

Initial clinical experience with the
FS200 Femto and EX500 excimer
lasers for LASIK
ASCRS, San Diego 2011

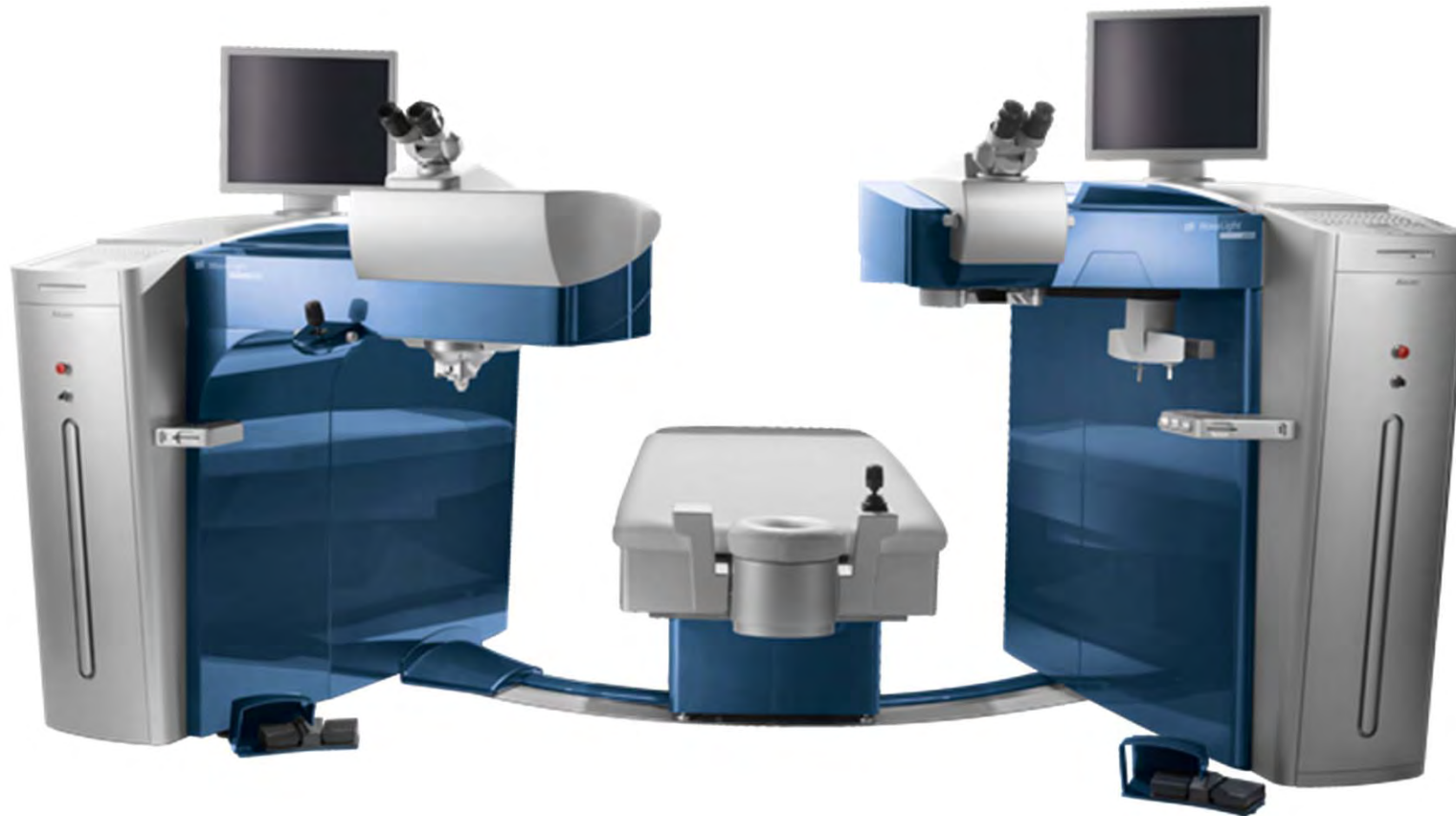
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Wavelight, Bausch and Lomb



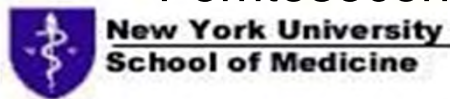
Kanellopoulos, MD
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WaveLight® FS200
Femtosecond Laser

WaveLight® EX500
Excimer Laser

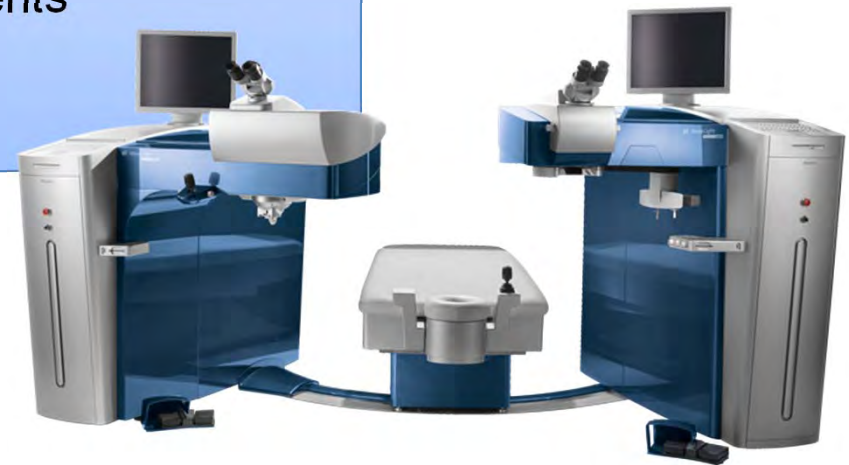


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A truly integrated system, the WaveLight® Refractive Suite features:

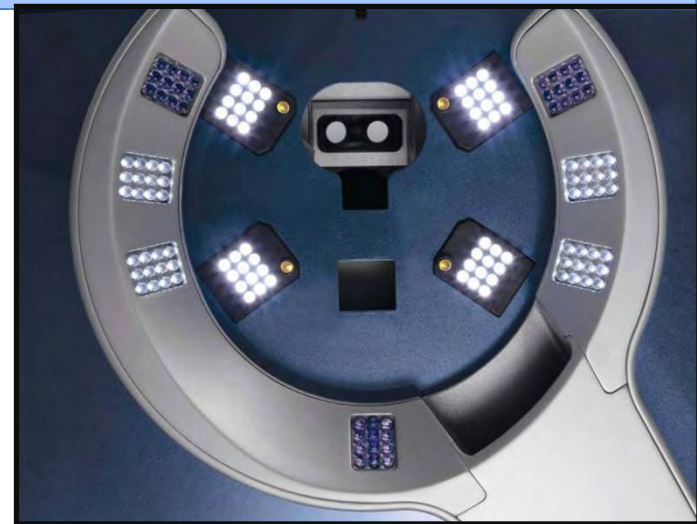
- Ultra fast platform, combining a 500 Hz excimer laser and a 200 kHz femtosecond laser
- Seamless data transfer within WaveNet™, an integrated network
- A small footprint for reduced space requirements
- A swivel bed for simplified patient positioning and enhanced patient comfort



WaveLight® EX500 Excimer Laser

The 1050 Hz multi-dimensional eye tracker assists in offering exceptional precision and safety:

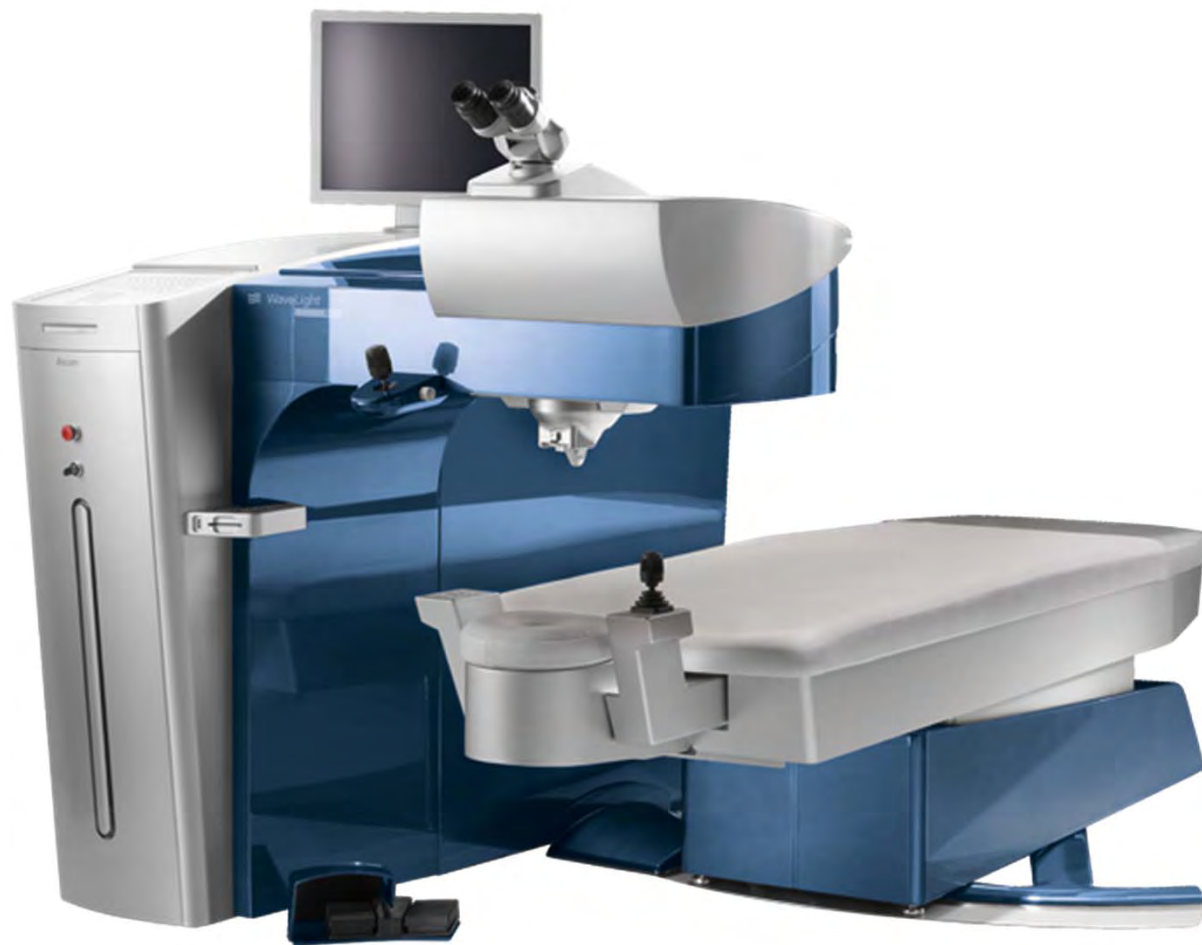
- Movement tracking with just 2 milliseconds of latency*
- Dynamic pupil tracking from 1.5 mm to 8.0 mm
- Active pupil centroid shift correction
- NeuroTrack to compensate for cyclotorsion



Summary

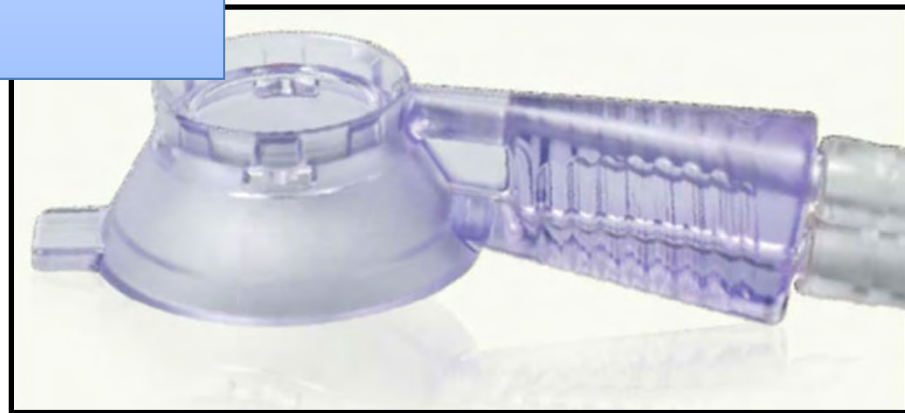
- 500 Hz laser head treats 1.0 diopter in 1.4 seconds
- 1050 Hz Eye Tracker has a latency of 2 milliseconds
- Patient-Specific applications:
 - Wavefront-Optimized, Wavefront-Guided, Topography-Guided, Custom Q, PTK
- Network connectivity allows seamless data transfer through the full WaveLight® Refractive System
- Advanced ergonomic design with enhanced feature set facilitates patient flow and physician experience

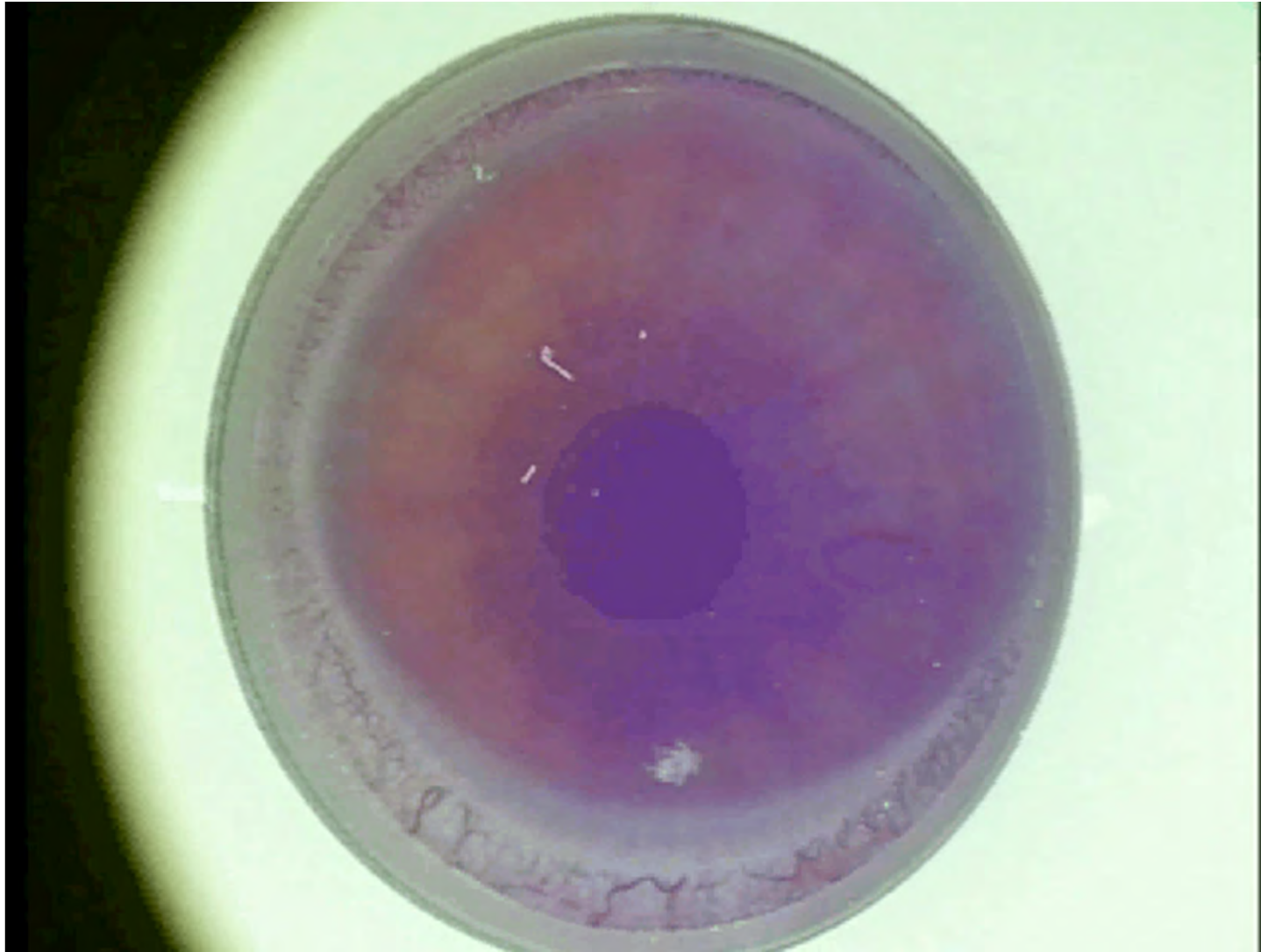




Fast flap creation times Laser

- Standard flap creation in approximately 8.0 seconds*
- Automated vacuum control of the patient interface for consistent suction
- Minimized IOP and ocular distortion during suction
- Fast visual regeneration





Methods

78 consecutive LASIK cases in our refractive surgery center in Athens, Greece were evaluated peri-operatively for the following parameters:

Refractive error (RE) , BSCVA, UCVA, Topography and Tomograph, angle kappa, Wavefront analysis, pupilometry , contrast sensitivity, cornea OCT , flap parameters (thickness, diameter, hinge length) and flap creation (FC), excimer laser ablation a novel refractive platform (200kHz femtosecond technology and 500Hz EX excimer laser). All hyperopic eyes were treated with topography -guided ablations in order to match angle kappa deviation of the visual axis. Average follow-up was 6.2 months (4 -10).



Results

We treated 65 myopic eyes (Group A) and 13 hyperopic eyes (Group B). The change from pre- to post-operative was for all parameter means: For Group A: Average RE: -4.5D (-1.50 to -8.50D) to -0.25D; UCVA 20/80 to 20/17, flap thickness (110um, 8mm was planned): 107 microns (+/-5) and 8.1mm diameter, Group B: Average RE: +2.5D (+1.50 to +5.50D) to -0.25; and UCVA: 20/60 to 20/15 with mean flap (135um, 9.5mm was planned) 132 microns (+/-7) and 9.4 mm diameter. FC: was 15 sec *for Group A and 19 sec* for Group B. ELA was 28 and 32 seconds respectively for group B. OP was 7.2 minutes for group A and 7.4 minutes for group B. There was no flap slippage, epithelial ingrowth or diffuse lamellar keratopathy (DLK) in any case.



Summary

- 200 kHz laser
 - Creates a 9.0 mm flap in 6 sec.
 - Total procedure time, “suction on” to “suction off” ~30 sec.
- Adjustable flap centration after suction is engaged
- Adjustable hinge placement and flap thickness
- Enhanced suction ring to maximize patient comfort and mitigate increases in IOP
- Network connectivity allows seamless data transfer through the full WaveLight® Refractive System
- Disposable Patient Interface



Conclusions



The “refractive suite” comprises of the

1-200 kHz femto laser

2-500 Hz excimer laser

Clinical results with LASIK show high level of reproducibility

Great safety record so far

Enhanced speed

Networking of diagnostics/both lasers!

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