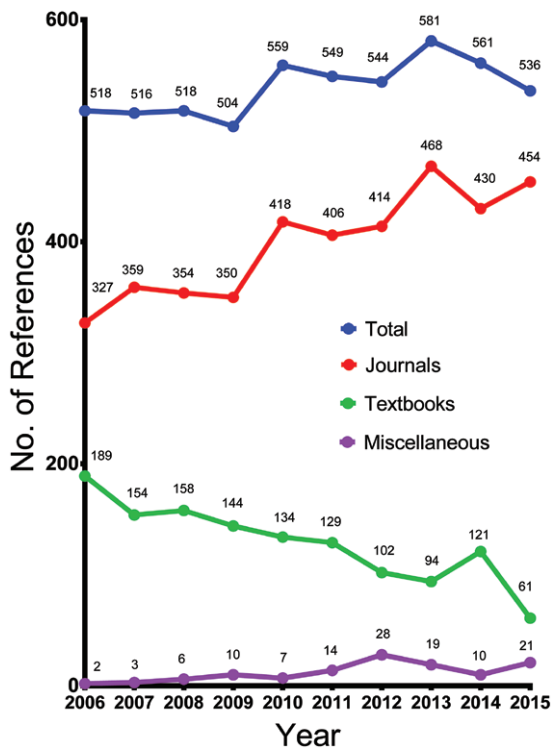


Fig. 1. Breakdown of references by year.

Four hundred sixty-nine unique journals were cited, and *Plastic and Reconstructive Surgery* was cited with greatest frequency (38.5 percent), followed by *Clinics in Plastic Surgery* (5.6 percent), *Journal of Hand Surgery* (American volume) (5.1 percent), and *Annals of Plastic Surgery* (3.8 percent). Table 1 lists the most-cited and highest-yield journals by section. A *Plastic and Reconstructive Surgery* article was used to support 47.0 percent of all questions, and a greater percentage of breast and cosmetic questions referenced a *Plastic and Reconstructive Surgery* article (69.0 percent) over comprehensive (57.2 percent), craniomaxillofacial (36.0 percent), and hand and lower extremity (25.8 percent) questions ($p < 0.05$). A list of the most-referenced articles is presented in Table 2.^{6–26} (See Table, Supplemental Digital Content 1, which shows articles referenced at least four times, <http://links.lww.com/PRS/B742>.)

Figure 2 is a frequency plot of the publication lag for journal references. The mean publication lag for all journal references was 9.1 ± 9.0 years, and nearly one-third of all journal references had a publication lag greater than 10 years (31.1 percent) (Table 3). Differences in publication lag existed by section ($p = 0.003$). The breast and cosmetic section (7.9 ± 8.3 years) had less publication lag than the hand and lower extremity (9.9 ± 9.3 years) and comprehensive (9.8 ± 9.8 years) sections ($p < 0.05$). The breast and cosmetic section had the least percentage of journal references published over 10 years (23.2 percent; $p < 0.001$). There was a trend toward less publication lag over time ($r^2 = 0.399$, $p = 0.050$) (Fig. 3).

One thousand ninety-eight journal references did not have an associated journal impact factor and were excluded from impact factor analysis (Table 3). The mean journal impact factor for all journal references was 2.3 ± 4.3 , which varied by section ($p < 0.001$). The hand and lower extremity section had the lowest mean journal impact factor (1.7 ± 2.8) compared with other sections ($p < 0.05$).

Table 1. Most-Referenced Journals by Section

Section	Journal	No. of Citations (%)	Unique Questions (%)
Comprehensive	<i>Plastic and Reconstructive Surgery</i>	464 (40.7)	286 (57.2)
	<i>Clinics in Plastic Surgery</i>	94 (8.2)	76 (15.2)
	<i>Annals of Plastic Surgery</i>	61 (5.3)	53 (10.6)
Craniomaxillofacial	<i>Plastic and Reconstructive Surgery</i>	259 (35.9)	180 (36.0)
	<i>Journal of Craniofacial Surgery</i>	61 (8.5)	52 (10.4)
	<i>Journal of Oral Maxillofacial Surgery</i>	33 (4.6)	29 (5.8)
Hand and lower extremity	<i>Journal of Hand Surgery</i>	193 (18.5)	146 (29.2)
	<i>Plastic and Reconstructive Surgery</i>	179 (17.1)	129 (25.8)
	<i>Hand Clinics</i>	91 (8.7)	75 (15.0)
Breast and cosmetic	<i>Plastic and Reconstructive Surgery</i>	630 (58.7)	345 (69.0)
	<i>Clinics in Plastic Surgery</i>	70 (6.5)	57 (11.4)
	<i>Aesthetic Surgery Journal</i>	66 (6.1)	57 (11.4)

Table 2. Articles Referenced at Least Five Times

Article Title	Author(s)	Journal	Year	No. of References
Reconstruction of acquired scalp defects: An algorithmic approach ⁶	Leedy et al.	PRS	2005	8
Acute burns ⁷	Kao and Garner	PRS	2000	7
Classification and management of gynecomastia: Defining the role of ultrasound-assisted liposuction ⁸	Rohrich et al.	PRS	2003	7
“Components separation” method for closure of abdominal-wall defects: An anatomic and clinical study ⁹	Ramirez et al.	PRS	1990	7
Practice advisory on liposuction ¹⁰	Iverson and Lynch	PRS	2004	7
Free flap reexploration: Indications, treatment, and outcomes in 1193 free flaps ¹¹	Bui et al.	PRS	2007	6
MOC-PS(SM) CME article: Liposuction ¹²	Iverson and Pao	PRS	2008	6
Otoplasty ¹³	Janis et al.	PRS	2005	6
Prevention of venous thromboembolism in the plastic surgery patient ¹⁴	Davison et al.	PRS	2004	6
Conservative approaches to lymphedema treatment ¹⁵	Rinehart-Ayres	Cancer	1998	5
Current management of hemangiomas and vascular malformations ¹⁶	Marler and Mulliken	CPS	2005	5
Evidence-based patient safety advisory: Liposuction ¹⁷	Haecck et al.	PRS	2009	5
Hemangiomas and vascular malformations in infants and children: a classification based on endothelial characteristics ¹⁸	Mulliken and Glowacki	PRS	1982	5
Learning from a lymphedema clinic: An algorithm for the management of localized swelling ¹⁹	Garfein et al.	PRS	2008	5
Long-term outcomes and complications associated with brachioplasty: A retrospective review and cadaveric study ²⁰	Knoetgen and Moran	PRS	2006	5
MOC-PSSM CME article: Face lifting ²¹	Stuzin	PRS	2008	5
Nasal reconstruction-beyond aesthetic subunits: A 15-year review of 1334 cases ²²	Rohrich et al.	PRS	2004	5
Patient safety in the office-based setting ²³	Horton et al.	PRS	2006	5
Staged skin and subcutaneous excision for lymphedema: A favorable report of long-term results ²⁴	Miller et al.	PRS	1998	5
Timing of presentation of the first signs of vascular compromise dictates the salvage outcome of free flap transfers ²⁵	Chen et al.	PRS	2007	5
Vascular anomalies: Current overview of the field ²⁶	Greene	CPS	2011	5

PRS, *Plastic and Reconstructive Surgery*; CPS, *Clinics in Plastic Surgery*.

Two hundred ninety-two unique textbooks were referenced, and the highest yield textbooks are listed in Table 4.^{27–32} In total, the most-referenced textbooks were *Plastic Surgery* by Mathes et al. [154 of 1285 (12.0 percent)], *Green’s Operative Hand Surgery* [153 of 1285 (12.0 percent)], and *Grabb and Smith’s Plastic Surgery* [136 of 1285 (10.6 percent)]. The largest percentage of questions were supported by *Plastic Surgery* by Mathes [141 of 2000 (7.1 percent)], *Green’s Operative Hand*

Surgery [140 of 2000 (7.0 percent)], and *Grabb and Smith’s Plastic Surgery* [133 of 2000 (6.7 percent)].

DISCUSSION

Plastic surgery residents must obtain sufficient knowledge to pass the written and oral board examinations during training. During this time, the American Council for Graduate Medical Education mandates that residents receive regular competency assessment of medical knowledge.³ This study suggests that regular review of recent articles (<10 years) in *Plastic and Reconstructive Surgery* may help prepare residents for the Plastic Surgery In-Service Training Exam. Furthermore, review of high-yield textbooks in plastic surgery may have utility for Plastic Surgery In-Service Training Exam preparation (Table 2). For the hand and lower extremity section, *Green’s Operative Hand Surgery* was the overwhelming favorite for question writers. Together, these data may help optimize curricular design and independent study for plastic surgery residents.

Over the past decade, the Plastic Surgery In-Service Training Exam demonstrated a trend toward fewer textbook references and more

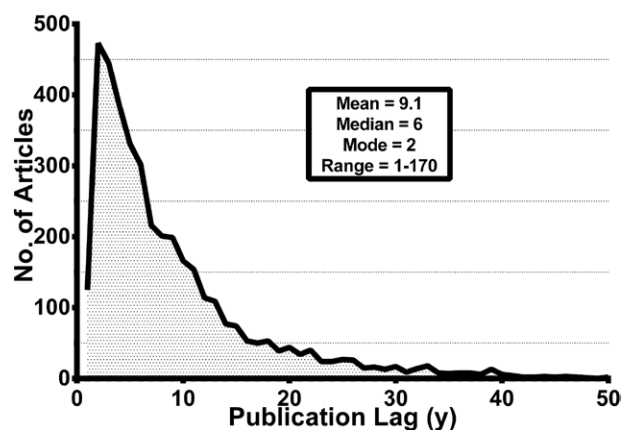


Fig. 2. Frequency plot of publication lag for journal references.

Table 3. Mean Publication Lag and Journal Impact Factor by Section

Section	No. of Citations (%)	Mean JIF ± SD	Mean Lag ± SD (yr)	No. of Citations (%)			
				≤2 Yr	3–5 Yr	6–10 Yr	>10 Yr
Comprehensive	1140 (28.6)	2.7 ± 5.0	9.8 ± 9.8	175 (15.4)	304 (26.7)	306 (26.8)	355 (31.1)
Craniofacial	723 (18.2)	2.4 ± 5.0	8.7 ± 8.4	99 (13.7)	223 (30.8)	202 (27.9)	199 (27.5)
Breast and cosmetic	1075 (27.0)	2.5 ± 4.1	7.9 ± 8.3	175 (16.3)	335 (31.2)	316 (29.4)	249 (23.2)
Hand and lower extremity	1043 (26.2)	1.7 ± 2.8	9.9 ± 9.3	150 (14.4)	299 (28.7)	260 (24.9)	334 (32.0)
Total	3981 (100)	2.3 ± 4.3	9.1 ± 9.0	599 (15.0)	1161 (29.2)	1084 (30.6)	1137 (31.1)

JIF, journal impact factor.

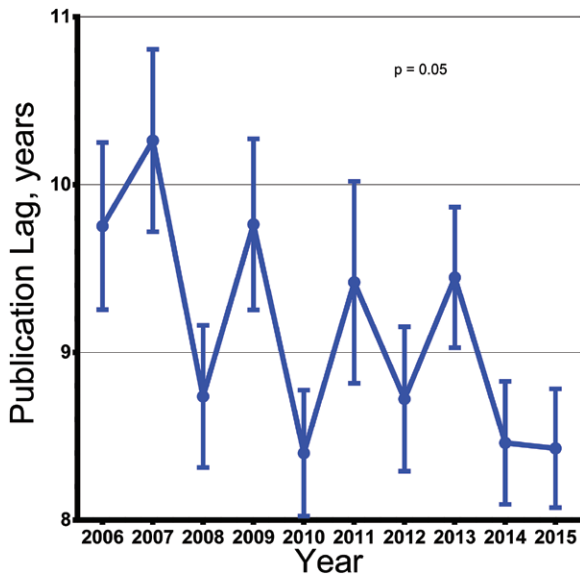


Fig. 3. Mean publication lag by year.

journal citations (Fig. 1). This is likely attributable to a conscious effort by question writers to deliver the most up-to-date knowledge in plastic surgery. Plastic Surgery In-Service Training Exam syllabi are available to residents, and a trend toward better scores over the years has been noted by some Plastic Surgery In-Service Training Exam committee members. As such, some question writers have tested specific concepts in recent literature to generate a more favorable curve. This may account for the increased number of journal references observed in our study. Nevertheless, surprisingly, a large percentage of journal articles (31.1 percent) were published over 10 years before Plastic Surgery In-Service Training Exam administration (Table 2). Thus, question writers may reference a significant amount of older literature despite the stated goal to provide the most up-to-date knowledge in plastic surgery. The trend toward more recent articles was encouraging, as mean publication lag decreased by 2 years over the study period ($p = 0.050$). A recent study of the Orthopaedic In-Training Examination demonstrated a

comparable publication lag of 8.3 years,³³ which reflects the publication lag of 8.4 years for the 2015 Plastic Surgery In-Service Training Exam. The hand and lower extremity and comprehensive sections had significantly greater publication lag attributable largely to the large percentage of references to articles published more than 10 years previously (32.0 percent and 31.1 percent, respectively). Chairs for these respective sections should ensure that questions are meeting the stated goal to deliver the most up-to-date knowledge.

However, it could be argued that as a resident assessment tool, the Plastic Surgery In-Service Training Exam should cover time-tested, core principles in plastic surgery. As medical knowledge is constantly evolving, practice standards learned during residency will inevitably change over a surgeon’s career. This reality must be reconciled with the continuing medical education needs of the majority of examinees who take the Plastic Surgery In-Service Training Exam. For the thousands of experienced plastic surgeons, the Plastic Surgery In-Service Training Exam is an opportunity to keep updated with recent knowledge and practice standards.³⁴

Journal clubs are common components of didactic curricula during residency training.³⁵ Our results suggest that recent articles (median, 5 years) from *Plastic and Reconstructive Surgery* may be of greatest utility for Plastic Surgery In-Service Training Exam preparation. Of 295 citations of primary literature sources, 168 (57 percent) came from *Plastic and Reconstructive Surgery*. This recommendation may have greatest utility for the breast and cosmetic and comprehensive sections of the Plastic Surgery In-Service Training Exam. However, the usefulness of study resources for Plastic Surgery In-Service Training Exam preparation remains unknown. It may be more appropriate to view recommended Plastic Surgery In-Service Training Exam references as validity for question content and less for

Table 4. Most-Referenced Textbooks by Section

Section	Textbook	Authors	No. of References (%)	Unique Questions (%)
Comprehensive	<i>Plastic Surgery</i> ²⁷	Mathes and Hentz	68 (27.9)	61 (12.2)
	<i>Grabb and Smith's Plastic Surgery</i> ²⁸	Thorne et al.	42 (17.2)	41 (8.2)
	<i>Plastic Surgery</i> ²⁹	McCarthy	9 (3.7)	9 (1.8)
Craniofacial	<i>Grabb and Smith's Plastic Surgery</i> ²⁸	Thorne et al.	52 (11.3)	50 (10.0)
	<i>Plastic Surgery</i> ²⁷	Mathes and Hentz	48 (10.4)	43 (8.6)
	<i>Plastic Surgery: Indications, Operations, and Outcomes</i> ³⁰	Achauer et al.	32 (6.9)	32 (6.4)
Hand and lower extremity	<i>Green's Operative Hand Surgery</i> ³¹	Green et al.	146 (41.0)	140 (28.0)
	<i>Plastic Surgery</i> ²⁷	Mathes and Hentz	29 (8.1)	28 (5.6)
	<i>Grabb and Smith's Plastic Surgery</i> ²⁸	Thorne et al.	16 (4.5)	16 (3.2)
Breast and cosmetic	<i>Grabb and Smith's Plastic Surgery</i> ²⁸	Thorne et al.	26 (11.6)	26 (5.2)
	<i>Plastic Surgery: Indications, Operations, and Outcomes</i> ³⁰	Achauer et al.	15 (6.7)	15 (3.0)
	<i>Surgery of the Breast: Principles and Art</i> ³²	Spear et al.	15 (6.7)	15 (3.0)

preparation. Future surveys are needed to determine the most widely used resources for Plastic Surgery In-Service Training Exam preparation. Results could then be correlated with Plastic Surgery In-Service Training Exam performance to demonstrate utility. Furthermore, the level of evidence of Plastic Surgery In-Service Training Exam references is an ongoing area of investigation. Previous studies in orthopedics suggest that low levels of evidence may limit the objectivity of in-service exam questions.^{33,36}

This study had several limitations. First, the Plastic Surgery In-Service Training Exam is an evolving assessment tool and will adopt a general surgery section in the future.² How closely results from this study will emulate future Plastic Surgery In-Service Training Exams remains unknown. Second, the actual utility of these resources for Plastic Surgery In-Service Training Exam preparation is unknown, but studies in other literature suggest that review of popular journals and textbooks boost In-Service Training Exam performance.³⁷ Third, some argue that the most salient purpose of the Plastic Surgery In-Service Training Exam is to prepare residents for the written board examinations. Whether the references elucidated in our study are effective resources for board examination preparation is unknown and could be the focus of future research.

Despite these limitations, this review of Plastic Surgery In-Service Training Exam references can be used as a study aid during residency. The most commonly referenced literature sources may assist faculty and trainees to optimize competency in medical knowledge during plastic surgery residency. A focus on these resources may improve future Plastic Surgery In-Service Training Exam performance.

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REFERENCES

- Silvestre J, Basta MN, Serletti JM, Chang B. Evaluation of the Plastic Surgery In-Service Training Exam: Lower extremity questions. *J Surg Educ.* 2015;72:875–881.
- Giroto JA, Glassman LS. Commentary on: Analysis of cosmetic topics on the Plastic Surgery In-Service Training Exam. *Aesthet Surg J.* 2015;35:746–747.
- Lurie SJ, Mooney CJ, Lyness JM. Measurement of the general competencies of the accreditation council for graduate medical education: A systematic review. *Acad Med.* 2009;84:301–309.
- Johnson SP, Chung KC, Waljee JF. Evidence-based education in plastic surgery. *Plast Reconstr Surg.* 2015;136:258e–266e.
- Garfield E. The history and meaning of the journal impact factor. *JAMA* 2006;295:90–93.
- Leedy JE, Janis JE, Rohrich RJ. Reconstruction of acquired scalp defects: An algorithmic approach. *Plast Reconstr Surg.* 2005;116:54e–72e.
- Kao CC, Garner WL. Acute burns. *Plast Reconstr Surg.* 2000;105:2482–2492; quiz 2493; discussion 2494.
- Rohrich RJ, Ha RY, Kenkel JM, Adams WP Jr. Classification and management of gynecomastia: Defining the role of ultrasound-assisted liposuction. *Plast Reconstr Surg.* 2003;111:909–923; discussion 924–905.
- Ramirez OM, Ruas E, Dellon AL. “Components separation” method for closure of abdominal-wall defects: An anatomic and clinical study. *Plast Reconstr Surg.* 1990;86:519–526.
- Iverson RE, Lynch DJ; American Society of Plastic Surgeons Committee on Patient Safety. Practice advisory on liposuction. *Plast Reconstr Surg.* 2004;113:1478–1490; discussion 1491.
- Bui DT, Cordeiro PG, Hu QY, Disa JJ, Pusic A, Mehrara BJ. Free flap reexploration: Indications, treatment, and outcomes in 1193 free flaps. *Plast Reconstr Surg.* 2007;119:2092–2100.
- Iverson RE, Pao VS. MOC-PS(SM) CME article: Liposuction. *Plast Reconstr Surg.* 2008;121(Suppl):1–11.
- Janis JE, Rohrich RJ, Gutowski KA. Otoplasty. *Plast Reconstr Surg.* 2005;115:60e–72e.

14. Davison SP, Venturi ML, Attinger CE, Baker SB, Spear SL. Prevention of venous thromboembolism in the plastic surgery patient. *Plast Reconstr Surg*. 2004;114:43E–51E.
15. Rinehart-Ayres ME. Conservative approaches to lymphedema treatment. *Cancer* 1998;83(12 Suppl American):2828–2832.
16. Marler JJ, Mulliken JB. Current management of hemangiomas and vascular malformations. *Clin Plast Surg*. 2005;32:99–116, ix.
17. Haeck PC, Swanson JA, Schechter LS, et al.; ASPSPatientSafety Committee. Evidence-based patient safety advisory: Blood dyscrasias. *Plast Reconstr Surg*. 2009;124(Suppl):82S–95S.
18. Mulliken JB, Glowacki J. Hemangiomas and vascular malformations in infants and children: A classification based on endothelial characteristics. *Plast Reconstr Surg*. 1982;69:412–422.
19. Garfein ES, Borud LJ, Warren AG, Slavin SA. Learning from a lymphedema clinic: An algorithm for the management of localized swelling. *Plast Reconstr Surg*. 2008;121:521–528.
20. Knoetgen J III, Moran SL. Long-term outcomes and complications associated with brachioplasty: A retrospective review and cadaveric study. *Plast Reconstr Surg*. 2006;117:2219–2223.
21. Stuzin JM. MOC-PSSM CME article: Face lifting. *Plast Reconstr Surg*. 2008;121(Suppl):1–19.
22. Rohrich RJ, Broughton G II, Horton B, Lipschitz A, Kenkel JM, Brown SA. The key to long-term success in liposuction: A guide for plastic surgeons and patients. *Plast Reconstr Surg*. 2004;114:1945–1952; discussion 1953.
23. Horton JB, Reece EM, Broughton G II, Janis JE, Thornton JF, Rohrich RJ. Patient safety in the office-based setting. *Plast Reconstr Surg*. 2006;117:61e–80e.
24. Miller TA, Wyatt LE, Rudkin GH. Staged skin and subcutaneous excision for lymphedema: A favorable report of long-term results. *Plast Reconstr Surg*. 1998;102:1486–1498; discussion 1499.
25. Chen KT, Mardini S, Chuang DC, et al. Timing of presentation of the first signs of vascular compromise dictates the salvage outcome of free flap transfers. *Plast Reconstr Surg*. 2007;120:187–195.
26. Greene AK. Vascular anomalies: Current overview of the field. *Clin Plast Surg*. 2011;38:1–5.
27. Mathes SJ, Hentz VR. *Plastic Surgery*. Vol. 1. 2nd ed. Philadelphia: Saunders; 2006.
28. Thorne CH, Beasley RW, Aston SJ. *Grabb and Smith's Plastic Surgery*. 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2007.
29. McCarthy J. *Plastic Surgery*. Philadelphia: Saunders; 1990.
30. Achauer BM, Eriksson E, Guyuron B, Coleman JJ III, Russell RC, Vander Kolk CA. *Plastic Surgery: Indications, Operations, and Outcomes*. St. Louis: Mosby; 2000.
31. Green DP, Hotchkiss R, Pederson WC. *Green's Operative Hand Surgery*. 4th ed. New York: Churchill Livingstone; 1999.
32. Spear SL, Willey SC, Robb GL, Hammond DC, Nahabedian MY. *Surgery of the Breast: Principles and Art*. Philadelphia: Lippincott Williams & Wilkins; 2013.
33. Haughom BD, Goldstein Z, Hellman MD, Yi PH, Frank RM, Levine BR. An analysis of references used for the Orthopaedic In-Training Examination: What are their levels of evidence and journal impact factors? *Clin Orthop Relat Res*. 2014;472:4024–4032.
34. American Society of Plastic Surgeons. In-Service Exam. Available at: <http://www.plasticsurgery.org/for-medical-professionals/resources-and-education/meetings/in-service-exam.html>. Accessed May 1, 2015.
35. Spillane AJ, Crowe PJ. The role of the journal club in surgical training. *Aust N Z J Surg*. 1998;68:288–291.
36. Bernstein J, Kenniston JA, Nydick JA, Zgonis MH, Beredjiklian PK. Levels of evidence are low for clinical management questions on the orthopaedic in-training examination. *J Bone Joint Surg Am*. 2010;92:508–511.
37. Marker DR, LaPorte DM, Seyler TM, et al. Orthopaedic journal publications and their role in the preparation for the orthopaedic in-training examination. *J Bone Joint Surg Am*. 2009;91(Suppl 6):59–66.