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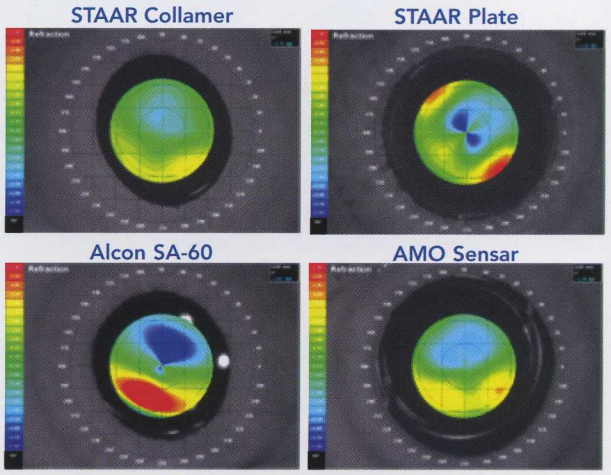
STAAR Collamer® IOL Induces Fewer Higher-Order Aberrations Than Silicone and Acrylic Lenses

By R. Gale Martin, MD

STAAR Surgical's collamer intraocular lens (IOL) induced fewer higher-order aberrations than three other intraocular lenses in a study conducted to determine if implantation of different foldable lens designs results in different amounts of higher-order aberrations.

Patients in the study had Tracey visual function analysis (VFA) performed on their eyes prior to undergoing cataract extraction and a week postoperatively. The Tracey VFA uses a unique patented laser ray-tracing technology to measure and map 100% of the refractive power of the eye.



Postop Average H.O. Aberrations

The study, conducted at our clinic in Panders, North Carolina, included 80 eyes of 80 cataract patients. The patients were randomly assigned to receive one of four foldable lens designs: STAAR single-piece collamer, STAAR single-piece silicone, ALCON SA-60 acrylic and AMO Sensar acrylic.

All pre- and postoperative measurements of higher-order aberrations were done with a 4.5 mm pupil size. Preoperatively, there was no statistical difference in the higher-order aberrations of the patients. Patients in the STAAR collamer group averaged 0.33 root mean square (RMS), in the STAAR silicone group, 0.31; in the Alcon acrylic group, 0.32; and in the AMO acrylic group, 0.29.

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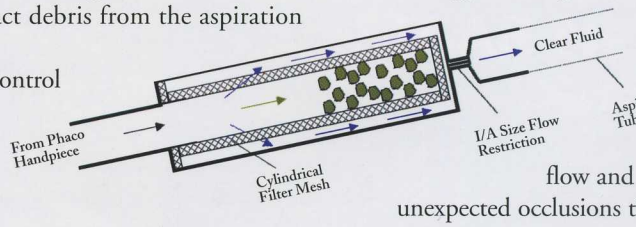
The Phaco Surge Protector: Cruise Control Provides for Safer, Faster and Cleaner Procedures

By I. Howard Fine, MD

STAAR Surgical's "Cruise Control" system improves the safety, speed and efficiency of phacoemulsificaton by facilitating improved anterior chamber stability, by enabling the use of larger phaco tips and higher vacuum, and by blocking cataract debris from the aspiration tubing.

The Cruise Control device utilizes a micropore filter that fits on the aspiration line between the phaco handpiece and aspiration tubing. It captures nuclear material and, as a result, enhances the safety and efficiency of phaco procedures by eliminating surges and minimizing the unpredictable effects of occlusions and stagnation in the aspiration line.

The device itself is a cylinder within a cylinder. Everything that comes out of the handpiece flows into a mesh-like cylinder. Water can flow through the device, but cataract material is filtered out. Removing the phaco debris prevents material from clogging the aspiration tubing.



Clogged tubing retards flow and leads to surges when pressure is released after the line clears. It is the changes in flow and volume that cause unexpected occlusions that can result in chamber collapse or vault.

The use of Cruise Control minimizes the chamber trampolining or surging that often occurs in conventional phaco procedures when breaking occlusions. Occlusions can cause pressure in the eye to become negative, and sudden surges can result in dimpling or even collapse of the anterior chamber.

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