Why I Chose to do SMILE

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Reasons

- Clinical
  - Visual quality
  - Improved safety

- Financial
  - Increase LVC volume

- Personal
Research

- Peer-reviewed papers
- Conversations with users
- Observe experienced surgeon
Clinical

- Reduce prolonged dry eye
- Better corneal biomechanics
- Flap issues
- Reduce PRKs
- Have another treatment modality for higher risk patients
  - Dry eyes
  - Thin corneas with normal imaging
SMILE Outcomes

- Excellent predictability, results very close to target refraction, even for high myopic corrections
- Refractive outcomes within ±0.5 D for 97% of eyes

* Controlled multicenter study, 3 study sites
Efficacy, safety, predictability, contrast sensitivity, and aberrations after femtosecond laser lenticule extraction
FDA Clinical Trials

- 1 eye done with SMILE, 1 with LASIK
- Same results from 1-3 D
- LASIK results dropped off from 6-8 D
- SMILE results were the same at 1-3D and 6-8D
High myopia LASIK vs SMILE

- LASIK needs longer Rx time for high myopes
  - Corneal surface is exposed and drying
  - Environmental factors
    - Temp. and Humidity

- SMILE Rx time same for all powers
  - Done in a tightly closed system
  - Not affected by environment or corneal drying
Dry eye is related to loss of corneal sensation which is more prolonged after LASIK than SMILE.

The corneal nerve plexus is mainly in Bowmans and subepithelial.

Both PRK and LASIK are more destructive to the corneal nerves.

Long-term Effects of LASIK on Corneal Innervation and Tear Neuropeptides and the Associations With Dry Eye
Cecilia Chao, PhD; Blanka Golebiowski, PhD; Xiangtian Zhao, PhD; Shihao Chen, OD; Shi Zhou, MS; Fiona Stapleton, PhD
Reinstein: Corneal sensation recovery

![Graph showing mean corneal sensation recovery over time with a comparison between LASIK (16 studies) and SMILE (7 studies).]
Dry Eye in Asians

- Personal observation that Asians, especially women have higher incidence of prolonged dry eye after LASIK

- Chronic dry eye persisting more than 6 mos after LASIK occurred in 28% of Asians and 5% of Caucasians

Dry Eye: LASIK vs SMILE


Corneal Biomechanics

- The side-cut in LASIK is what weakens the cornea the most

Corneal Biomechanics

- Anterior 30% of the cornea is the strongest
- Posterior 60% of the cornea is at least 50% weaker

Corneal Biomechanics

- SMILE corneal strength = Cap thickness + RST (250m)
- LASIK corneal strength = RST only (300m)
- This allows for more safe tissue removal with SMILE which allows for a larger OZ
Corneal biomechanics

Corneal Biomechanics

Higher Order Aberrations

- SMILE can’t as yet do a WFO or WFG Rx
- SMILE will cause less SA because of larger OZ
- May have less HOAs because Rx not exposed to environment

Financial

- Gain competitive advantage
  - Referral sources
  - Word of mouth
- Develop new public interest
- Reduce PRKs
So why did I decide to do SMILE?

- SMILE outcomes were comparable to LASIK and possibly better for high myopes
- I felt it was safer
  - Less dry eye
  - Stronger corneal biomechanics
    - Less risk of ectasia
    - Able to treat thinner corneas avoiding PRK
- It may induce less HOAs
- It may provide a competitive advantage
Thank You