

The Relationship Between DMEK Tissue Unscrolling Time and Endothelial Cell Loss: *Do Longer DMEK “Dances” Damage the Endothelium?*

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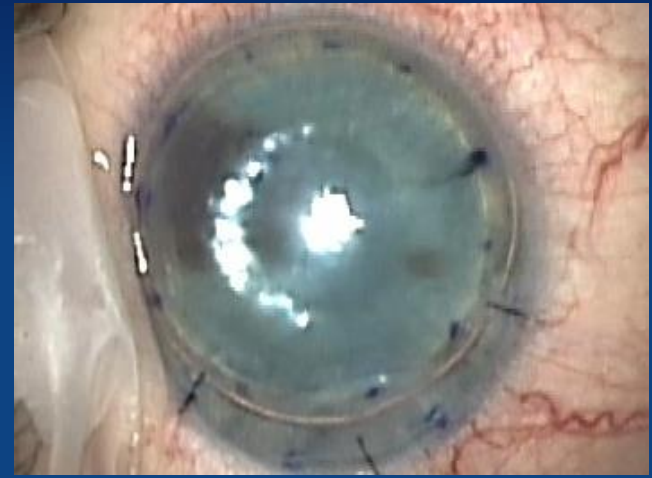
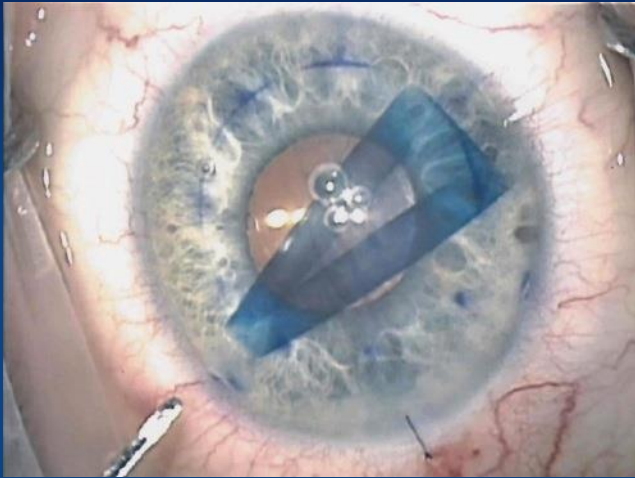
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Disclosures

The authors have no pertinent financial conflicts of interest to disclose.

Introduction

What is the “DMEK *Dance*”?



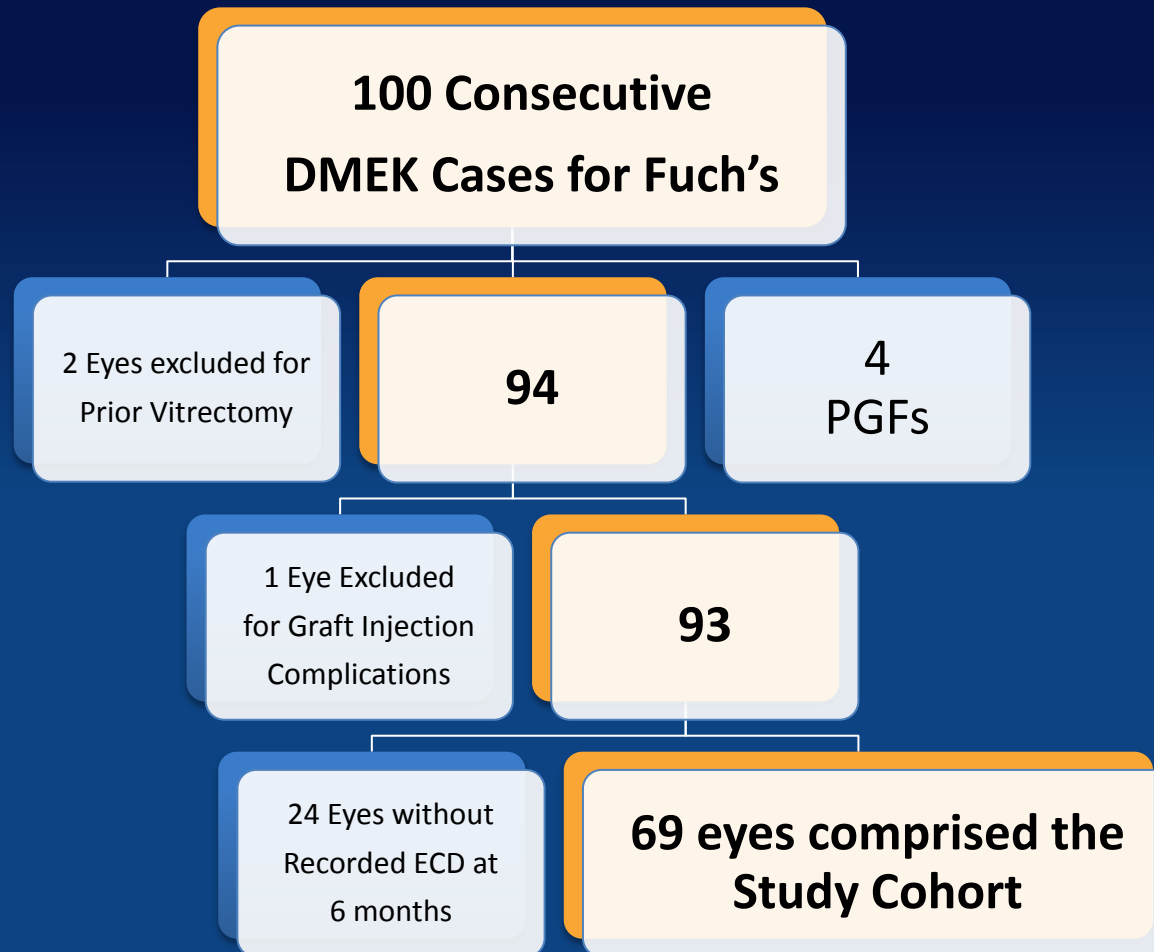
Introduction



Purpose

Do Longer DMEK “Dances” Damage the Endothelium?

Study Design



Study Design

Devers Standardized DMEK technique

- Pre-stripped tissue from the Lions VisionGift
- \pm S-Stamp (39 were pre-stamped)
- Overstripping of the recipient
- Straiko glass injector
- No-touch tap technique
- 20% SF6 bubble

Study Design

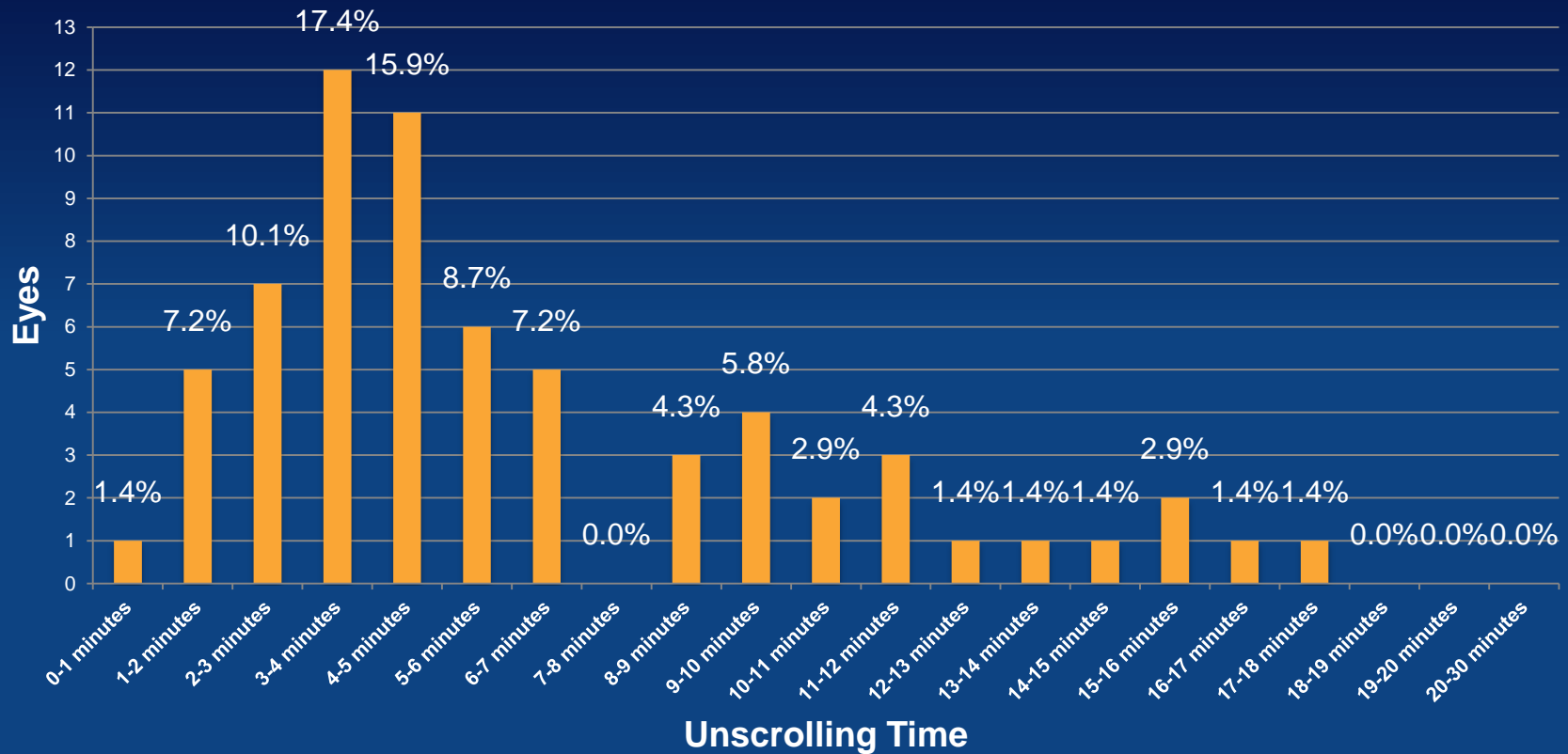
Unscrolling time

- **Start:** Closure of main incision after injection
- **Stop:** Partial fill of 20% SF6 gas
- *Times rounded up to the nearest ¼ minute*

Endothelial cell loss (**ECL**) assessed at **6 mo**

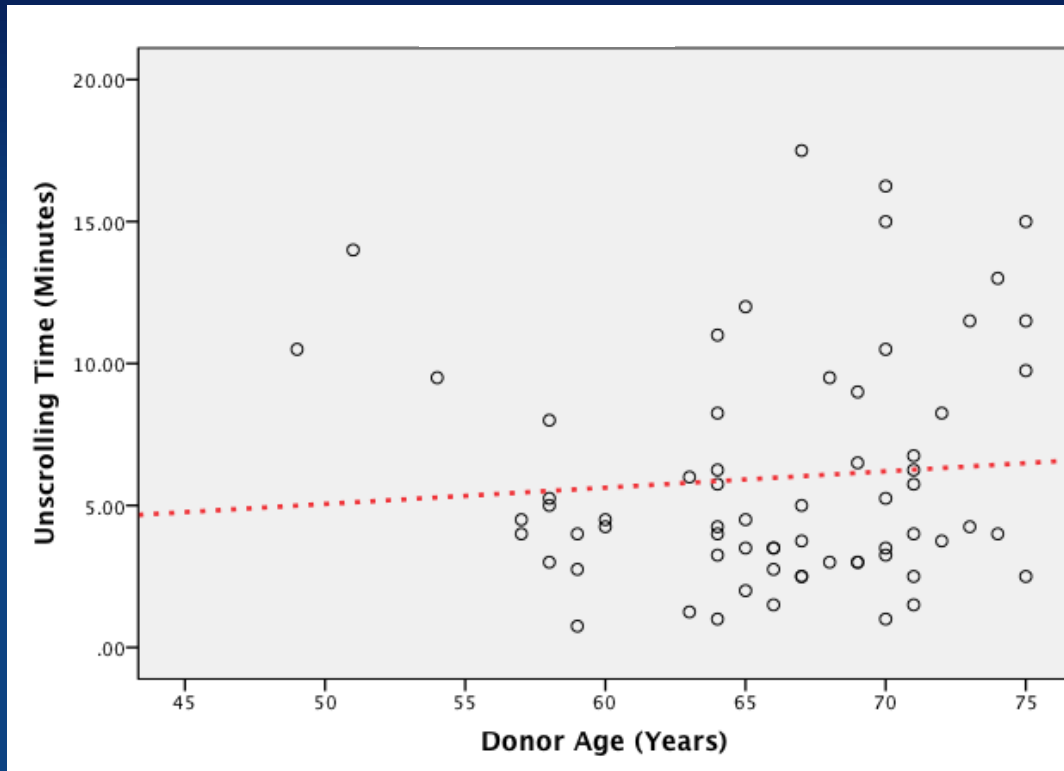
Results

Distribution of DMEK Graft Unscrolling Times



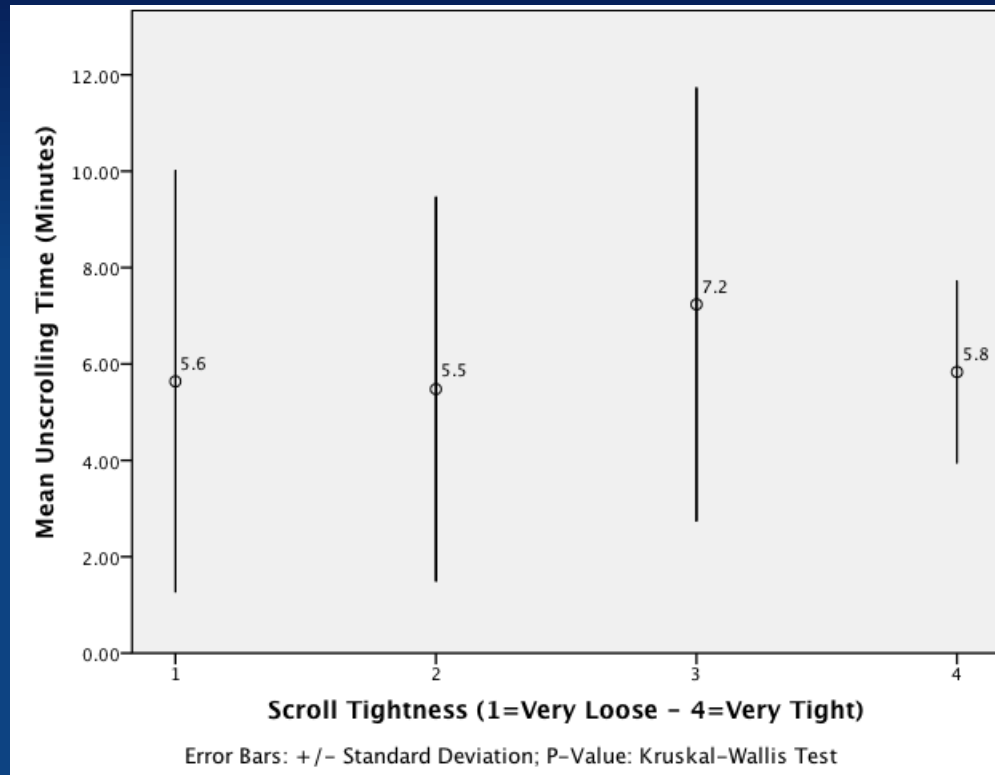
Results

Correlation between Unscrolling Time
and Donor Age, $r=0.08$, $P=0.50$



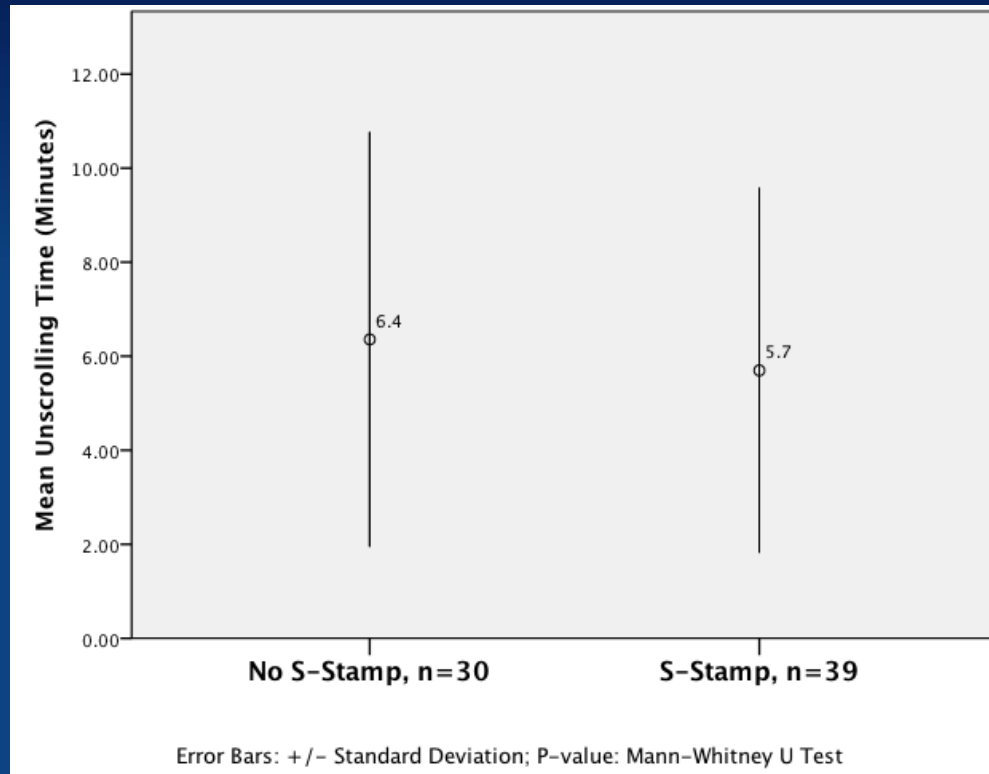
Results

Comparison of Unscrolling Times Between DMEK Grafts of Varying Scroll Tightness, $P=0.36$



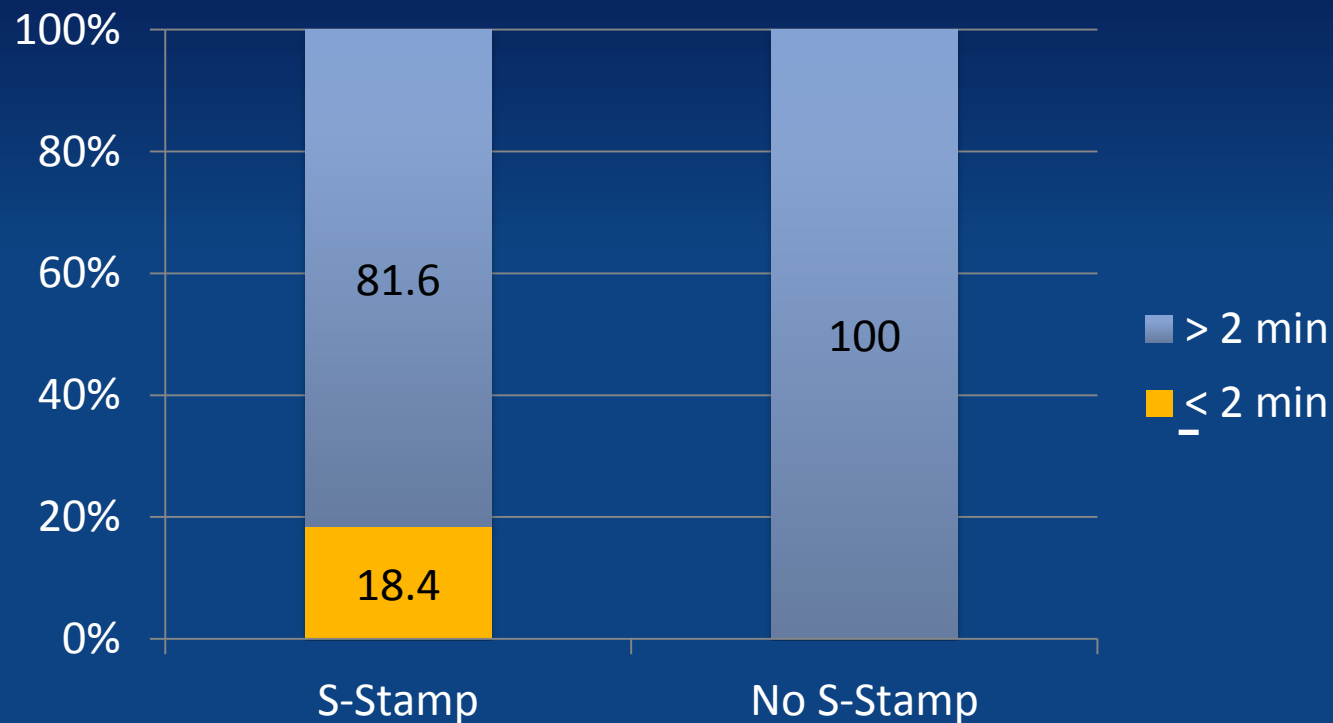
Results

Comparison of Unscrolling Times Between DMEK Grafts with and without an S-Stamp, $P=0.70$



Results

Frequency of ≤ 2 min Unscrolling Times in DMEK Grafts
with and without an S-Stamp, $P=0.02$



Results

Endothelial Cell Density (cells/mm²)

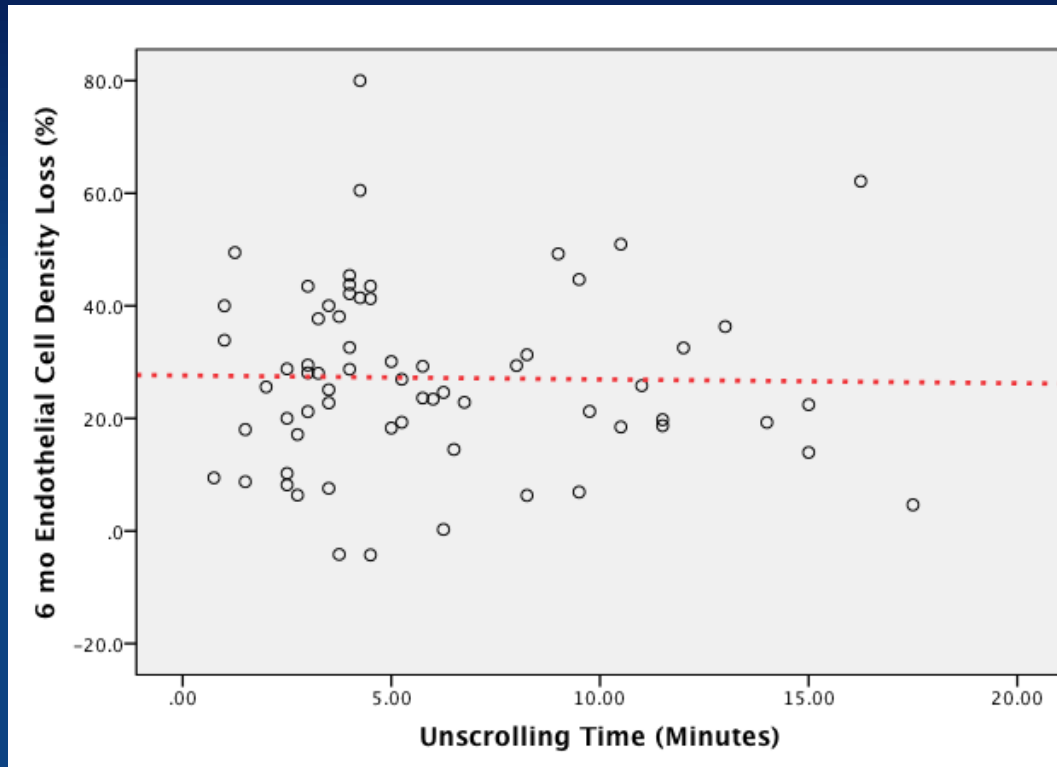
Time Point	Mean	Range	Median
Pre-Op	2676 ± 291	2024-3289	2710
6 months	1933 ± 454	505-2841	1969
<i>P</i> <0.001			

Endothelial Cell Density Loss (%)

Time Point	Mean	Range	Median
6 months	27.6 ± 15.9	0-80.0	26.9

Results

Correlation between Unscrolling Time and
6 month Percent ECD Loss, $r=-0.02$, $P=0.89$



Results

Comparison of 6-month Mean Endothelial Cell Density Loss between Unscrolling Time Sub-Groups

Unscrolling Time	n	Mean 6-month ECD loss (%)
≤ 5 minutes vs.	38	28.9 ± 17.4
> 5 minutes	28	25.0 ± 14.2
		$P=0.33$
≤ 10 minutes vs.	54	27.2 ± 16.2
> 10 minutes	12	27.1 ± 16.1
		$P=0.68$
≤ 15 minutes vs.	64	27.0 ± 15.5
> 15 minutes	2	33.4 ± 40.6
		$P=0.94$

Results

Comparison of Unscrolling time and S-Stamp between the Study Cohort and Primary Graft Failure Cohort

Parameter	Mean \pm SD (Range) or Percent (95% CI)		
	Study Cohort, N=69	PGF Cohort, N=4	P
Unscrolling time (min)	6.0 \pm 4.1 (0.75-17.5)	9.25 \pm 6.01 (5.0-13.5)	0.25
S-Stamped Graft (%)	56.5 (44.1-68.9)	0.0 (-12.5-12.5)	0.04

Conclusions

Once the DMEK tissue is safely in the anterior chamber, **surgeons need not rush the “DMEK dance”** because longer unscrolling times may not endanger the endothelium.

Go Ahead... Revel in the Dance!



Acknowledgments

dancing with the stars



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Thank You for Your Attention



Larisa Bowman



Edith Sales (2 wks)
1st Grand Child of
Dr. Wayne Bowman (UTSW)