

Opinions on corrective refractive surgery

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ABSTRACT •

Objective: To investigate public perception that ophthalmologists are hesitant to undergo refractive surgery by determining the personal opinions of ophthalmologists on different surgical options.

Design: Prospective cross-sectional survey.

Participants: Members of the American Society of Cataract and Refractive Surgery electronic mailing list.

Methods: An online survey administered from July to August 2014.

Results: There were 396 (5.7%) respondents: 204 (51.5%) would undergo laser refractive surgery (LRS) and 192 (48.5%) would not. Of the 228 (57.6%) with refractive error, 121 (53.1%) would have LRS, with 83 (36.4%) already having had the procedure done. Top reasons against LRS include existing contraindications, worry about intolerable side effects, and worry about complications. 179 (45.3%) would undergo lenticular refractive surgery (lenRS), with 22 (12.3%) having already had this done. Among those who said yes, most preferred a monofocal intraocular lens (IOL; 59 [33.0%]), whereas those who said no thought Toric IOLs to be superior (82 [38.0%]). 184 (46.6%) would undergo femtosecond laser-assisted cataract surgery (FLACS); the main reason against FLACS was concern regarding efficacy, followed by safety. Pearson χ^2 analysis found that younger age and higher number of LRS procedures performed were associated with increased willingness to undergo LRS. Furthermore, willingness to undergo LRS was positively correlated with willingness to undergo lenRS.

Conclusions: Ophthalmologists indeed are willing to undergo corrective refractive procedures. There is an approximately 50–50 divide on whether or not they would undergo LRS. Slightly less than half of ophthalmologists would personally undergo lenticular surgery, which includes cataract refractive surgery and FLACS.

Refractive error is the leading cause of visual impairment and the second leading cause of blindness in the world.¹ Modern corrective surgical techniques include laser refractive surgery (LRS) and lenticular refractive surgery (lenRS), such as phakic intraocular lens (IOL) insertion, refractive lens exchange (RLE), and cataract refractive surgery (CRS).

LASIK is the most popular form of LRS, even among ophthalmologists. A systematic review examining patient satisfaction after LASIK surgery revealed a satisfaction rate of 95.4%, making LASIK one of the most successful elective procedures performed.² The most recent U.S. Trends in Refractive Surgery Survey showed a 30% to 33% penetration of modern refractive surgery among refractive surgeons, which is 3–4 times that in the general population.³ Kezirian et al. conducted a survey determining the prevalence of laser vision correction among ophthalmologists performing refractive surgery and found that among self-reported candidates for LRS, prevalence was 62.6%.⁴ Despite these reports, public belief is that ophthalmologists prefer wearing glasses or contact lenses over refractive surgery. A surgical candidate may hesitate if the refractive ophthalmologist is eligible but has not had the procedure personally. As such, it is important to evaluate why some ophthalmologists may choose to forgo refractive surgery.

Previous U.S. Trends surveys have also investigated which IOL ophthalmologists prefer to use in various

clinical situations, but there has been little follow-up on why these choices are made. Our survey examines which type of IOLs ophthalmologists choose to have implanted and why, to compare if these findings are consistent with previous trends and evidence-based practices.

Femtosecond laser-assisted cataract surgery (FLACS) is becoming more popular, rising in popularity by 10% between 2014 and 2015.³ This relatively new approach has potential benefits, including more precise capsulotomy and decreased corneal endothelial cell reduction; however, potential drawbacks also exist, such as a higher rate of posterior capsular tears.⁵ Further rigorous studies are needed to establish the long-term safety, efficacy, and cost-effectiveness of this procedure.⁶ In our survey, we determine whether respondents would be willing to undergo FLACS and their reasons for these choices.

METHODS

An online survey was created in English and reviewed by the American Society of Cataract and Refractive Surgery (ASCRS) Refractive Clinical Committee. Ethics approval was prospectively granted through the Conjoint Health Research Ethics Board at the University of Calgary. This survey was forwarded to the ASCRS mailing list, consisting of approximately 7800 individuals. Participants had between July and August 2014 to submit responses.

Respondent location data were collected as zip codes and postal codes. For values that had more than one associated location, given that the survey was sent through ASCRS, it was assumed to be in the United States. Furthermore, when data were exported from survey responses, leading zeroes disappeared. Again, in these cases, assumption was made to a location in the United States.

Quantitative analysis was completed on the data collected using SPSS version 19 (IBM Corp., Armonk, N.Y.). Pearson χ^2 analysis was performed to determine if there was any significant association between factors such as age, gender, length of practice, location of training, location of practice, and willingness to participate in refractive eye surgery and FLACS.

RESULTS

In total, 396 (5.7%) responses were received. Demographics of respondents are summarized in Table 1.

Laser Refractive Surgery

Most respondents performed between 1 and 20 LRS procedures per month. When asked whether they would undergo LRS, 204 (51.5%) responded yes (Figure 1). Among those who would consider LRS, 83 (40.7%) had already undergone LRS, with LASIK being most common. Of the respondents, 228 (57.6%) had refractive error. Of those, 121 (53.1%) would have LRS, with 83 (36.4%) already having had the procedure done.

Those who have not yet undergone or would not undergo LRS were asked why. The top response revealed that visual acuity did not require correction, followed by existing contraindications to LRS, worry about intolerable side effects, and worry about complications. A summary of the most common responses in each of these categories is given in Table 2.

χ^2 Tests of independence found 2 variables to be significantly associated with willingness to undergo LRS. Age was significant, with younger ophthalmologists being more willing to consider LRS than their older counterparts [$\chi^2(7, n = 393) = 17.89, p = 0.01$]. The number of LRS procedures performed per month was also significant [$\chi^2(4, n = 393) = 53.15, p < 0.001$], with more prolific ophthalmologists being willing to personally undergo LRS. No significant relationships were found between gender [$\chi^2(6, n = 396) = 6.72, p = 0.35$], location of training [$\chi^2(6, n = 396) = 5.28, p = 0.51$], location of practice [$\chi^2(4, n = 396) = 4.22, p = 0.38$], and performance of LRS [$\chi^2(2, n = 395) = 4.44, p = 0.11$] and willingness to personally undergo LRS.

Regardless of a patient's relationship to the ophthalmologist or his or her current occupation, most ophthalmologists would recommend LRS, as summarized in Table 3.

Lenticular Refractive Surgery

Types of lenRS and IOLs respondents offered to patients are summarized in Table 4. When asked whether

Table 1—Demographic features of survey respondents

	Number of Respondents	Percentage of Respondents
Total	396	100.0
Age group (y)		
26–30	6	1.5
31–40	75	18.9
41–50	98	24.7
51–60	129	32.6
61 and older	85	21.5
Missing	3	0.8
Total	396	100.0
Gender		
Male	336	84.8
Female	53	13.4
Other	1	0.3
Missing	6	1.5
Total	396	100.0
Years in practice (y)		
Still in training	10	2.5
Less than 5	41	10.4
6–15	81	20.5
16 and above	264	66.7
Total	396	100.0
Location of training		
United States	213	53.8
Canada	18	4.5
International	61	15.4
Undecipherable	20	5.1
Missing	84	21.2
Total	396	100.0
Location of practice		
United States	246	62.1
Canada	22	5.6
International	60	15.2
Undecipherable	16	4.0
Missing	52	13.1
Total	396	100.0
Specialties		
Anterior segment	247	62.4
Comprehensive	194	49.0
Cornea	147	37.1
Glaucoma	65	16.4
Medical retina	30	7.6
Oculoplastics	23	5.8
Uveitis	11	2.8
Pediatrics	10	2.5
Surgical retina	8	2.0
Neuro-ophthalmology	6	1.5
Oculopathology	5	1.3
Ocular oncology	3	0.8
Other	36	9.1
Total	396	100.0

Respondents were able to select more than one specialty.

they would undergo lenRS, 179 (45.3%) responded yes (Figure 1), with 148 (82.7%) saying that they would consider CRS. Of those who would consider lenRS, 22 (12.3%) have already had this completed.

χ^2 Test of independence revealed that age [$\chi^2(7, n = 395) = 1.87, p = 0.97$], gender [$\chi^2(3, n = 395) = 4.35, p = 0.23$], location of training [$\chi^2(4, n = 395) = 4.47, p = 0.35$], and location of practice [$\chi^2(4, n = 395) = 5.52, p = 0.24$] were not significantly associated with willingness to undergo lenRS. Whether an ophthalmologist offered RLE [$\chi^2(1, n = 365) = 15.30, p < 0.001$] or phakic IOL was significant [$\chi^2(1, n = 365) = 13.72, p < 0.001$] for a greater willingness to undergo lenRS. A significant

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