Pain and functioning post Alcohol PRK vs. PTK-PRK:
A prospective Intra-individual Comparison

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epithelium removal steps

Alcohol PRK
- Manual 8.5 mm well
- Alcohol 20% 30 sec
- Alcohol dried
- Epithelium scraped
- Bowman exposed

PTK-PRK
- Photo thermoperfect profile
- 8.9 mm diameter ablation
- 50 micron deep ablation
- 1 minute ablation
- Autotracker centered
- Stroma exposed

potential advantages

Alcohol PRK
- Established experience
- Known nomograms
- Shorter ablation time
- Less ablation energy
- Eliminates epithelial irregularities

PTK-PRK
- No toxic alcohol
- All laser – no touch
- Auto-tracker centering
- Customized epithelial ablation
- Very easy to perform
- May combine epistromal scar ablation

Common PRK steps

- Autotracker centered
- Refractive ablation 200 Hz
- MMC 0.02% 10 mm sponge
- Therapeutic contact lens

slides alcohol prk.wmv
Alcohol PRK vs. PTK-PRK
which is easier for the patient?

- The first week post PRK is the hardest
- Which causes more pain?
- What level of pain?
- Which limits functioning more?
- What is the degree of functioning?

**Inclusion criteria**

- Consecutive PRK candidates
- Unsuitable for LASIK
  - Low Residual Stromal Bed
  - Corneal inferior steepening
  - Pachymetry < 500 microns
- Informed consent

**Study - demographics**

- 146 eyes of 73 patients
- 42 males, 31 females
- Ages 18-50 yrs (27±8 mean±SD yrs)
- Refraction -1 to -8.75 D
  -4.25±1.75 (mean±SD)

**Study setup**

- Care Vision clinic, Tel Aviv, Israel
- Single surgeon
- Allegretto Wave 200
- OD: Alcohol PRK
- Questionnaire filled by patient days 4, 7 post op
Absolute Pain Score at day 7 post-OP

Which method is more painful at day 7 post-op?

Limitation in Functioning at day 7 post-op

Absolute Pain Score at day 4 post-OP

Which method is more painful at day 4 post-op?

Limitation in Functioning at day 4 post-op
Which method is limiting more at day 7 post-op?

![Graph showing limitation score (ALC-PTK) with ALC limits more than PTK.* P=0.99.]

Which method is limiting more at day 4 post-op?

![Graph showing limitation score (ALC-PTK) with ALC limits more than PTK.* P=0.85.]

Conclusions

- PTK-PRK caused more pain on day 4 (borderline significance)
- Equal limitation of functioning on day 4
- No difference in pain and function on day 7
- Symptoms were mostly mild or moderate

If at all, why is ptk-prk more painful?

- More ablation induces more inflammation? - (Hyung et al. AJO 2005)
- Alcohol blocks corneal nerves? - (Esquenazi JCRS 2005)
- Other mechanism?
- Longer follow-up is needed to compare risk of haze and visual outcome.

UCVA, 1 to 3 months post-op

![Graph showing UCVA percentage with ALC (mean 0.97) and PTK (mean 0.91) with P=0.054.]

Thank you for your attention
# Summary of Results

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<thead>
<tr>
<th></th>
<th>Day 4 post-op</th>
<th>Day 7 post-op</th>
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<tbody>
<tr>
<td><strong>Pain score</strong>&lt;br&gt; (mean)</td>
<td>1.20 ALC</td>
<td>1.12 ALC</td>
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<tr>
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<td>1.47 PTK</td>
<td>1.15 PTK</td>
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<td></td>
<td><em>p=0.069</em></td>
<td><em>p=not significant</em></td>
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<tr>
<td><strong>Limitation of function score</strong>&lt;br&gt; (mean)</td>
<td>0.61 ALC</td>
<td>0.20 ALC</td>
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<tr>
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<td>0.72 PTK</td>
<td>0.19 PTK</td>
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