Assessing Ectasia Susceptibility prior to LASIK: The Role of Age and Residual Stromal Bed (RSB) in conjunction to Belin-Ambrósio Deviation Index (BAD-D)

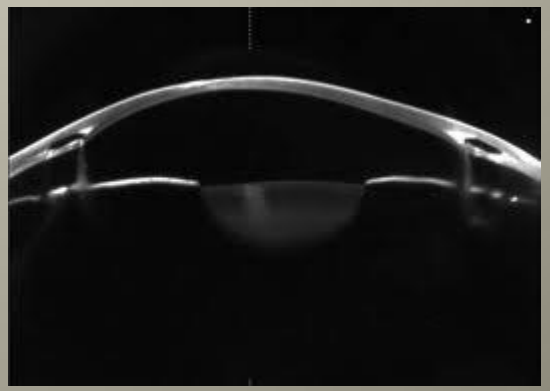
(no commercial interests)

Jorge Augusto Siqueira da Silva, MD[1];
Isaac Ramos, MD[1]; **Bernardo Lopes**, **MD[1];Bruno Valbon**,MD**;**
Rodrigo Santos, MD**; Renato Ambrósio Jr**, MD, PhD[1,2]

Dr. Ambrósio is consultant for Oculus Optikgeräte GmbH (Wetzlar, Germany)

PURPOSE

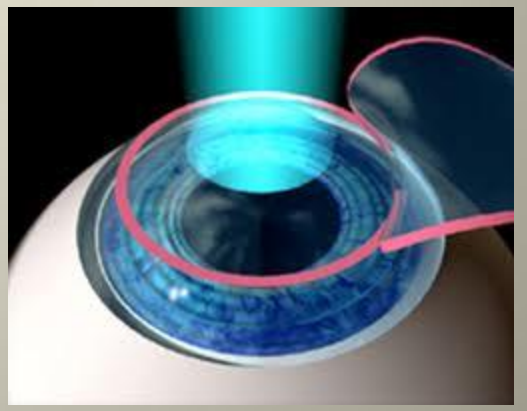
- To compare the ability to detect preoperative ectasia risk among LASIK candidates using classic ERSS (Ectasia Risk Score System) and Pentacam Belin-Ambrósio Deviation index (BAD-D), and to test the benefit of a combined approach including BAD-D and clinical data.



Jorge Augusto Siqueira da Silva, MD[1]; **Isaac Ramos**, MD[1]; **Bernardo Lopes**, **MD[1]**; **Bruno Valbon**, MD; **Rodrigo Santos**, MD; **Renato Ambrósio Jr**, MD, PhD[1,2]

METHODS

- A retrospective nonrandomized study involved preoperative LASIK data from 23 post-LASIK ectasia cases and 266 stable-LASIK (follow up > 12 months). Preoperative clinical and Pentacam (Oculus; Wetzlar, Germany) data were obtained from all cases. Mann-Whitney's test was performed to assess differences between groups. Stepwise logistic regression was used for combining parameters. The areas under the Receiver Operating Characteristic (ROC) curves (AUC) were calculated for all parameters and combinations, with pairwise comparisons of AUC (DeLong's method).



Jorge Augusto Siqueira da Silva, MD[1];**Isaac Ramos**, MD[1]; **Bernardo Lopes**, **MD[1];Bruno Valbon**,MD**; Rodrigo Santos**, MD**; Renato Ambrósio Jr**, MD, PhD[1,2]

RESULTS

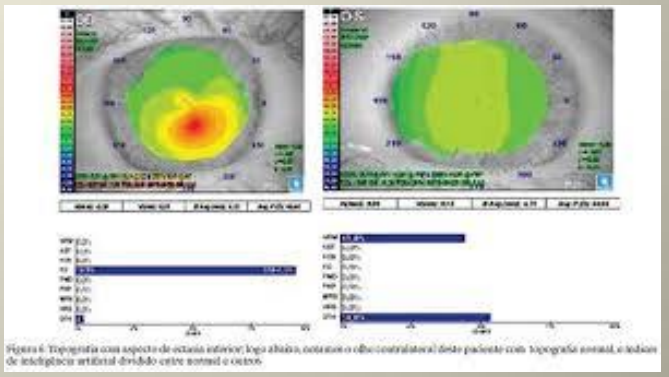
- Statistically significant differences were found for age, residual stromal bed (RSB), central corneal thickness and BAD-D ($p<0.001$), but not for sphere, cylinder or spherical equivalent ($p>0.05$). ERSS was 3 or more on 12/23 eyes from the ectasia group (sensitivity = 52.17%) and 48/266 eyes from the stable LASIK group (18% false positive). BAD-D had AUC of 0.931 (95% CI: 0.895 to 0.957), with cut-off of 1.29 (sensitivity = 87%; specificity = 92.1%). Formula combining BAD-D, age and RSB provided 100% sensitivity and 94% specificity, with better AUC (0.989; 95% CI: 0.969 to 0.998) than individual parameters ($p>0.001$).

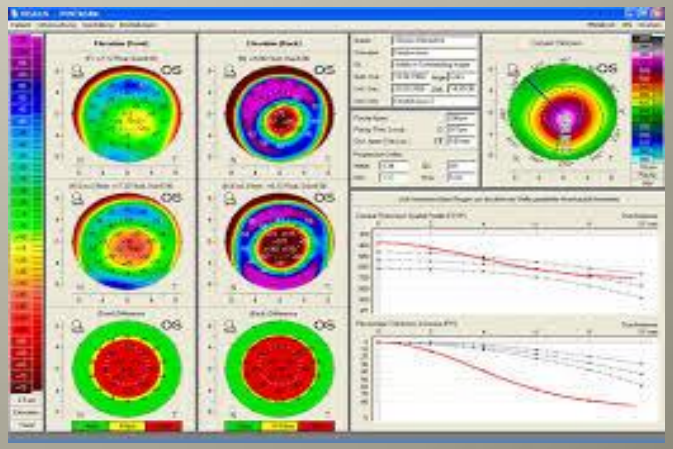
Jorge Augusto Siqueira da Silva, MD[1]; **Isaac Ramos**, MD[1]; **Bernardo Lopes**, **MD[1]**;**Bruno Valbon**,MD**; Rodrigo Santos**, MD**; Renato Ambrósio Jr**, MD, PhD[1,2]

CONCLUSION

BAD-D is more accurate than ERSS.

Combining clinical data and BAD-D improved ectasia susceptibility screening. Further validation is necessary. Novel combined functions using other topometric and tomographic parameters should be tested to further enhance accuracy.





Jorge Augusto Siqueira da Silva, MD[1]; **Isaac Ramos**, MD[1]; **Bernardo Lopes**, **MD[1]**;**Bruno Valbon**,MD; **Rodrigo Santos**, MD; **Renato Ambrósio Jr**, MD, PhD[1,2]

Assessing Ectasia Susceptibility prior to LASIK: The Role of Age and Residual Stromal Bed (RSB) in conjunction to Belin-Ambrósio Deviation Index (BAD-D)

jorgejass1@yahoo.com.br

Jorge Augusto Siqueira da Silva, MD[1];**Isaac Ramos**, MD[1]; **Bernardo Lopes**, **MD**[1];**Bruno Valbon**,MD**; Rodrigo Santos**, MD**;**

Renato Ambrósio Jr, MD, PhD[1,2]