

17TH INTERNATIONAL CONFERENCE OF THE
RESEARCH INSTITUTE OF OPHTHALMOLOGY

RIO 2025

*Anterior Segment Eye Diseases
Current Status & Future Directions*



Post graft phaco - caring for the cornea

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why does this matter?

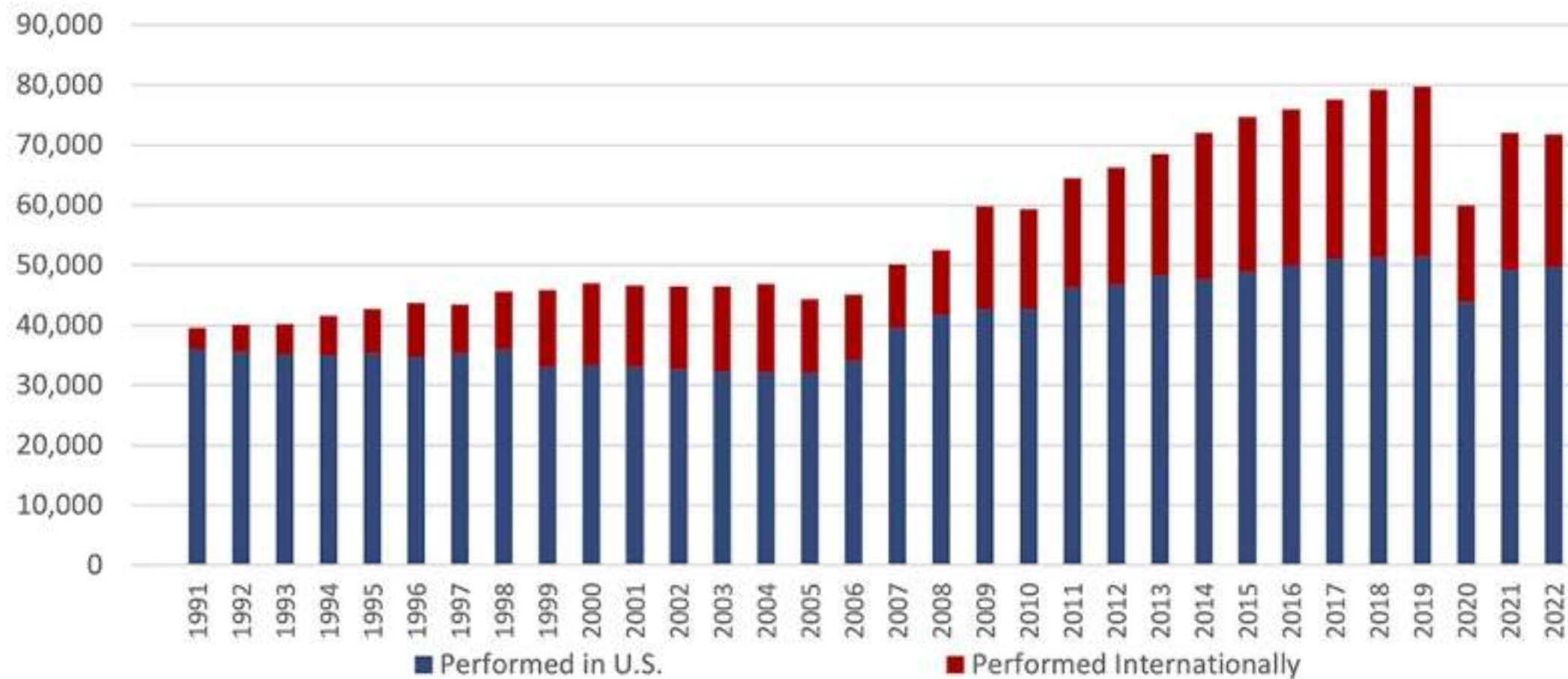
- Increase in corneal transplant rates

Figure 1 Corneas retrieved by NHSBT and corneas transplanted, by year
1 January 2004 - 31 December 2023



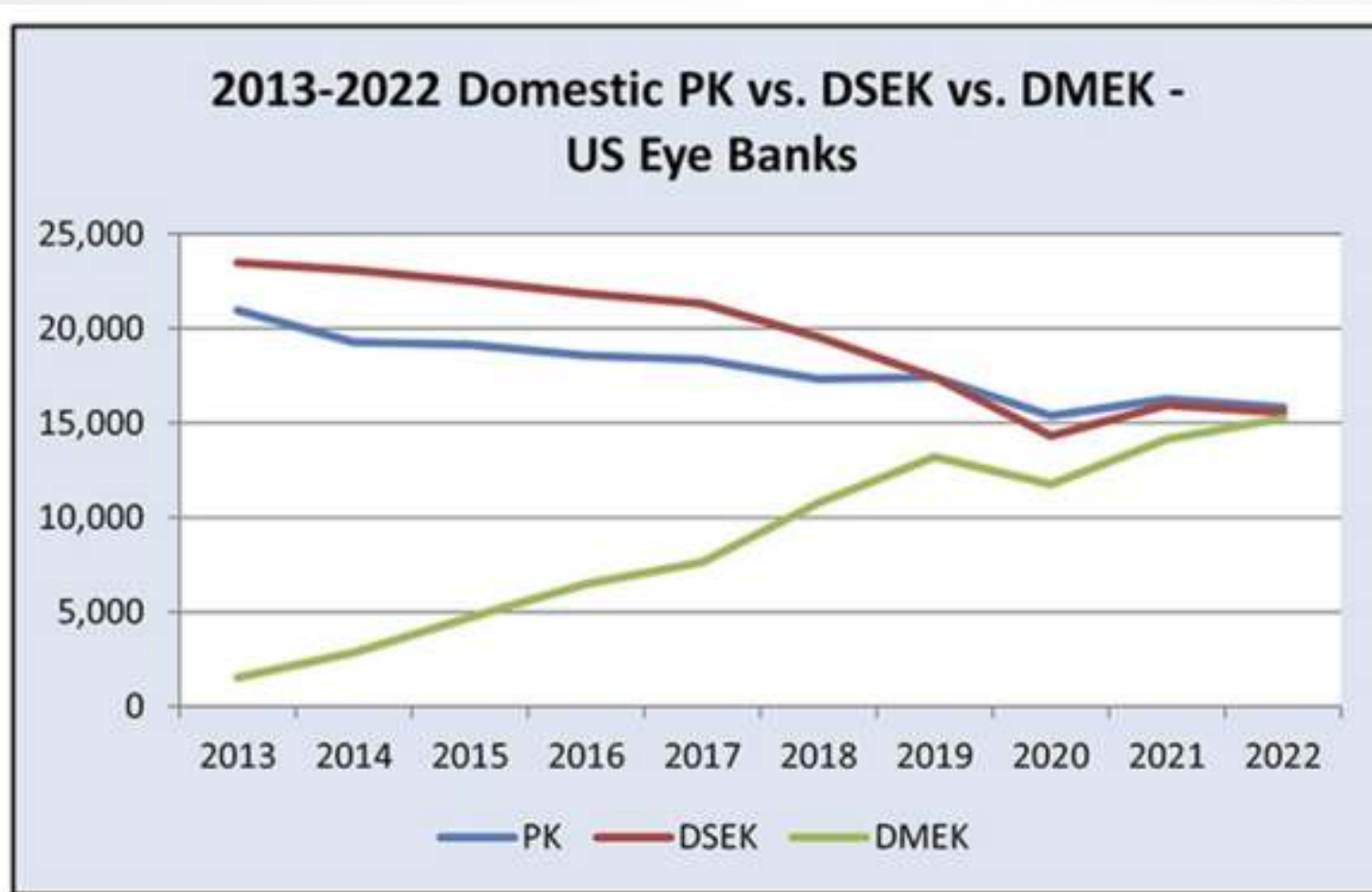
OTAG(24)04/8.

Corneal Transplants Supplied by US Eye Banks in Intermediate-term Storage Solution



why does this matter?

- Increase in lamellar transplant techniques



why does this matter?

- EK and PK accelerate cataract formation
 - 10-fold increase post-DSEK (Price et al 2010)
 - 81% PK need phaco within 5 years (Martin et al 1994)

planning the surgery

1. Timing

- Better to remove a soft cataract sooner, or a harder cataract later?
- Refractive stability post-graft

<i>Manual Entry</i>			<i>LS900 06-Dec-2024 - 1</i>		
	AL [mm]	22.96		R1[mm/D/°]	8.01 / 42.12 @ 169
	CCT [μm]	525		R2[mm/D/°]	7.82 / 43.18 @ 79
	AD [mm]	2.49		R [mm/D]	7.92 / 42.64
	ACD [mm]	3.01		+AST [D/°]	1.06 @ 79
	LT [mm]	4.77*		n	1.3375

planning the surgery

1. Timing
2. Indication for the graft
 - HSK?
 - Neurotrophic?



planning the surgery

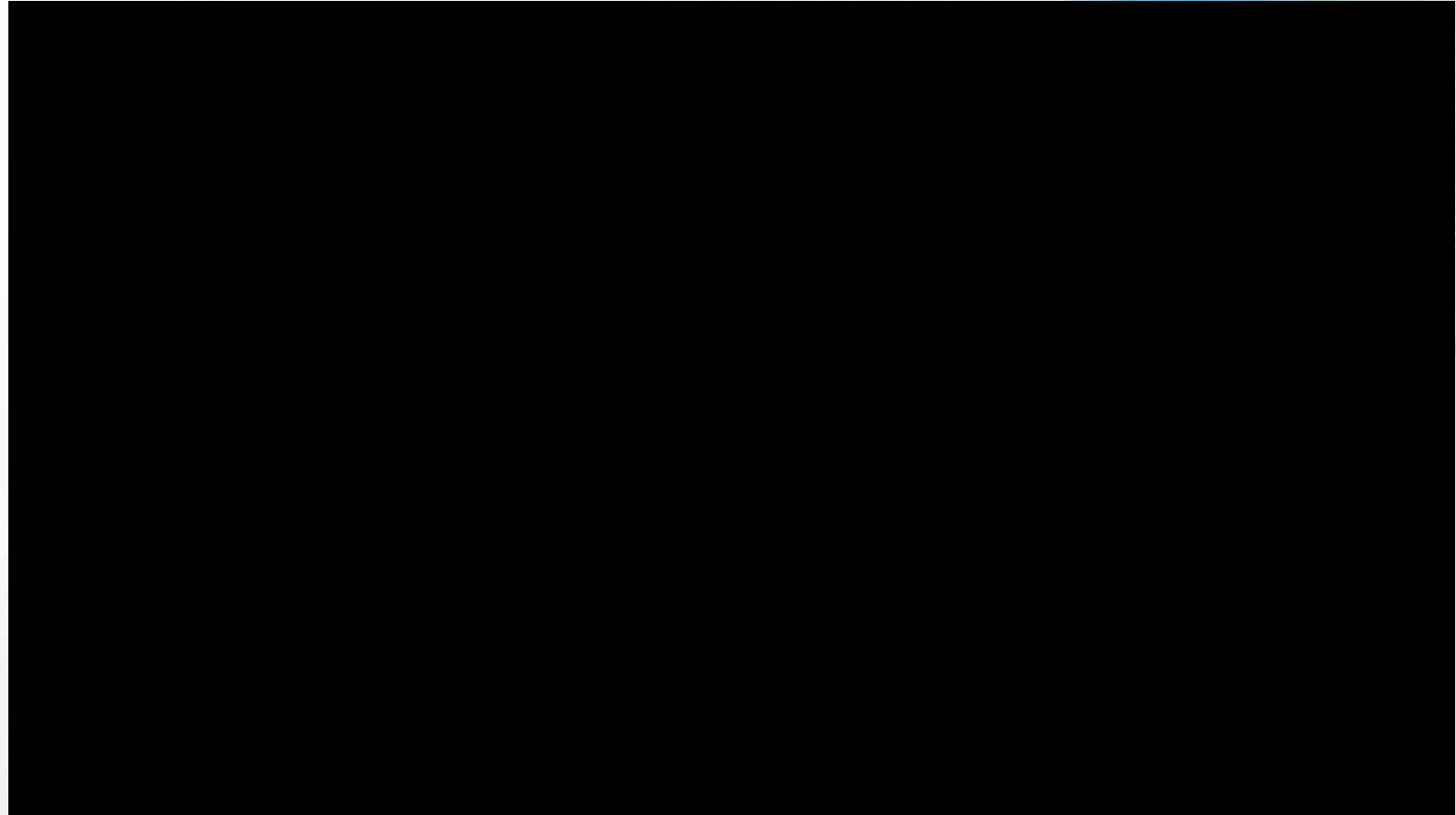
1. Timing
2. Indication for the graft
 - HSK?
 - Neurotrophic?



doing the surgery

1. incision

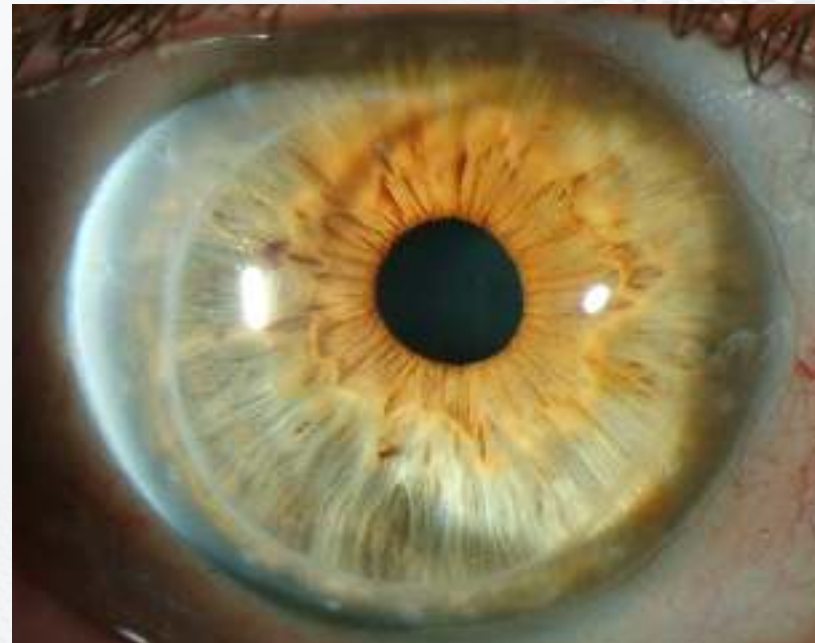
- avoid the graft



doing the surgery

1. incision

- avoid the graft
- avoid the interface

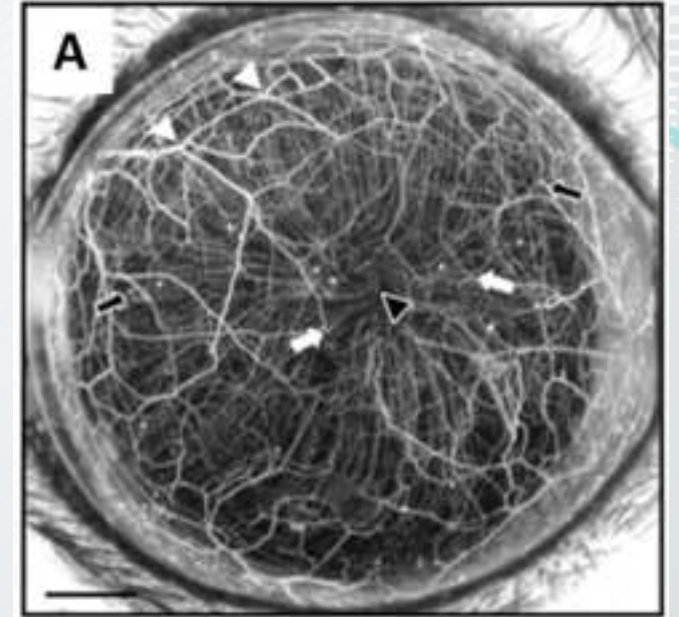


doing the surgery

1. incision

2. epithelium

- Post-PK, innervation abnormal forever (Patel et al 2007)
- Sensation normal after 1 year (Darwish et al 2007)



Shaheen et al 2014

doing the surgery

1. incision
2. epithelium
3. endothelium

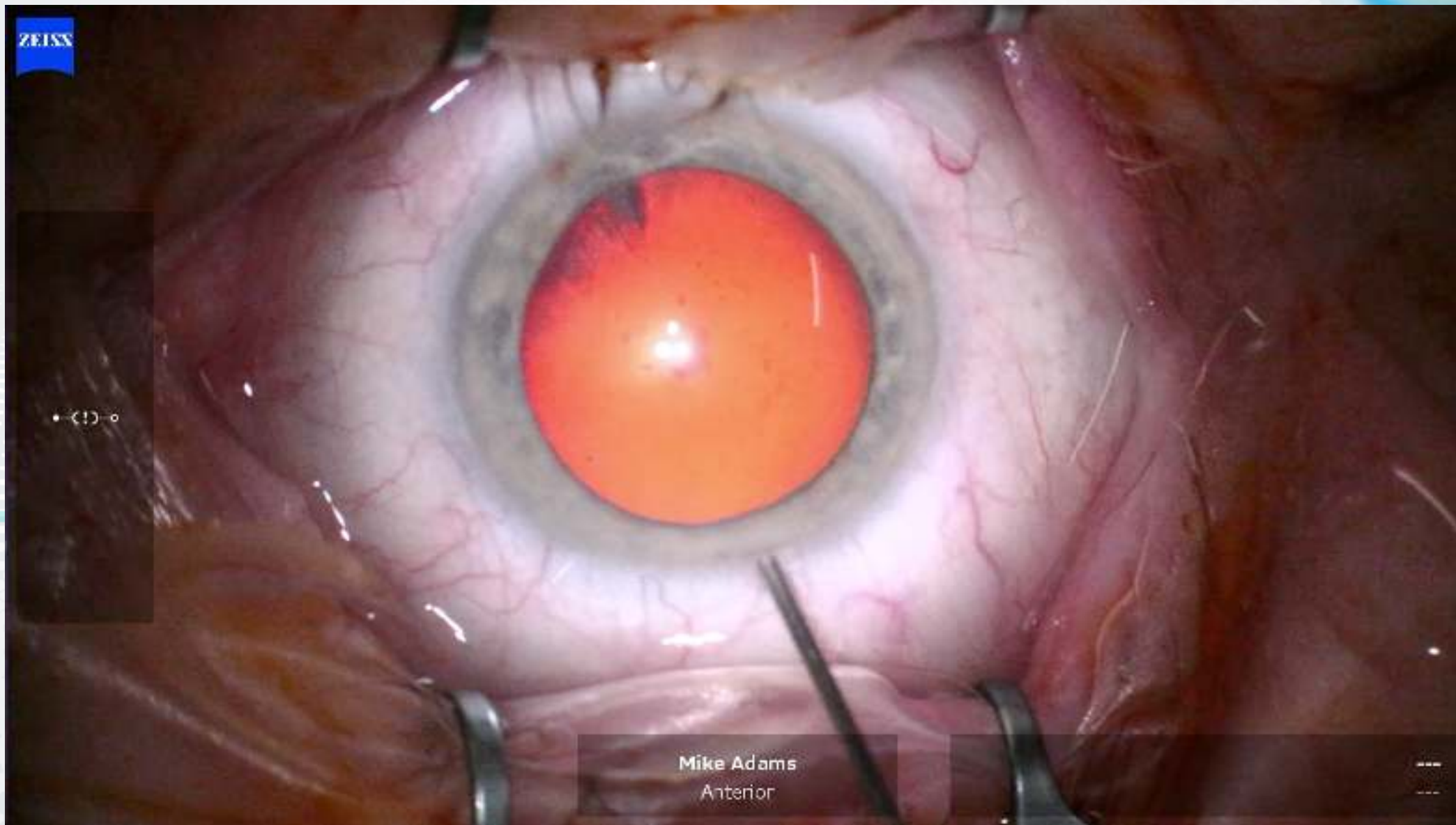
- Grafted corneas lose more endothelial cells during *and* after phaco
(Kim & Kim 2010)

doing the surgery

1. incision
2. epithelium
3. endothelium
 - soft-shell technique



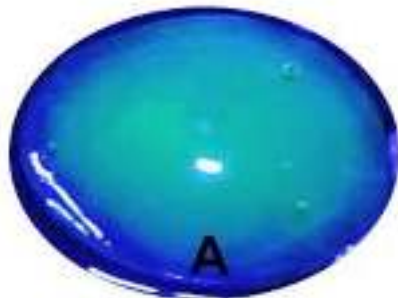
doing the surgery - soft shell



doing the surgery - soft shell

Yildirim TM, *et al. BMJ Open Ophth* 2019;**4**:e000227.

**Healon
EndoCoat**



86%

Healon



30%

Healon GV

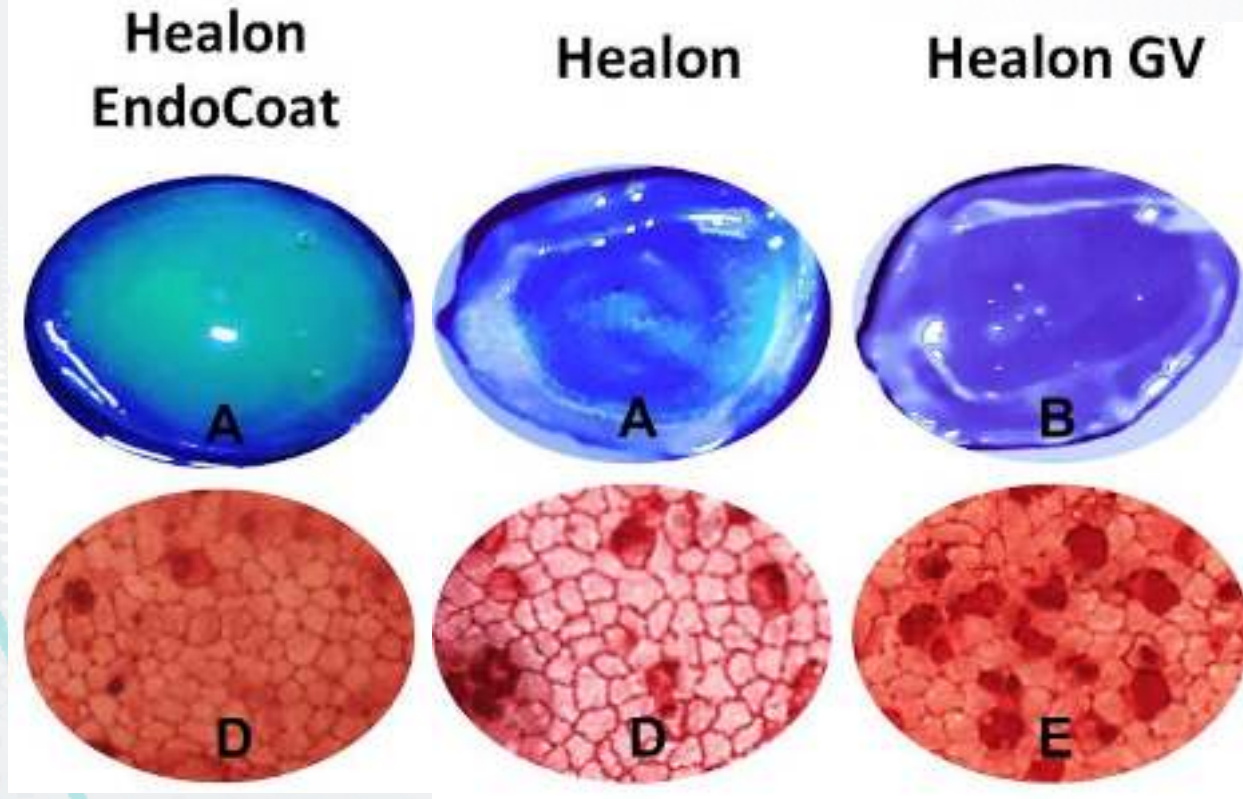


20%

% endothelial cell coverage

doing the surgery - soft shell

Yildirim TM, *et al. BMJ Open Ophth* 2019;**4**:e000227.



4015

3739

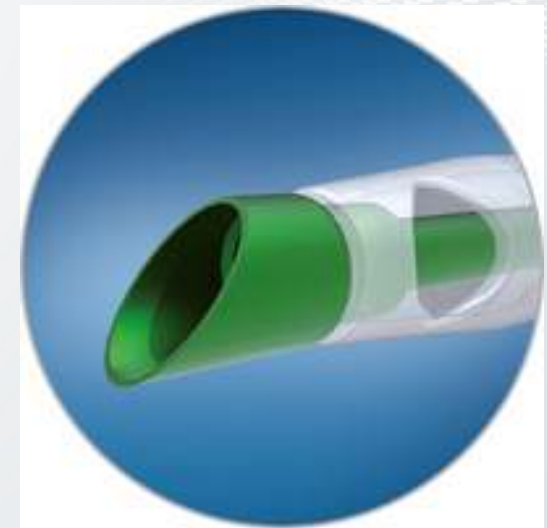
3752

Dark red = dead

cells/mm²

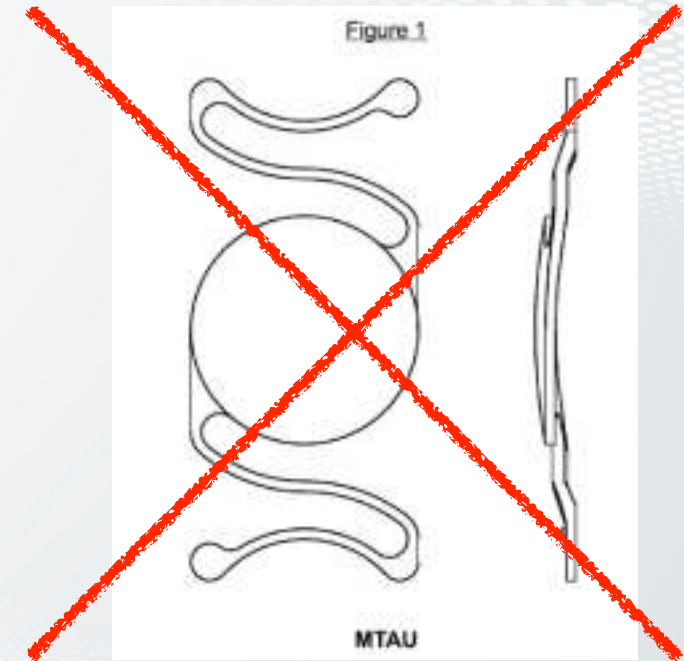
doing the surgery

1. incision
2. epithelium
3. endothelium
 - soft-shell technique
 - check irrigation ports
 - minimise phaco energy



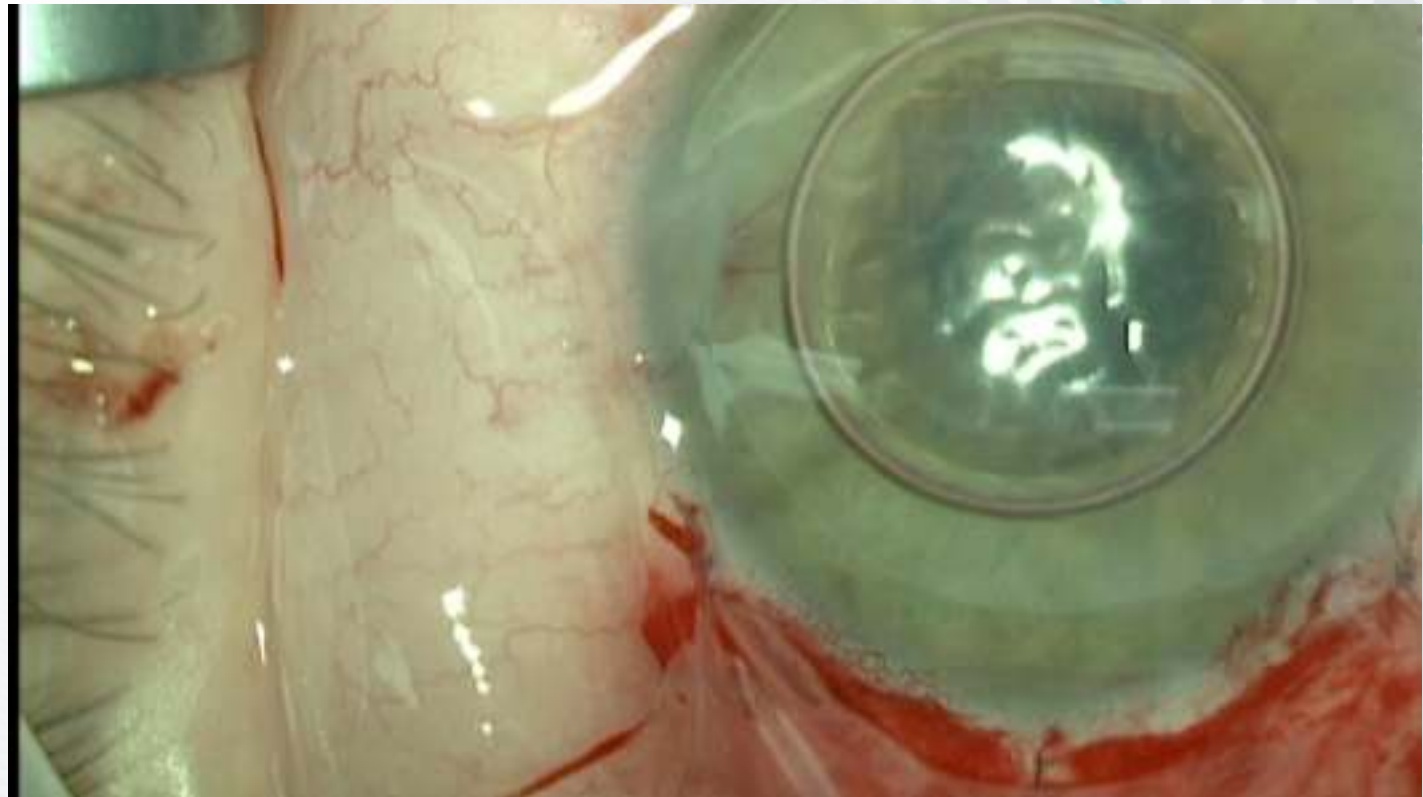
doing the surgery

1. incision
2. epithelium
3. endothelium
 - soft-shell technique
 - check irrigation ports
 - minimise phaco energy
 - IOL selection



finishing the surgery

1. consider suturing phaco wound
2. check PK graft-host junction
3. check EK margin...



post-op

1. preservative-free drops
2. face to face review

