

NOMOGRAM FOR CLEAR CORNEAL PHACO SURGERY

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- ASTIGMATIC STATUS = “**SPHERICAL**”: (+0.75 X 90 ---- +0.50 X 180)

***Incision Design = “Neutral” temporal clear corneal incision
(3.5 mm. or less, single plane, just anterior to vascular arcade)***

ASTIGMATIC STATUS = “**AGAINST-THE-RULE**”: Steep Axis 0-30°/ 150-180°):

Intraoperative keratoscopy determines exact incision location

PRE-OP CYLINDER		30-40 yo	41-50 yo	51-60 yo	61-70 yo	71-80 yo	81-90 yo	> 90
+0.75 to +1.25	nasal limbal arc only						35°	
	*paired limbal arcs on steep axis	55°	50°	45°	40°	35°		
+1.50 to +2.00	*paired limbal arcs on steep axis	70°	65°	60°	55°	45°	40°	35°
+2.25 to +2.75	*paired limbal arcs on steep axis	90°	80°	70°	60°	50°	45°	40°
+3.00 to +3.75	*paired limbal arcs on steep axis	o.z. to 8 mm 90°	o.z. to 8 mm 90°	85°	70°	60°	50°	45°
		Degrees of arc to be incised						

**The temporal incision is made by first creating a two-plane, grooved phaco incision (600m.depth), which is then extended to the appropriate arc length at the conclusion of surgery.*

- ASTIGMATIC STATUS = “**WITH-THE-RULE**”: (Steep Axis 45°-145°):

Intraoperative keratoscopy determines exact incision location

Incision Design = “Neutral” temporal clear corneal along with the following peripheral arcuate incisions:

PRE-OP CYLINDER		30-40 yo	41-50 yo	51-60 yo	61-70 yo	71-80 yo	81-90 yo	>90
+1.00 to +1.50	paired limbal arcs on steep axis	50°	45°	40°	35°	30°		
+1.75 to +2.25	paired limbal arcs on steep axis	60°	55°	50°	45°	40°	35°	30°

+2.50 to +3.00	paired limbal arcs on steep axis	70°	65°	60°	55°	50°	45°	40°
+3.25 to +3.75	paired limbal arcs on steep axis	80°	75°	70°	65°	60°	55°	45°
		Degrees of arc to be incised						

The NAPA Nomogram

*Nichamin Age & Pach-Adjusted
Intralimbal Arcuate Astigmatic Nomogram*

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Begin with the amount of refractive cylinder derived from the manifest refraction, then apply the *Thornton modifiers to arrive at an adjusted (theoretical) value:

- Add 1% for each year below the age of 30
- Subtract 1% for each year above the age of 30

Incisions are placed just inside the limbus. Paired incisions may be placed at the 9.5 mm. and 10.5 mm. optical zone.

Pachymetry is taken over the entire arc length to be incised, and blade depth is set at 100% of the thinnest reading obtained.

Preoperative Cylinder (diopters)	Arc Length of Incisions (degrees of arc)	Arc Length of Incisions When Combined With or Following Placement of Radial Incisions (degrees of arc)
0.75	35	22
1.00	40	25
1.25	50	30
1.50	55	32
1.75	60	35
2.00	70	40
2.25	80	45
2.50	90	50
2.75	2 prs. each 60	60

3.00	2 prs. each 65	65
3.25	2 prs. each 70	70
3.50	2 prs. each 75	75
3.75	2 prs. each 80	80
4.00	2 prs. each 90	90

As seen, when placing intralimbal incisions following or concomitant with radial relaxing incisions, total arc length is decreased by approximately 50%.

If topography indicates quantitative asymmetry between hemimeridia, consider applying a similar ratio to the arc length of each corresponding incision.

If topography indicates nonorthogonal astigmatism, consider adjusting each hemimeridional axis accordingly.

When combined with cataract surgery, see “clear corneal phaco plus” nomogram.

**It is recognized that this nomogram is derived from the original work of D. Stephen Hollis, M.D. and refined through the use of Spencer Thornton's astigmatic keratotomy principles.*

