

# American Journal of Health, Medicine and Nursing Practice (AJHMN)



**The Graphical Results of Myopia after Refractive Surgical Treatment by Femto<sup>2nd</sup> Optical Maser-Assisted and Epiboly's LASEK (Eye-Surgery) have Remained Comparable.**

*Ihsan Ullah, Iftexhar Ahmd, Farrukh Nawab, Khalil Khan Zahir, and Irfanullah Khattak*



## The Graphical Results of Myopia after Refractive Surgical Treatment by Femto2nd Optical Maser-Assisted and Epiboly's LASEK (Eye-Surgery) have Remained Comparable.

Ihsan Ullah<sup>1</sup>, Iftekhhar Ahmed<sup>2</sup>, Farrukh Nawab<sup>3</sup>, Khalil Khan Zahir<sup>4</sup> and Irfanullah Khattak<sup>5</sup>

<sup>1</sup>Consultant Ophthalmology, DHQ hospital, Timergara, Dir-Lower, Pakistan.

<sup>2</sup>Professor of Ophthalmology, BMC Hospital, Swabi KTH Hospital, Peshawar, Pakistan.

<sup>3</sup>Medical officer Ophthalmology, DHQ Hospital, Timergmira, Lower Dir, Pakistan.

<sup>4</sup>Fellow Pediatric Ophthalmology, HMC, Peshawar, Pakistan.

<sup>5</sup>Assistant Professor, Pediatric Ophthalmology, HMC Hospital, Peshawar, Pakistan.

Corresponding Author: Ihsan Ullah

Corresponding Author's Email: [drihsanullah2002@gmail.com](mailto:drihsanullah2002@gmail.com)

### Abstract

**Background:** In this prospective cohort study (flap-off epi-eye-surgery), the results of femtosecond optical maser-assisted in situ keratomileusis (femto-eye-surgery) and epiboly eye-surgery refractive surgery for myopia were compared.

**Purpose:** Comparison of the results of eye-surgery myopia or myopic astigmatism improvement by a six-dimensional amaris excimer optical maser and establish that both femto-eye-surgery and flap-off epi-eye-surgery are safe, effective, and predictable in Amanat eye hospital Rawalpindi. The duration of the study was July 2019- July 2021. Sample size was 400 eyes, 200 patients, 81 male and 119 female. The study was conducted after the ethical approval of the hospital ethical committee.

**Methods:** Four hundred (400) eyes from 200 individuals were divided into two groups in this prospective cohort study. For femto-eye-surgery flaps, a femtosecond optical maser was used, while an epikeratome (flap-off) was used for epi-eye-surgery flaps. The researchers measured uncorrected distance visual acuity (u.d.v.a), corrected distance visual acuity (c.d.v.a), visible bending (m.r), corneal asphericity (q-value), and corneal higher-order aberrations (hoas) before and after surgery. In both groups, the improvement in logMAR UDVA following refractive surgery was statistically significant ( $p < 0.001$  for all); it was significantly higher for femto-eye-surgery 1 day and 1 week postoperatively ( $p < 0.001$  for femto-eye-surgery, respectively).

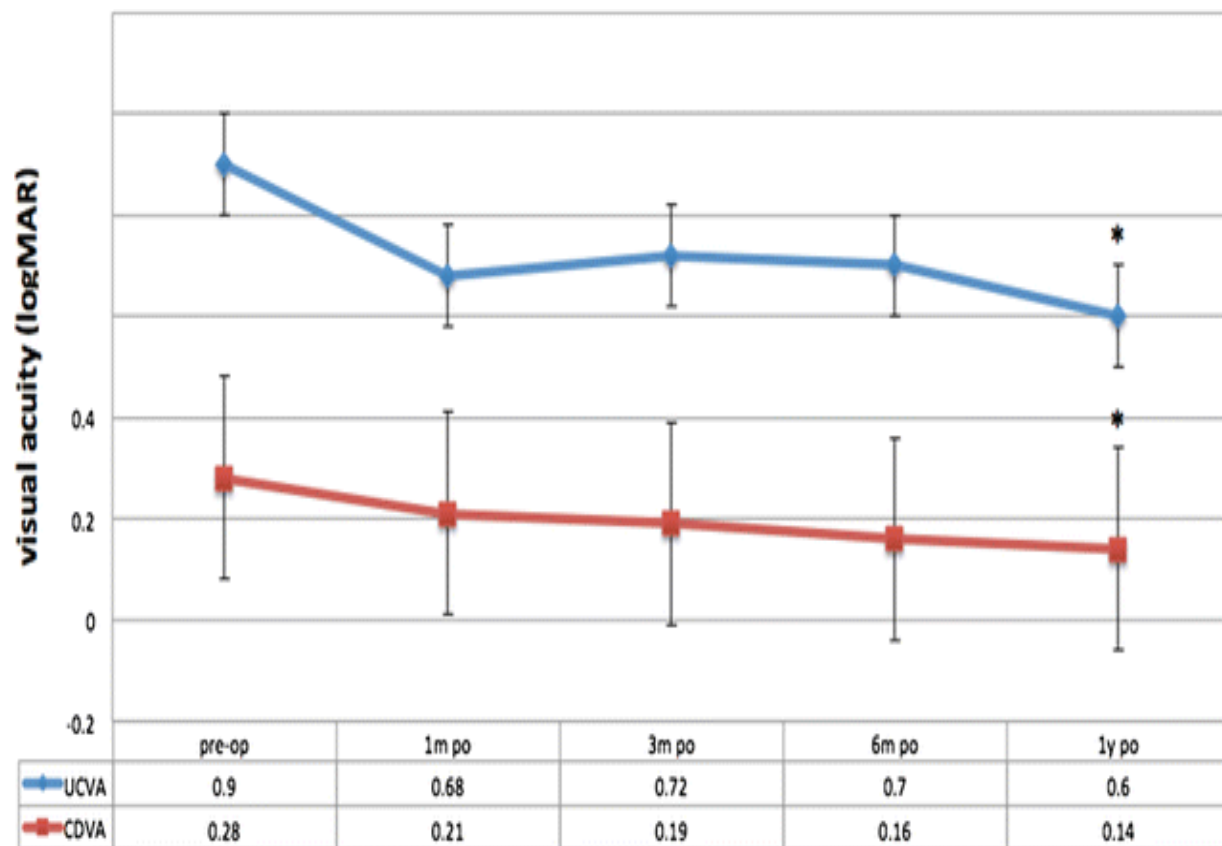
**Results:** Logarithm of the minimum angle of resolution (logMAR) of UDVA after refractive surgery was statistically significant for both groups ( $p = 0.002$ ); it was significantly higher for femto-eye-surgery than flap-off epi-eye-surgery ( $0.03 \pm 0.06$  logMAR (femto-eye-surgery) and  $0.54 \pm 0.31$  logMAR (flap-off epi-eye-surgery) at 1 day postoperatively;  $0.02 \pm 0.05$  logMAR (f the increase in spherical aberration (z4,0) in flap-off epi-eye-surgery was reater than femto-eye- surgery :  $0.626 \pm 0.232 \mu\text{m}$  and  $0.479 \pm 0.139 \mu\text{m}$  in the front cornea;  $0.556 \pm 0.227 \mu\text{m}$  and  $0.430 \pm 0.137 \mu\text{m}$  in the total cornea ( $p = 0.016$  and  $p = 0.017$ ). There was no significant impact of the changes to the corneal HOA in the back of the eye on the corneal HOA in general.

**Conclusion:** Despite the fact that femto-eye-surgery generated better early graphics results than flap-off epi-eye-surgery, there was no significant difference in the results one week following surgery.

**Keywords:** Myopia, Refractive Surgical, Femtosecond optical maser, Eye-surgery

## Introduction

Optical power of the eye undergoes modifications as it grows and matures. Myopia has become the most frequent medical issue among children and teenagers, with the cornea focusing light in front of the retina fairly than right on it. Orthokeratology (ortho-k) long utilized in children improve acquired vision and slow axial elongation. Refractive surgery may be more effective than ortho-k lens application in cases of moderate or severe myopia in patients older than twenty years. In the early nineties, photorefractive keratectomy was initially used to correct myopia surgically, and optical maser ablation refractive surgery was frequently employed for anterior segment surgery. It is now possible to entirely remove the epithelium because to developments in epithelium removal procedures. In the field of refractive surgery, femtosecond optical maser-assisted eye-surgery (femto-eye-surgery) and epipolis eye-surgery (epi-eye-surgery) have developed as innovative methods. Numerous studies have compared the graphical results of femto-eye-surgery and epi-eye-surgery (flap creation using a microkeratome) by comparing anterior corneal refraction errors. Early after refractive surgery, there was slightly more forward stray light after the femto-eye-surgery procedure than after other refractive surgery techniques; and this was significantly increased throughout the follow-up period after epi-eye-surgery surgery (flap creation using a epikeratome).



**Figure 1: Changes in U.D.V.A and C.D.V.A with both groups showing significant improvements**

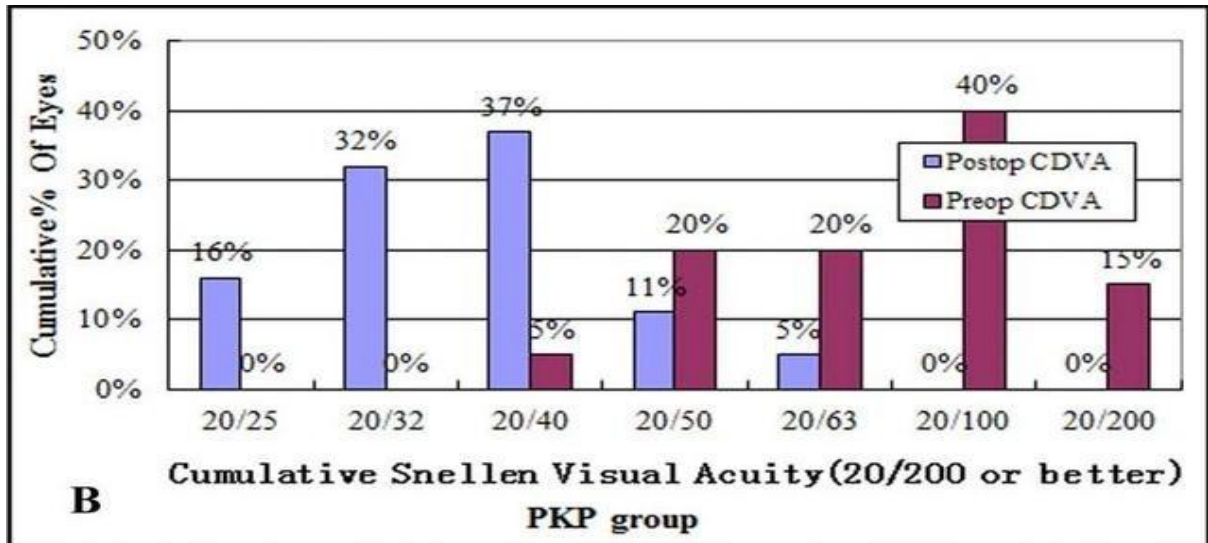


Figure 2: Changes in U.D.V.A and C.D.V.A showing significant improvements in both groups.

Table 1: Femo-eye-surgery and Flap-off Epi-eye-surgery have different preoperative parameters.

	Mean ± Standard Deviation	N=200	
Element	Femto-eye-surgery	Flap-off epi-eye-surgery	<i>P</i> -value
S.E (D)	-5.92 ± 2.23	-5.93 ± 1.90	0.772
K.1 (D)	39.32 ± 2.06	39.45 ± 2.12	0.827
K.2 (D)	42.53 ± 1.31	42.79 ± 2.20	0.979
A.D (μ.m)	99.15 ± 34.13	89.31 ± 27.57	0.813
A.C.D (m.m)	3.12 ± 0.26	3.25 ± 0.30	0.321
R.B.T (μ.m) <sup>a</sup>	265.01 ± 43.28	231.93 ± 39.11	0.676
C.C.T (μ.m)	497.14 ± 26.67	452.15 ± 29.55	0.459

*S.E* = spherical- equivalent; *K.1* = flat- keratometry; *K.2* = steep- keratometry; *A.D* = ablation- depth; *A.C.D* = anteriorchamber-depth; *R.B.T* = preoperative predict residual bed thickness; *C.C.T* = central corneal

**Table 2: Preoperative and postoperative changes in two groups are compared. N=200**

Factor	.Mean ± .Stan		P-value
	Femto-eye-surgery	Flap-off epi-eye-surgery	
<b>.K.1 (D)</b>			
.Pre-op	41.65 ± 1.25	39.81 ± 2.09	0.772
.Post-op	36.95 ± 2.52	33.04 ± 2.33	0.827
.P-value*....K <sub>2</sub> (D)	0.001	<0.001	
.Pre-op	42.79 ± 1.47	41.84 ± 2.11	0.979
.Post-op	26.74 ± 2.73	36.61 ± 2.40	0.941
.P-value*	0.003	<0.001	
<b>.CCT.(µm)</b>			
.Pre-op	487.15 ± 27.69	452.15 ± 28.76	0.592
.Post-op	365.27 ± 28.89	354.89 ± 43.54	0.082
.P-value*	<0.001	<0.001	
<b>.ACD.(mm)</b>			
.Pre-op	2.06 ± 0.24	2.28 ± 0.30	0.051
.Post-op	2.98 ± 0.22	3.19 ± 0.28	0.061
.P-value*	0.001	<0.001	
<b>.Q-value</b>			
<b>.(Ant.)Pre-op</b>			
	-0.41 ± 0.13	-0.39 ± 0.18	0.731
.Post-op	0.88 ± 0.65	0.73 ± 0.33	0.730
.P-value*	0.001	<0.001	
<b>.Q-value</b>			
<b>.(Post.)Pre-op</b>			
	-0.30 ± 0.11	-0.30 ± 0.08	0.298
.Post-op	-0.28 ± 0.10	-0.28 ± 0.09	0.229
.P-value*	0.068	0.337	

*K.1 = flattest keratometry reading; K.2 = steepest keratometry reading; C.C.T = central- corneal thickness; Pre-op = preoperative; Post-op = post-operative; A.C.D = anterior chamber depth (between endothelium to anteriorlens surface); A.n.t. = anterior corneal surface; P.o.s.t. = posterior corneal surface; .Q-value. = corneal asphericity.*

Helpless arranged whether Epi-eye-surgery remained achieved with or without a flap, it is classified as flap-on or flap-off. Flap-off epi-eye-surgery with mitomycin C (M.M.C) produces less pain, corneal haze, and faster graphical recovery, according to Ang et al. [11] and Zhang et al. [12], while graphical results, refractive results, contrast sensitivity (CS), and higher-order aberrations (HOAs) are comparable to flap-on epi-eye-surgery. To compare graphical findings and quality, Wen and colleagues [13] used a network meta-analysis. They discovered that femto-eye-surgery was more predictable than any other type of surgery in terms of graphical results (efficacy and safety) and graphical quality (HOAs and CS). Thinner corneas, higher intraocular pressure (IOP), and higher myopia demand more frequent eye doctor visits.

### **Patients Methods**

Between July 2019- July 2021. Sample size 400 eyes 200 patients 81 male and 119 female, at Amant Hospital Rawalpindi Department of Ophthalmology performed eye-surgery surgery on 400 eyes from 200 patients. The Institutional Review Board. Amanat Hospital Rawalpindi official this prospective cohort study procedure, which shadowed the Statement. Before the trial began, all patients signed a written informed permission form. Myopia was repaired with refractile surgery in the study participants, and their preoperative topography was normal. Total cases at minimum (one year) of stable alteration before refractile surgery and were monitored for at least one years afterward. Exclusion criteria included ocular pathology, retinal abnormalities, previous ocular surgery, comorbidities such as diabetes, autoimmune diseases, and endocrine diseases, dry eye complaints, and insufficient follow-up. Cases suffering corneal shakiness, haze, or other problems, as well as cases requiring retreatment, were excluded from the study. Cases were required to stop wearing soft contact lenses for two weeks and rigid gas penetrable (RGP) lenses for four weeks prior to surgery.

### **Assessment Preoperative**

Prior to surgery, all patients suffered a standard ophthalmologic examination. The investigation included a manifest refraction (MR), cycloplegic refraction, slit-lamp examination, ultrasonic pachymetry, dilated funduscopy, and intraocular pressure measurement with a Goldmann applanation tonometer. Uncorrected distance graphical acuity (UDVA) and corrected distance graphical acuity (CDVA) were measured using Snellen charts (CDVA). The CDVA was always tested with trial frames rather than contact lenses. The corneal asphericity (Q-value), corneal HOAs, and keratometry were all assessed using a Pentacam (OCULUS Optikgerate GmbH, Wetzlar, Germany). Under photopic settings (1300 lux), videokeratoscopy (Keratron Scout topographer, Optikon 1850 SpA, Rome, Italy) was used to assess corneal topography and HOAs, matching to those applied below an operational optical microscope to plan a surgery.

### **Postoperative Evaluation**

Postoperative evaluations were calculated on the day of surgery, one week later, one to three weeks later, and six months later, as well as one and one years later. Completely postoperative follow-up visits comprised the assessment of UDVA, CDVA, MR, and the recording of physical keratometry analyses. The Pentacam was used to measure central corneal thickness (CCT), corneal asphericity (Q-value), and corneal HOAs.

### **Surgical Procedures**

All treatment were directed towards emmetropia, and the treatment plan followed the Custom

Ablation Manager methodology. The ablations were carried out with the The Scholar 740<sup>S</sup> excimer laser (SCHWIND Eye-TechSolutions, Kleinostheim, Germany). In the aberration-free mode, ablation was done with an optimised aspheric profile. All of the surgeries were carried out by a single skilled surgeon (CKJ). Topical anaesthetic eye drops containing proparacaine (Alcaine, Alcon-Couvreur, Puur, Belgium) were utilised. The iFS Advanced Femtosecond Optical laser (Abbott Medical Optics, Inc., Irvine, CA, USA) was utilised to create femtosecond laser-assisted eye-surgery flaps with superior hinges, a flap thickness of 98 micrometres, and flap diameters of 8.2 or 8.5 millimetres. The flap-off epi-eye-surgery procedure was performed with the Epi-KTM epikeratome (Moria SA, Antony, France). After the flap was lifted, ablation was done on a 6.3-mm-diameter opticalzone.

### Statistical Analysis

Data entered into statistical analysis was achieved by S.P.S.S for version 21. To see if the statistics distribution was normal, the Shapiro-Wilk test was utilized. The Wilcoxon rank-sum test and the Mann-Whitney U -test were working for nonparametric analysis. P-values under 0.03 were considered significant.

### Results

A total of 400 eyes from 200 cases was divided on two groups founded on whether a flap was generated during femtosecond laser surgery (femto-eye-surgery) (flap-off epi-eye-surgery). The patients were all treated with the laser in the aberration-free mode. The characteristics of the two groups are summarized in table 1. The two groups' baseline ophthalmic features were not significantly different. Table 2 shows a comparison of pre- and postoperative changes in the two groups. keratometry was measured using a manual keratometer. there were no significant differences between the two groups for the flattest keratometry reading (k1), steepest keratometry reading (k2), c.c.t, or q.vale (ant. and post.). Both groups demonstrated significant changes in k1, k2, c.c.t, and q-value (ant.) before and after surgery (p 0.05 in femto-eye-surgery; total p 0.002 in flap-off epi-eye-surgery) shows the changes in the corneal thickness spatial profile (ctsp). at the 0-mm, 2-mm, 4-mm, and 8-mm rings of the cornea, there were no statistically significant differences in preoperative and postoperative values between the two groups (total p > 0.05), yet, after flap-off epi-eye-surgery, the 6-mm ring was statistically significantly thinner than after femto-eye-surgery (p = 0.039). Additional info can be obtained in figure 1 which shows changes in UDVA and CDVA. Both groups showed significant improvements in LogMAR UDVA (improvement) after surgery (total P 0.001). Femto-eye-surgery improved vision more than conventional eye-surgery at 1 day and 1 week (P 0.001 and P = 0.019, respectively). CDVA differences between the femto- eye-surgery and flap-off epi-eye-surgery groups were statistically significant at 1 day and 1 week postoperatively (P = 0.026 and P = 0.008, respectively). The despicable preoperative visible alteration round equal (MRSE) for the femto-eye-surgery and flap-off epi- eye-surgery groups, respectively, was -5.94 2.23 and -5.94 1.62 D (P = 0.904). After 1 day and 1 week, the flap-off epi-eye-surgery group had statistically higher myopic refraction errors than the femto-eye-surgery group (P = 0.01 and P = 0.009, respectively).

### Discussion

Study shows that looked into whether consuming a femto-second laser to make flaps is more successful than using an epi-eye surgery. In this study, we associated the results of femto-eye-

surgery with epi-eye-surgery (flap creation using a epikeratome which is more higher flap formation than microkeratome). In addition, Kalyvianaki MI et al. found that epi-eye-surgery and off-flap epi-eye-surgery gave equivalent graphical and refractive results in the treatment of low and middle myopia. In another study, Na et al. discovered that off-flap epi-eye-surgery surgery produced greater graphical recovery and corneal re-epithelialization than epi-eye-surgery surgery in the early postoperative period. Moreover, despite the fact that femto-eye-surgery provides for precise, safe, and predictable flap implantation, intraoperative or postoperative problems can occur in some cases as a result of the procedure. As a result, in the current study, The researchers examined the graphical and refractive results of femto-EYE- SURGERY and flap-off epi-eye-surgery surgery in myopic and myopic astigmatism; nevertheless, there were no significant differences in these results after one years.

Surface ablation techniques (e.g., photorefractive keratectomy , transepithelial photorefractive keratectomy optical maser epithelial keratomileusis eye surgery and epipolis optical maser in situ keratomileusis epi-eye-surgery are less painful and provide faster graphical therapy than stromal ablation methods (such as optical maser in situ keratomileusis with a flap created either automatically with a microkeratome or with a femtosecond optical maser- based microkeratome [femto-eye-surgery ]). Corneal haze, on either side, is caused by cornea backward light scattering paired with a decrease in corneal transparency. Increased ablation volume which has been shown to increase backscattering], and cases of severe myopia require higher ablation may require a higher dose of MMC during the refractile surgery According to Sia et al. and Chen et al. , M.M.C was effective in reducing corneal haze without delaying epithelialization. There were no significant differences detected in the current investigation. When compared to the flap-off epi-eye-surgery group, the femto-eye-surgery group had statistically significant improvements in graphical acuity and refractive errors after 1 day and 1 week; nevertheless, the two surgical procedures had equal effects for the rest of the follow-up period.

Refractile surgery works by inducing positive SA shifts for myopia correction and negative shifts for myopia correction Furthermore, the S.C.H.W.I.N.D Amaris 740S excimer optical maser concept includes the use of an optimised aspheric profile to avoid surgically induced HOAs, particularly SA and coma aberration. In low and moderate myopic patients, however, there was a statistically significant and slight induction of SA between preoperative and postoperative eye-surgery surgery (0.122 0.216 in femto-eye-surgery and 0.123 0.217 in epi-eye-surgery, respectively; data not shown), and a much more significant induction of SA in high myopic patients (0.304 0.130 in femto-eye-surgery and 0.457 0.147 in epi-eye-surgery. Adaptive optics systems were used to investigate the effect of SA on depth of focus. For a fixed f-number, the depth of focus is relatively insensitive to focal length and subject distance. Myopia is a condition in which light focuses in front of rather than on the retina. The goal of myopic or hyperopic refractile surgery is to change the keratometric power to correct the Acquired vision

The elements that influence optical and graphical quality following epi-eye-surgery in high myopia individuals were investigated, and it was determined that constructing a wider optical zone diameter was advised for improved graphical quality after surgery. Wider studies with a larger population of patients are needed to assure more trustworthy results due to the small sample size in this study.



## Conclusions

Refractive surgery is a common surgical technique that removes the need for glasses or contact lenses. Our research demonstrated that both femto-eye-surgery and flap-off epi-eye-surgery are safe, successful, and predictable refractive procedures. We also discovered that flap-off epi-eye-surgery was an efficient surgical procedure for patients who did not have corneal ectasia after refractive surgery. Femto-eye-surgery is a viable option and can be a better surgical method that results in less postoperative SA and better pictorial results in the early stages of recovery.

## References

1. Cheung SW, Boost MV, Cho P. Pre-treatment observation of axial elongation for evidence-based selection of children in Hong Kong for myopia control. *Cont Lens Anterior Eye* 2018;pii: S1367- 0484(18)30870-1.
2. Wang B, Naidu RK, Qu X. Factors related to axial length elongation and myopia progression in orthokeratology practice. *PLoS One* 2017;12:e0175913.
3. Munnerlyn CR, Koons SJ, Marshall J. Photorefractive keratometry: a technique for optical laser refractive surgery. *J Cataract Refract Surg* 1988;14:46-52.
4. Patel SV, Maguire LJ, McLaren JW, Hodge DO, Bourne WM. Femtosecond optical laser versus mechanical microkeratome for EYE-SURGERY: a randomized controlled study. *Ophthalmology* 2007;114:1482-1490.
5. Lim T, Yang S, Kim M, Tchah H. Comparison of the IntraLase femtosecond optical laser and mechanical microkeratome for optical laser in situ keratomileusis. *Am J Ophthalmol* 2006;141:833-9.
6. Kezirian GM, Stonecipher KG. Comparison of the IntraLase femtosecond optical laser and mechanical keratomes for optical laser in situ keratomileusis. *J Cataract Refract Surg* 2004;30:804-11.
7. Durrie DS, Kezirian GM. Femtosecond optical laser versus mechanical keratome flaps in wavefront-guided optical laser in situ keratomileusis: prospective contralateral eye study. *J Cataract Refract Surg* 2005;31:120- 6.
8. Tanna M, Schallhorn SC, Hettinger KA. Femtosecond optical laser versus mechanical microkeratome: a retrospective comparison of graphical results at 3 months. *J Refract Surg* 2009;25:S668-671.
9. Xu L, Wang Y, Li J, et al. Comparison of forward light scatter changes between smile, femtosecond optical laser-assisted EYE-SURGERY, and epi-epi EYE-SURGERY: Results of a 1-year prospective study. *J Refract Surg* 2015;31:752-8.
10. RE, Reyes KB, Hernandez JA, Tchah H. Wavefront-guided epithelial optical laser in situ keratomileusis with mitomycin-C for myopia and myopic astigmatism: flap-on versus flap-off technique. *J Cataract Refract Surg* 2011;37:1133-9.
11. Zhang Y, Chen YG, Xia YJ, Qi H. Comparison of tear cytokines and clinical results between off-flap and on-flap epi-EYE-SURGERY with mitomycin C. *J Refract Surg* 2012;28:632-8.

12. Wen D, McAlinden C, Flitcroft I, et al. Postoperative efficacy, predictability, safety, and graphical quality of optical maser corneal refractive surgery : A network meta-analysis. *Am J Ophthalmol* 2017;178:65-78.
13. Baek T, Lee K, Kagaya F, Tomidokoro A, Amano S, Oshika T. Factors affecting the forward shift of posterior corneal surface after optical maser in situ keratomileusis. *Ophthalmology* 2001;108:317-320.
14. Ambrosio R, Caiado AL, Guerra FP, et al. Novel pachymetric parameters based on corneal tomography for diagnosing keratoconus. *J Refract Surg* 2011;27:753-8.
15. Muftuoglu O, Ayar O, Ozulken K, Ozyol E, Akinci A. Posterior corneal elevation and back difference corneal elevation in diagnosing forme fruste keratoconus in the fellow eyes of unilateral keratoconus patients. *J Cataract Refract Surg* 2013;39:1348-1357.
16. Byun YS, Chung SH, Park YG, Joo CK. Posterior corneal curvature assessment after Epi-EYE-SURGERY for myopia: comparison of Orbscan and Pentacam imaging. *Korean J Ophthalmol* 2012;26:6-9.
17. Piao J, Li YJ, Whang WJ, et al. Comparative evaluation of graphical results and corneal asphericity after optical maser-assisted in situ keratomileusis with the six-dimension Amaris excimer optical maser system. *PLoS One* 2017;12:e0171851.
18. Kalyvianaki MI, Kymionis GD, Kounis GA, Panagopoulou SI, Grentzelos MA, Pallikaris IG. Comparison of epi-EYE-SURGERY and off-flap epi-EYE-SURGERY for the treatment of low and moderate myopia. *Ophthalmology* 2008;115:2174-2180.
19. Na KS, Lee KM, Park SH, Lee HS, Joo CK. Effect of flap removal in myopic epi-EYE-SURGERY surgery on graphical rehabilitation and postoperative pain: a prospective intraindividual study. *Ophthalmologica* 2010;224:325-331.
20. dos Santos AM, Torricelli AA, Marino GK, et al. Femtosecond optical maser-assisted eye-surgery flap complications. *J Refract Surg* 2016;32:52-9.
21. Braunstein RE, Jain S, McCally RL, Stark WJ, Connolly PJ, Azar DT. Objective measurement of corneal light scattering after excimer optical maser keratectomy. *Ophthalmology* 1996;103:439-443.
22. Shojaei A, Ramezanzadeh M, Soleyman-Jahi S, Almasi-Nasrabadi M, Rezazadeh P, Eslani M. Short-time mitomycin-C application during photorefractive keratectomy in patients with low myopia. *J Cataract Refract Surg* 2013;39:197-203.
23. Virasch VV, Majmudar PA, Epstein RJ, Vaidya NS, Dennis RF. Reduced application time for prophylactic mitomycin C in photorefractive keratectomy. *Ophthalmology* 2010;117:885-9.
24. Sia RK, Ryan DS, Edwards JD, Stutzman RD, Bower KS. The U.S. Army Surface Ablation Study: comparison of PRK, MMC-PRK, and LASEK in moderate to high myopia. *J Refract Surg* 2014;30:256-264.

25. Cheung SW, Cho P. Long-term effect of orthokeratology on the anterior segment length. *Cont Lens Anterior Eye* 2016;39:262-5. hen J, Chen Y, Han SN. Comparison of TGF- $\beta$ 1 in tears and corneal haze following Epi-EYE- SURGERY with and without mitomycin C. *Int J Ophthalmol* 2013;6:312-5.

26. McAlinden C, Moore J. Comparison of higher order aberrations after EYE-SURGERY and LASEK for myopia. *JRefract Surg* 2010;26:45-51.