

easyPhaco® Technology

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Cataract surgery has evolved into a very sophisticated procedure, involving the use of complex phacoemulsification machines and Premium intraocular lenses. Phaco machines rely in two main aspects in order of providing exquisite performance: fluidics and power delivery. A combination of these 2 factors results in the exceptionally good visual outcomes we get with this procedure, especially in later years.

One of the main concerns a phaco surgeon has during the procedure is the aspect of chamber stability, being this the most important factor that determines the safety of the phaco procedure.

Fluidics is the term that is used to describe this important aspect of chamber stability control and phaco power efficiency.

The properties of fluidics, intelligently and radically improved, have provided us with very important advantages in phaco surgery:⁽¹⁾ “zero” turbulence; efficient aspiration without fragment repulsion; efficient emulsification with axial energy with little or no changes of intraocular pressure.

easyPhaco® is a concept introduced by Oertli Instrumente AG (Switzerland), manufacturers of phaco and vitrectomy machines.

The characteristics given by the easyPhaco® Technology are involved with major improvements in the fluidics control. These important properties are:

- Delivery of concentrated axial phaco energy.
- “Zero” turbulence with perfect fragment aspiration.
- Chamber stability because of advanced phaco needle design (easyTip® 1.6 ; 2.2 ; 2.8 mm tips).

The easyPhaco® technology can be described as follows:

1. No turbulence: The high vacuum configuration and a vast infusion creates a high inflow that allows perfect chamber stability, reducing fragment dispersion because of the magnetic attraction of the cataract material.

2. No repulsion: Because of the vacuum configuration and the tip aperture design, the cataract fragments are fixed to the tip without repulsion.

3. No lateral ultrasonic power delivery: The axial delivered energy is concentrated in the tip of the needle where it emulsifies the attracted material.

4. Perfect emulsification: The high vacuum plus the optimized tip design allow a perfect attraction of the fragments so the energy is delivered in the center of the material that multiplies the power energy by a factor of 6.

5. Efficient aspiration of fragments: The emulsified particles are finally aspirated by the capillary aspiration conduct of the phaco needle.

6. No surge: In case of tip occlusion, the capillary aspiration precludes the sudden influx of fluids out of the eye, eliminating the anterior chamber collapse and changes in pressure and surge. Since there is always material in the aspiration system, the inflow is increased by a factor of 7, (the tip and silicone sleeve design) that allows perfect maintenance of the intraocular spaces (**Figure 1**).

In my experience, the combination of the easyPhaco® high-power vacuum pump system and the small tip of the CO-MICS allow surgeons to perform perfectly controllable maneuvers in the eye, which is a clear advantage.

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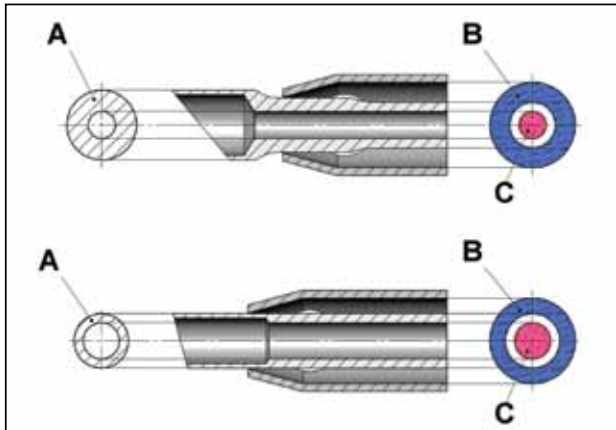


Figure 1: *easyTip*® (top) with improved inflow (7x) and more angulation delivers more power, holding capabilities and enhanced fluidics compared with a standard tip (bottom). Source: Oertli Instrumente AG, Switzerland.

easyTip® CO-MICS

With *easyTip*® CO-MICS you can operate without any problem with incisions of 1.6 - 1.8mm: Sub2mm phaco cannot help but succeed. The benefits of real micro-incision surgery are considerable. The dramatic reduction of the wound surface is important and offers great potential advantages such as superb tightness of the wound, fast healing process, increased protection against infection, perfect deformation stability, no induced astigmatism. The smart design of the *easyTip*® CO-MICS tip makes full use of these advantages. Thanks to its large ring surface, it is more efficient than the usual 2.8mm tip.

This technology has allowed surgeons from different continents to emulsify soft to hard rock cataracts (Figure 2).

The *easyPhaco*® tips available are 1.6, 2.2 and 2.8 mm, each with a tip angulation proven to perform in the safest and most efficient way (Figure 3). The suggested parameters given by the manufacturer should be the start point for every surgeon starting with this technology.

Implanting the IOL

I recommend to routinely implant an Acrylic IOL, enlarging the incision to 2.8 or 3.0 mm. It is important to have in mind that IOLs have been designed for PHACO/MICS, such as the Akreos MI60 (Bausch & Lomb) or the AcrySof (Alcon).

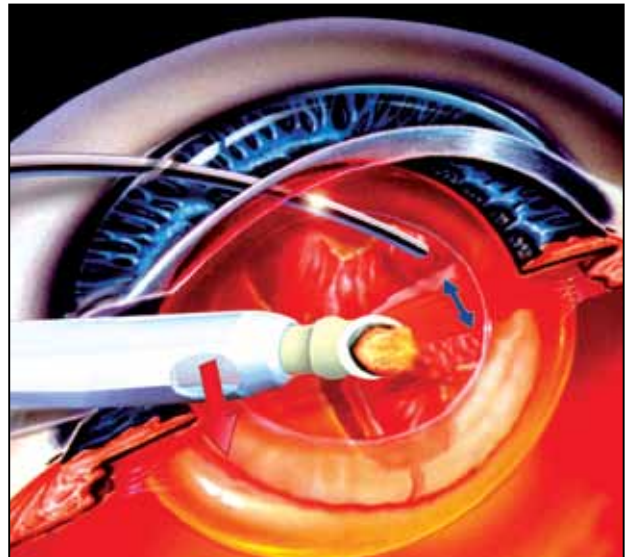


Figure 2: Cracking and Phaco. When using high flow, the preset vacuum level is more readily reached and power coupling occurs when the tip is occluded. (Art from Jaypee-Highlights Medical Publishers).

Although the incision must sometimes be enlarged with CO-MICS, I find that anterior chamber stability is better than with standard phaco. Fluidics is good, and there is less post occlusional surge. In addition, the incision is stable, a benefit when the surgeon must perform both vitrectomy and cataract surgery.

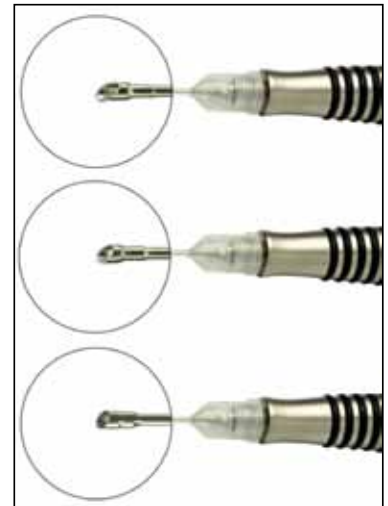


Figure 3: *easyPhaco*® Tips: 1.6 CO-MICS, 2.2 and 2.8 mm. Source: Oertli Instrumente AG, Switzerland.

In conclusion, one thing is for sure, after one tries *easyPhaco*® technology, going back to older machines is a difficult decision.

So because of functionality, safety, ease of use and value, the Oertli *easyPhaco*® technology has proved to be one of the most reliable phaco systems in the world.

References

1. Tan JH, Burton RL. Does preservative-free lignocaine 1% for hydrodissection reduce pain during phacoemulsification? J Cataract Refract Surg. 2001;26(5):733-735.