

# Carl Zeiss Meditec MEL80: LASIK Outcomes of the Bangkok Study


Dan Z Reinstein, MD MA (Cantab) FRCSC; London Vision Clinic, London, UK

The outcomes from a study designed to test the optimized ablation profiles of the MEL80 will now be presented. This study, dubbed the "aberration smart ablation profile" (ASAP) study, was designed to look at the outcomes of conventional treatments for myopia and myopic astigmatism using the prolate optimization function of Meditec's CRS-Master concept and EXCLUDING the use of wavefront aberrometry data.

The study was carried out at Siriraj University Medical School and Hospital, Bangkok, with co-investigator Dr. Sabong Srivannaboon. Sixty consecutive eyes of thirty patients underwent LASIK for myopia with a spherical equivalent up to -9.38 D and astigmatism up to -3.50 D. It was a relatively high myopia group, with a mean of -4.50 D.

The data from this study was first presented at the ESCRS in Nice, in September 2001.


## Outcomes




- MEL80 LASIK Study
  - (no HO wavefront elements)
  - Sririraj University, Bangkok, Thailand
    - co-investigator Dr. Sabong Srivannaboon
  - 60 consecutive eyes (30 patients)
  - 1 surgeon (DZR)
  - Myopia
 

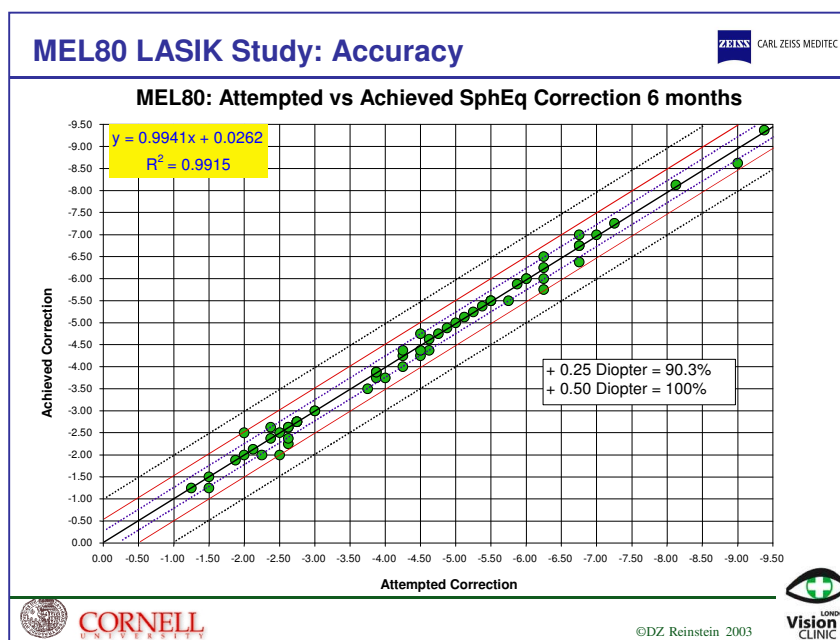
Mean (SD)	-4.51 (1.88)
Sph Eq Range	-1.50 to -9.38

\* ESCRS, Sept, 2001





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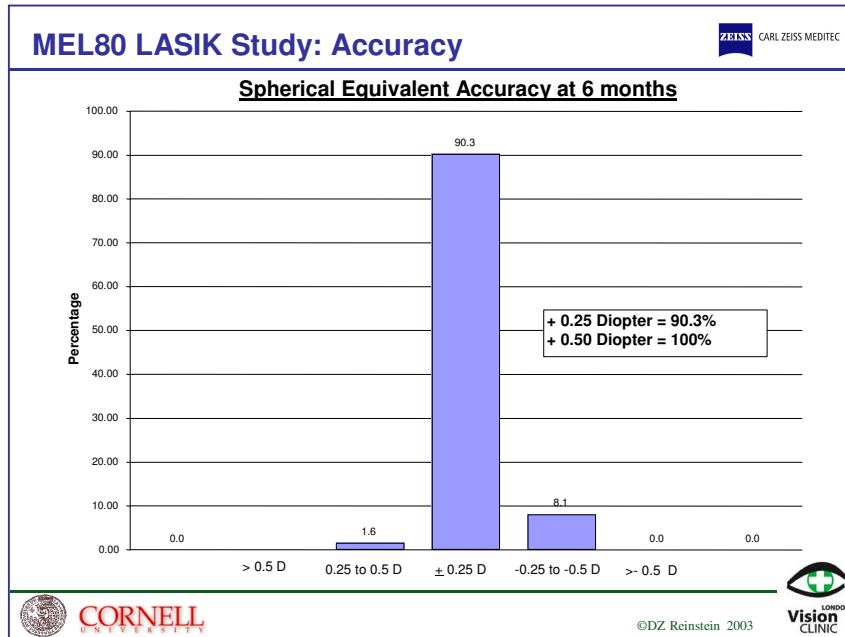


The six-month **Attempted vs. Achieved** plot demonstrates a level of accuracy that may be setting a new standard: 100% of all eyes were within +/- 0.50 D of intended. Furthermore, over 90% of eyes were within +/- 0.25 D of intended. It is interesting to note that these outcomes were achieved for a group of eyes evenly distributed with myopia reaching up to above -9.00 D in spherical equivalent.

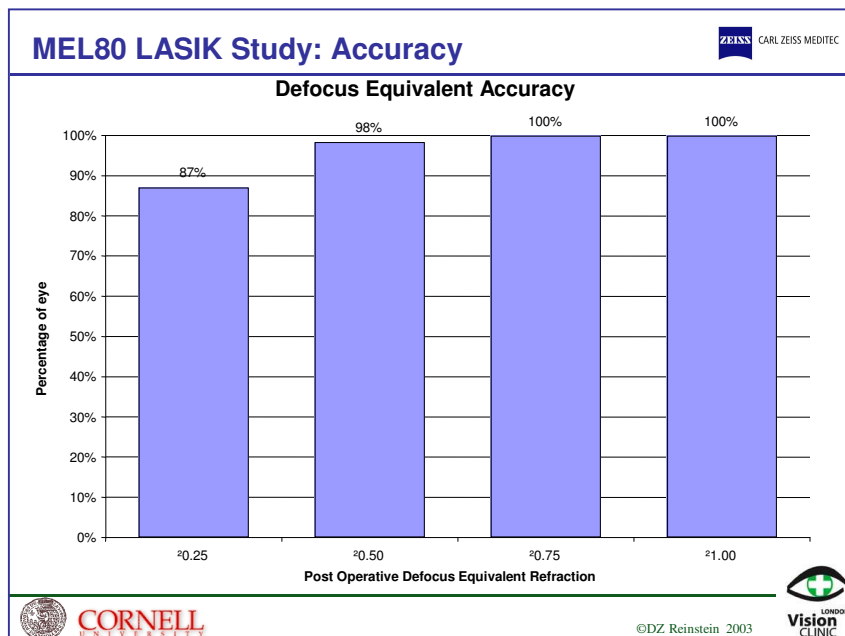
The nomogram is seen to be set perfectly, as evidenced by the linear regression fit slope of 1.0. The unprecedented low scatter in the data is described by the very high R-square of this linear regression fit (0.9915).



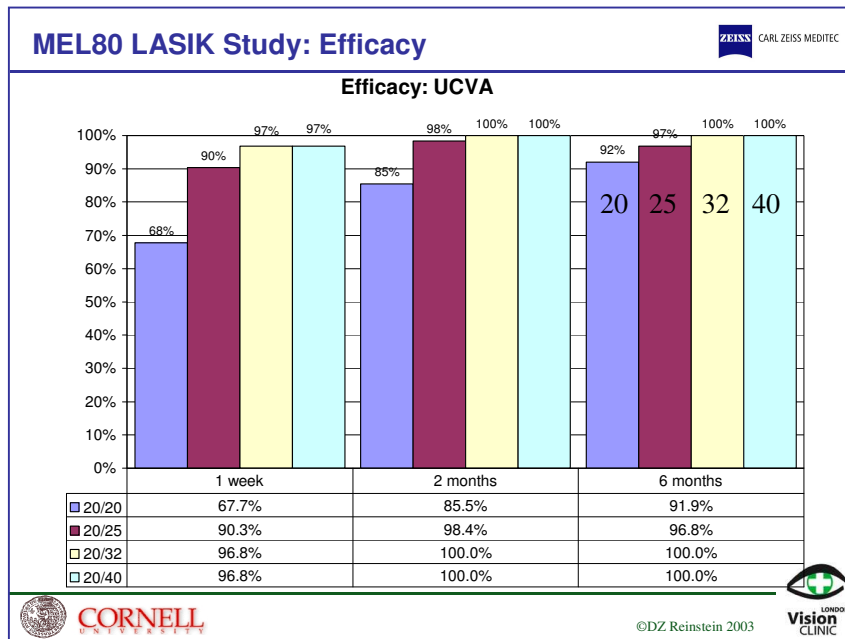
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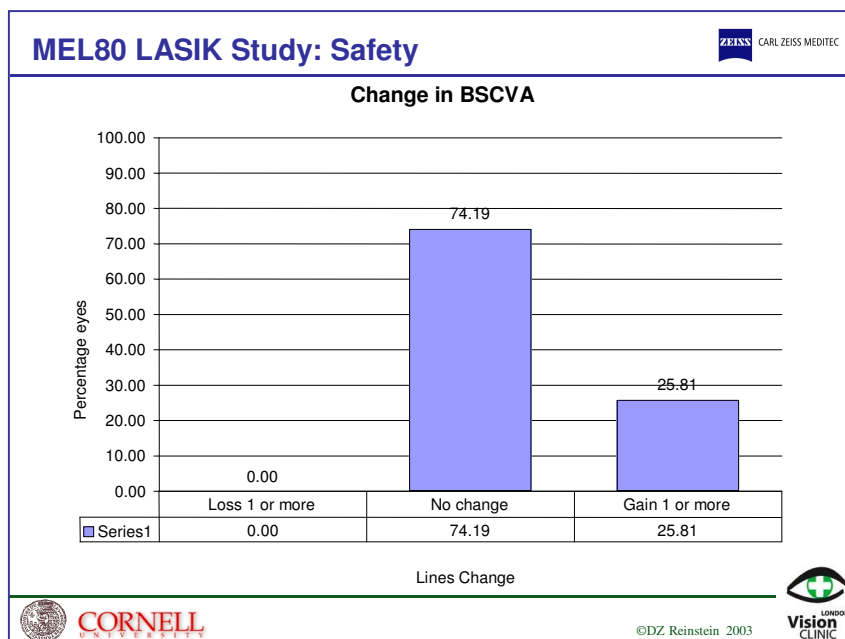
The spherical equivalent accuracy bar chart demonstrates the extraordinary accuracy of this laser.



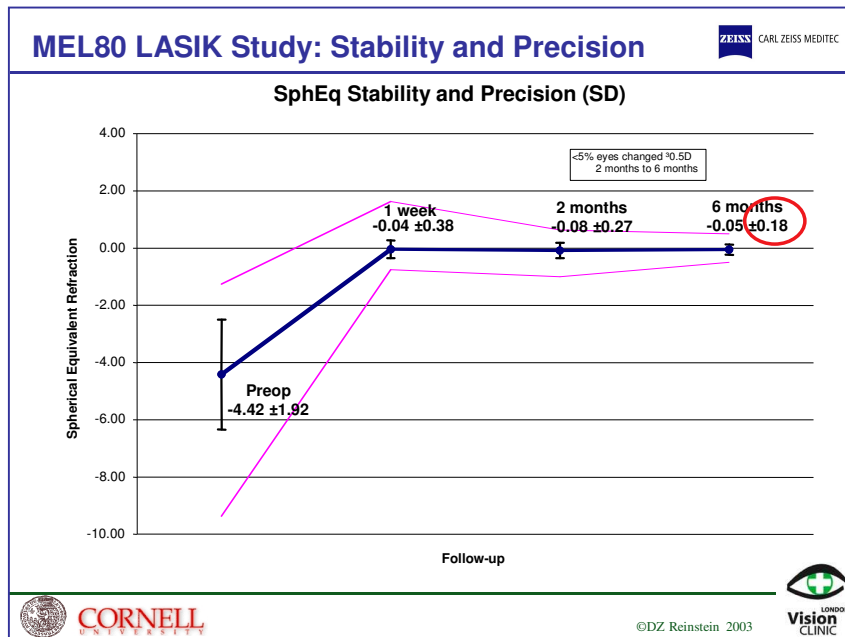
Defocus equivalent accuracy, a better measure of accuracy than spherical equivalent because it incorporates astigmatic error independent of sphere is also seen to be extremely high, with 87% of eyes within 0.25 D and 98% of eyes within 0.50 D of indented defocus.



The accuracy results are reflected in efficacy: At six months, 92% of eyes were 20/20 or better and 97% of eyes were 20/25 or better. Again, important to remember that this is for myopia up to -9.40 D of spherical equivalent. It is easy to see that the enhancement rate in practice, for this laser will be exceedingly low.



In safety, none of the 60 eyes lost even one line of best spectacle corrected vision, and one quarter of the eyes improved by one or more lines. The disappearance of eyes that lose one line could be attributed to the reduced induction of aberrations afforded by the optimized ablation profile. And of course is also dependent on perfect flap repositioning.



The stability was reached at latest at the 2 months mark. The final precision (or reproducibility) data, as measured by the standard deviation of the mean spherical equivalent at 6 months was well under 0.25 D at 0.18 D. This is another strong element of evidence that the energy control and delivery systems in the MEL80 have been optimized to a new higher standard than ever reported before.

000000-1257-50603

Carl Zeiss Meditec AG  
 D - 07740 Jena  
 Germany

Telephone: +49 (0) 36 41/2 20-3 33  
 Fax: +49 (0) 36 41/2 20-2 82  
 e-mail: [info@meditec.zeiss.com](mailto:info@meditec.zeiss.com)  
 Internet: <http://www.meditec.zeiss.com>