

## Kershner Operative Worksheet

**Eye Laser Center**

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Patient Name: \_\_\_\_\_  
 Age: \_\_\_\_\_ Occupation: \_\_\_\_\_  
 Dominant Eye: \_\_\_\_\_ Date: \_\_\_\_\_

V R20/\_\_\_\_ V R20/\_\_\_\_ J R\_\_\_\_  
 sc L20/\_\_\_\_ cc L20/\_\_\_\_ L\_\_\_\_

WEARS: R\_\_\_\_ + \_\_\_\_ X\_\_\_\_  
 Glasses: L\_\_\_\_ + \_\_\_\_ X\_\_\_\_  
 ADD: \_\_\_\_\_ Last Rx \_\_\_\_\_

C R \_\_\_\_ + \_\_\_\_ X\_\_\_\_

WEARS: R\_\_\_\_ + \_\_\_\_ X\_\_\_\_  
 Glasses: L\_\_\_\_ + \_\_\_\_ X\_\_\_\_  
 Last Rx: \_\_\_\_\_

L \_\_\_\_ + \_\_\_\_ X\_\_\_\_

K R \_\_\_\_ V \_\_\_\_ H \_\_\_\_ °

L \_\_\_\_ V \_\_\_\_ H \_\_\_\_ °

**O.D.**

**O.S.**

O.Z. \_\_\_\_ mm ARC LENGTH \_\_\_\_ mm

O.Z. \_\_\_\_ mm ARC LENGTH \_\_\_\_ mm

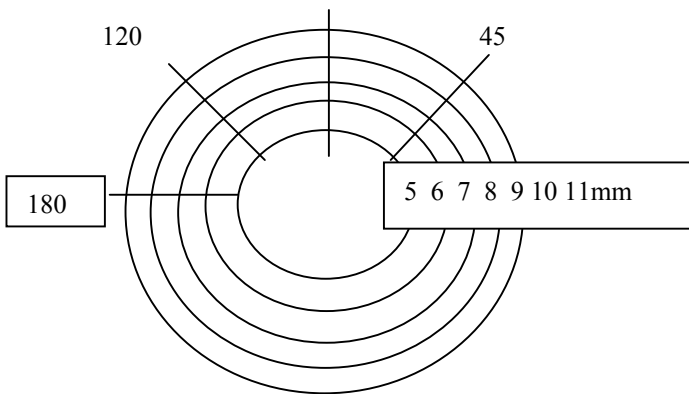
AXIS: \_\_\_\_\_

AXIS: \_\_\_\_\_

90

**OPERATIVE EYE:** \_\_\_\_\_

IOL Style \_\_\_\_\_ Power \_\_\_\_\_



**PACHYMETRY** \_\_\_\_\_

**PACHYMETRY** \_\_\_\_\_

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## Keratolenticuloplasty

1. The goal of surgery is to fully correct or undercorrect the pre-existing astigmatism. If the patient is undercorrected, more surgery can be performed later if needed. Overcorrecting the cylinder or shifting the axis more than 15 degrees is to be avoided. Remember, in older patients, the less elastic cornea responds with greater changes in curvature for a given amount of surgery.
2. Keep the incisions at the clear corneal limbus or slightly onto the dome of the cornea. Avoid arcuate incisions inside the 7-mm optical zone. If it is possible to achieve the same degree of correction with a larger arc at the limbus with a 10mm optical zone, select this option over a smaller arc at a 8-mm or 9-mm optical zone. Larger incisions are always preferred further away from the optical zone than smaller arcs nearer the central cornea. Remember, the effect of corneal incisions to flatten decreases as the distance from the optical center of the eye increases.
3. Arcuate incisions should never exceed 60° in length at any optical zone and, ideally, the largest arc should be no greater than 45° or 3.5 mm at an optical zone of 10mm.
4. To achieve the maximum flattening and best neutralize the astigmatism, incise the cornea to a depth of 85% to 95% of corneal thickness. Measure pachymetry at the proposed incision site and set the diamond blade to 90% of this measurement or simply use the disposable accurate depth metal blade preset at 550 or 600 microns. Do not over cut into the cornea as perforating the cornea makes phacoemulsification and maintaining the anterior chamber more difficult. If perforation should occur, it may be necessary to suture the incision. This will induce further flattening, but the suture can be removed at the slitlamp in a few days.
5. Whenever possible, a single arcuate incision will be preferable to using two smaller incisions.
6. Always use the arcuate incision closest to the surgeon for the keratotomy into the anterior chamber. Place this incision anterior to the limbal vascular arcade at a 11mm, 10 mm, or 9 mm optical zone. Avoid using the arcuate incision for the subsequent cataract surgery if it is closer to the optical center of the eye than the 8-mm optical zone.
7. To avoid full thickness penetration, avoid pressing on the globe with another instrument during the creation of the arcuate incision. Use the disposable fixation ring to stabilize the eye, if needed. Mark the proposed position of the incision at the steepest plus-cylinder reading.
8. It is easier to visualize the marks and incise the cornea if the cornea is kept dry. Avoid using marking inks. They obscure visualization for subsequent procedures of cataract surgery. A clean marker gently pressed onto the epithelium will create a visible mark to use as a guideline in creating the incision.
9. Always place the arcuate corneal cataract incision on the axis of steepest (+) astigmatism. Operating on the incorrect axis will always make the refractive result worse. Axis is crucial. Never operate greater than 15° off axis.
10. Keep the keratome fully applanated perpendicular to the surface of the cornea. Aim the blade towards the center of the globe and follow the curvature of the cornea closely following the mark until the full excursion of the incision is completed.
11. The slit blade, sized for the phacoemulsification tip and injection system, is placed at the base of the arcuate incision to enter the eye plane-parallel to the iris. The handle should be aimed at the center of the pupil to assure an incision which self-seals and has the proper architecture for the best refractive result.

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## Kershner Arcuate Keratotomy Incision-Only System Nomograms

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Correction (Diopters)	Optical Zone (mm)	Number of Incisions	Arcuate Incision Length (mm)
<1.0	10	1	2.5
1.0	9	1	2.5
1.5	9	1	3.0
2.0	8	2	2.5
2.5	8	2	3.0
3.0	7	2	2.5
3.5	7	2	3.0
4.0	6 10	1 1	2.5 2.5
4.5	6 10	1 1	3.0 2.5
5.0	6 10	1 1	3.0 2.5
5.5	5 10	1 1	2.5 2.5
6.0	5 10	1 1	3.0 3.0

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This nomogram is to be used when incisions alone are utilized to correct the cylinder. They are a guideline only, surgeons should adjust for the desired result. Corrected for age 60+. Arcs placed on steepest axis of astigmatism (plus cylinder). Pachymetry at incision site, keratome set to 95% of pachymetry (550-600 microns). Mark arcuate incisions and optical zone with Kershner One-Step Marker. Cataract keratotomy at 10 mm, 9 mm, or 8 mm only.

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## Kershner Arcuate Keratotomy With Toric IOL System Nomograms

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Correction (Diopters)	Optical Zone (mm)	Number of Incisions	Arcuate Incision Length (mm)	TORIC IOL
<1.0	10	1	2.5	
1.0	9	1	2.5	
<b>1.5</b>	<b>9</b>	<b>1</b>	<b>3.0</b>	<b>+2.00 Toric</b>
2.0	9	1	3.0	<b>+2.00 Toric</b>
<b>2.5</b>	<b>9</b>	<b>1</b>	<b>3.0</b>	<b>+3.50 Toric</b>
3.0	9	2	3.5	<b>+3.50 Toric</b>
3.5	8	1	3.0	<b>+3.50 Toric</b>
	10	1	3.0	
<b>4.0</b>	<b>8</b>	<b>1</b>	<b>3.5</b>	"
	10	1	3.5	
4.5	8	1	4.0	"
	10	1	4.0	
5.0	8	1	4.5	"
	10	1	4.5	
5.5	8	1	5.0	"
	10	1	5.0	
6.0	8	1	5.5	"
	10	1	5.5	

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This nomogram is to be used when incisions are utilized in combination with the toric IOL to correct the cylinder. They are to be used as a guideline only, surgeons should adjust for the desired result. Corrected for age 60 +. Arcs placed on steepest axis of astigmatism (plus cylinder). Pachymetry at incision site, keratome set to 95% of pachymetry (550-600 microns). Mark arcuate incisions and optical zone with Kershner One-Step Marker. Cataract keratotomy at 10 mm, 9 mm, or 8 mm only.

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