One-Year Dynamic Range of Visual Outcomes After Laser Anterior Ciliary Excision Procedure

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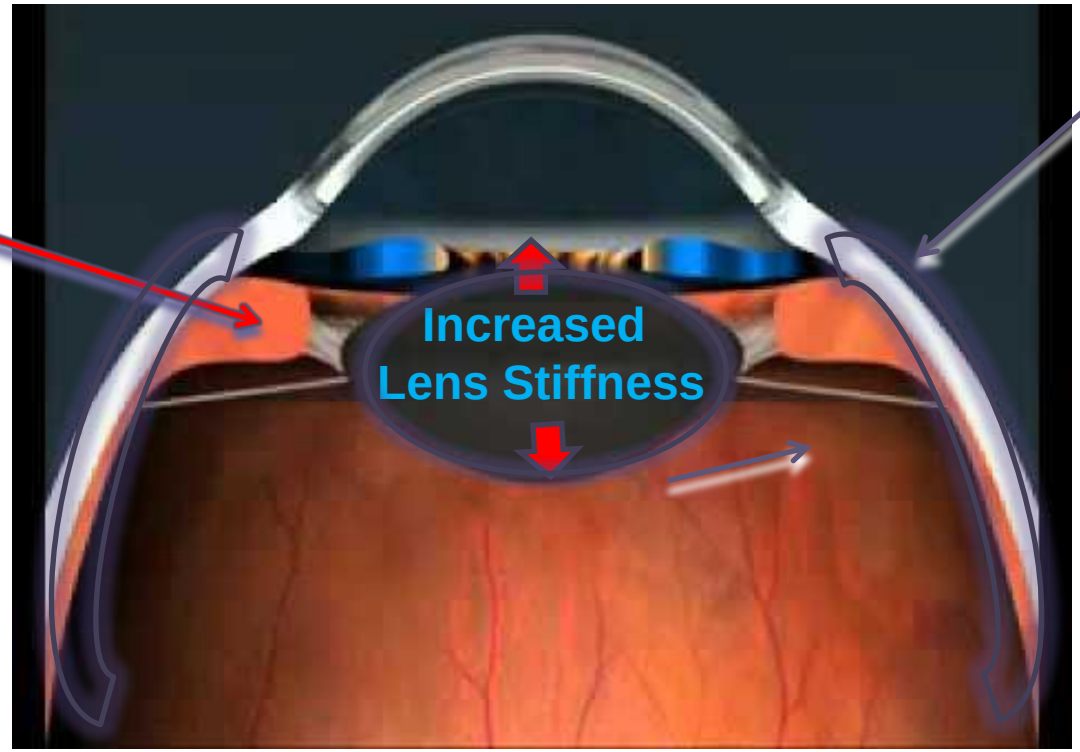
Authors 3 has no financial interest.

Introduction

Ocular Rigidity recently Correlated with Loss of Accommodation

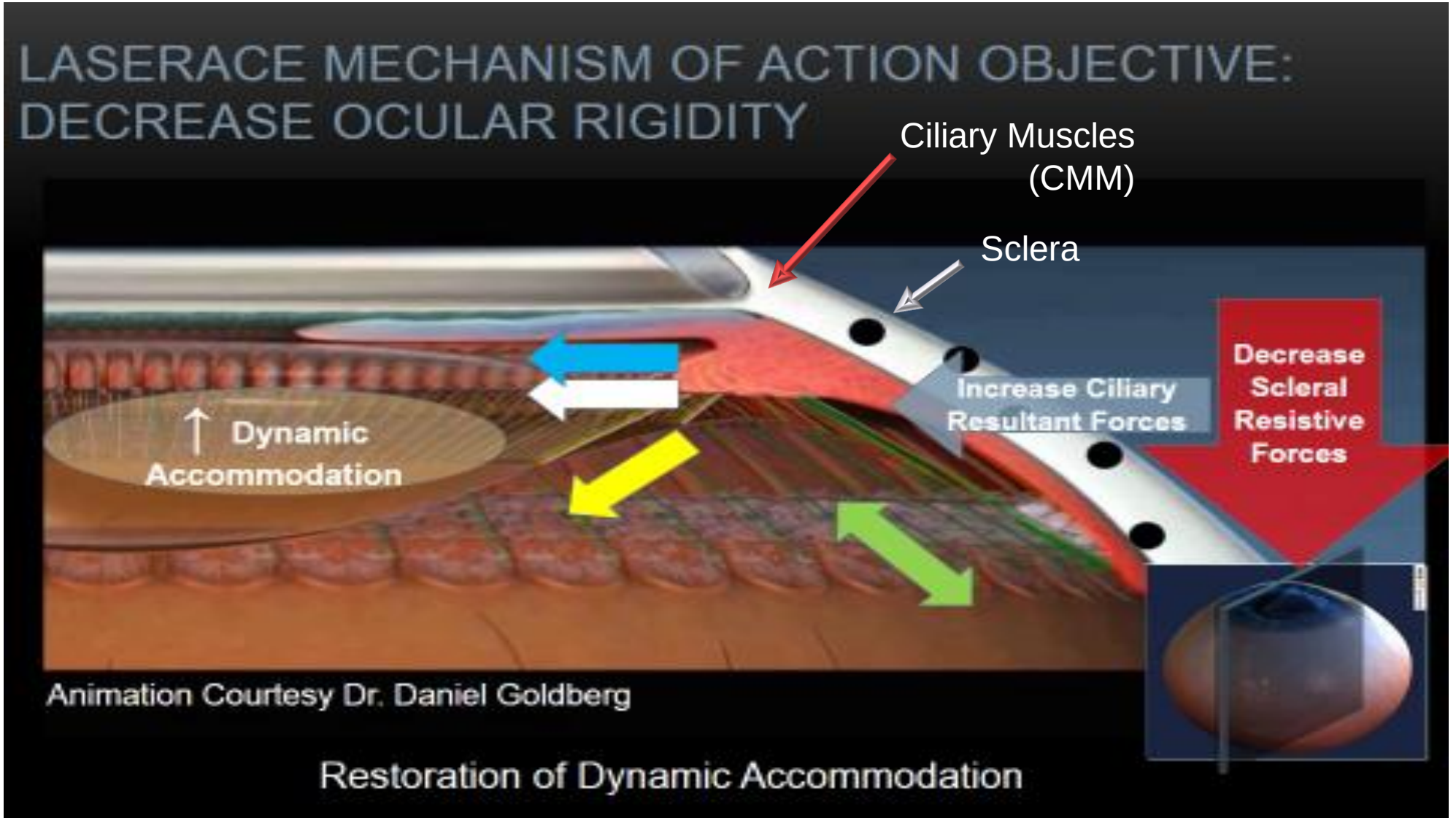
Decreased
Ciliary
Muscle Force
To adjust the
Lens



Increased
Scleral
Rigidity

Detorakis ET, **Pallikaris IG.** Ocular rigidity: biomechanical role, in vivo measurements and clinical significance. *Clin Experiment Ophthalmol*. 2013 Jan-Feb;41(1):73-81

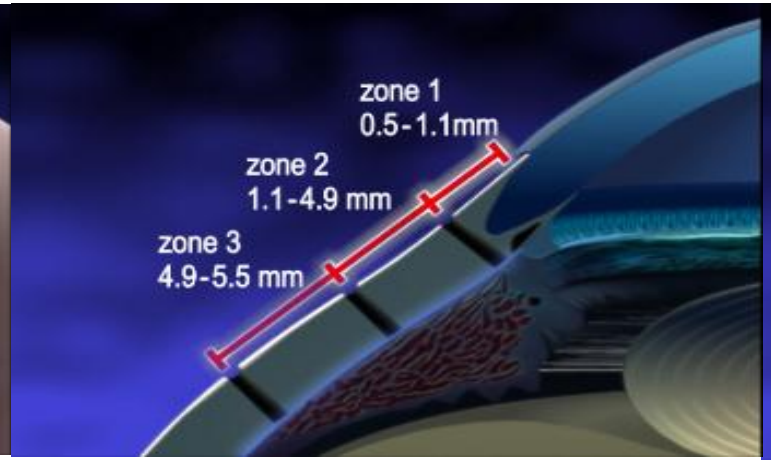
Laser Anterior Ciliary Excision Procedure

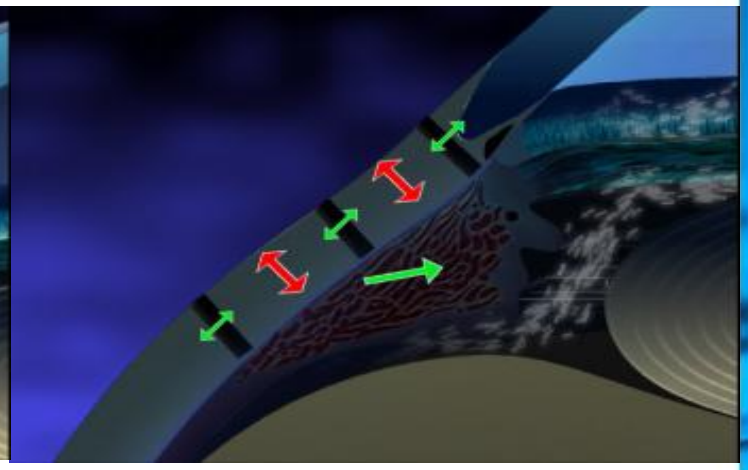


Methods/Inclusion Criteria

- 40 eyes of 20 patients underwent laser anterior ciliary excision
- Inclusion criteria:
  - ≥40 years of age with a demonstrated loss of accommodative function
  - Less than (<)1.00D of astigmatism in each eye, measured in their manifest refraction
  - DCVA equal to or better than 20/40 in both eyes
  - Less than 0.50 D difference between manifest and cycloplegic refraction
  - LVC patients who met inclusion criteria were included (N=1)

Laser Anterior Ciliary Excision





- Er:Yag laser with fiber optic probe
- 600um spot size
- Nine micro-excisions in the 4 oblique quadrants

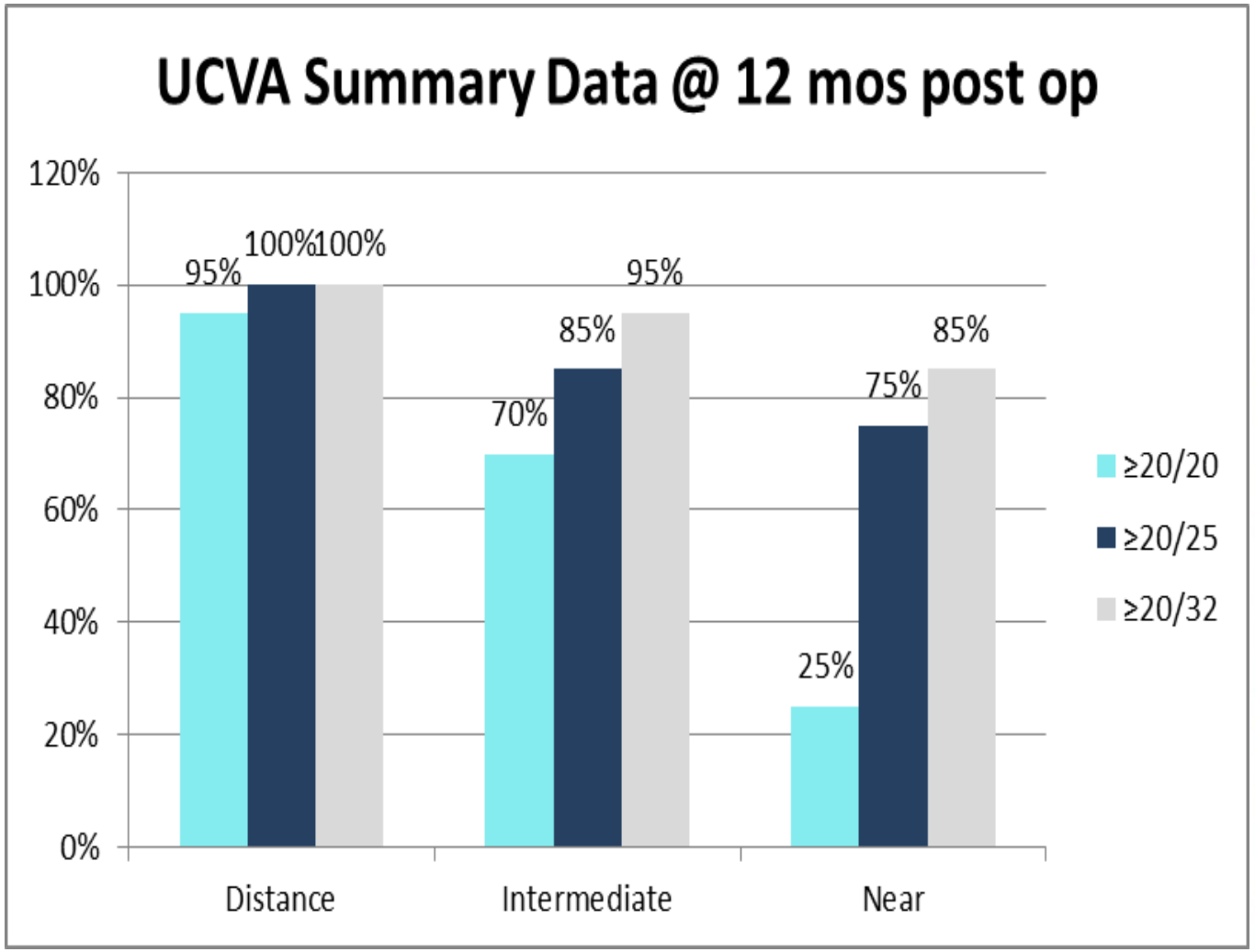
- Micro-excisions in 3 critical zones over the ciliary complex
- Creation of pliable matrix zones in the Sclera

- Procedure Objective:
  - Restore mechanical efficiency of the natural accommodative mechanism
  - Improve biomechanical mobility to achieve accommodative power

Hipsley AM. VisioDynamics Theory: A Biomechanical Model for the Aging Ocular Organ, 2003.

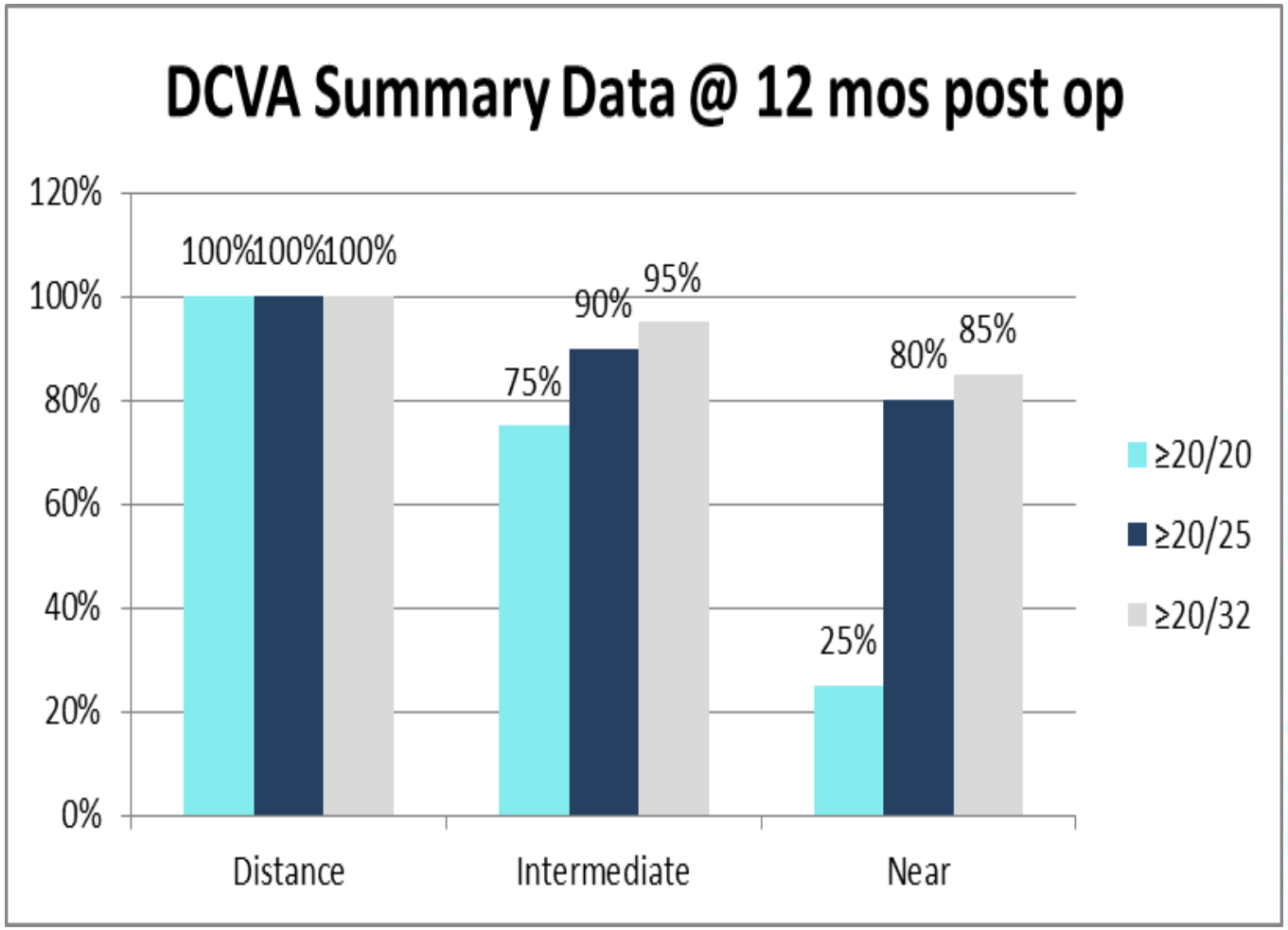
Results: Uncorrected Vision After Laser Anterior Ciliary Excision at 12 months Post Op

- UDVA
  - No statistical significant change in distance Vision.
- UIVA:
  - 95% were 20/32 or better
  - 85% were 20/25 or better
  - 70% were 20/20 or better
- UNVA:
  - 85% were 20/32 or better
  - 75% were 20/25 or better
  - 25% were 20/20 or better

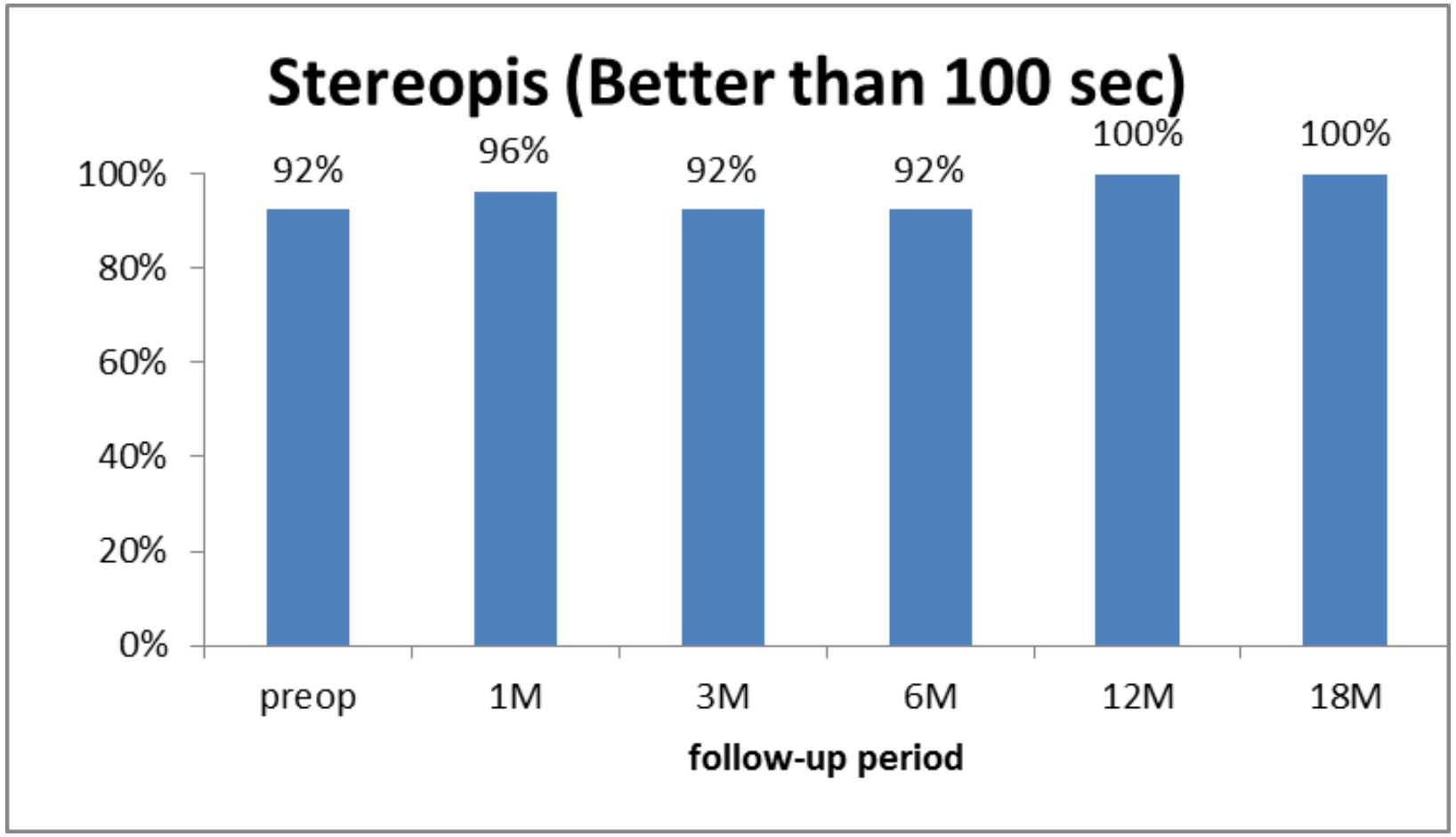


Distance Corrected Vision at 12 Months Post-Op

- DCDVA:
  - No statistically significant change
- DCIVA:
  - 95% were 20/32 or better
  - 90% were 20/25 or better
  - 75% were 20/20 or better
- DCNVA:
  - 85% were 20/32 or better
  - 80% were 20/25 or better
  - 25% were 20/20 or better



Results: Stereopsis



Stereopsis unaffected & actually improved over time

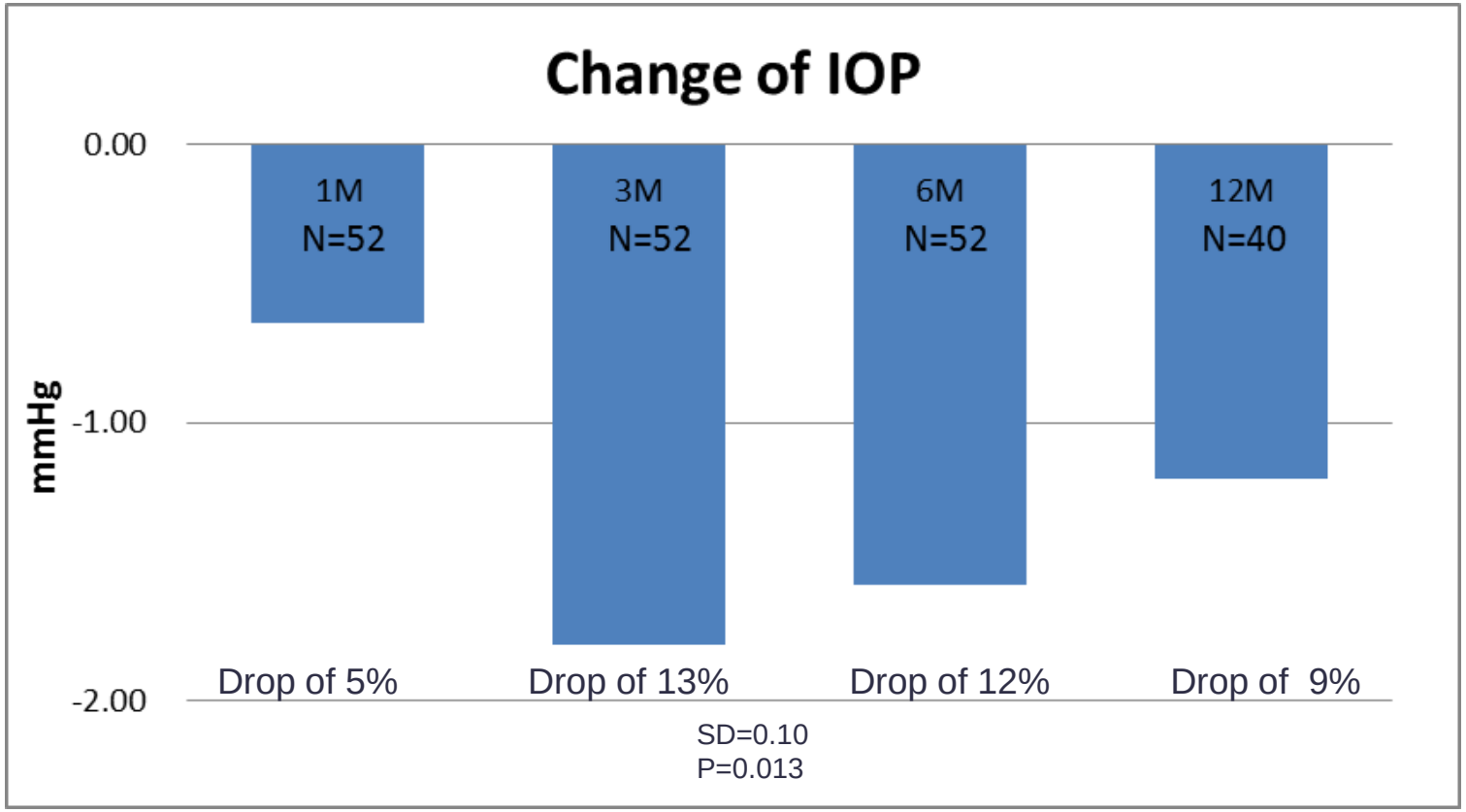
Results: Patient Satisfaction

Catquest – 9SF Results Summary

Patient	Pre-Op LaserACE	%	Post-Op LaserACE®	%
1	Somewhat Difficult	100	No Difficulty	100
2	Very Difficult	40	No Difficulty	70
3	Somewhat Difficult	60	No Difficulty	90
4	Great Difficult	60	No Difficulty	30
6	Great Difficult	90	No Difficulty	50

Lundström M, Pesudovs K. Catquest-9SF patient outcomes questionnaire: nine-item short-form Rasch-scaled revision of the Catquest questionnaire. J Cataract Refract Surg. 2009 Mar;35(3):504-13

Results: IOP Reduction from Baseline



- IOP was measured pre-operatively, and at each follow-up visit.
- N = number of eyes (OD)
- No cases of hypotony in the immediate postoperative period (days 1-7)

Results

- No statistically significant loss of distance vision
- Patients achieved improvement of both Near & Intermediate Vision both Uncorrected & Distance Corrected
  - **2 to 4 lines of improved reading vision obtained**
- Stereopsis was unaffected and stereopsis values actually improved over time following the procedure.
- High patient satisfaction postoperatively based upon Catquest 9F survey
- Approximately 2.1mmHG (approx. 20%) mean drop in IOP from baseline sustained over 12 months.