

# Phacoemulsification and IOLs

How they influenced each other.

BY ROBERT M. SINSKEY, MD

I attended one of the first phacoemulsification courses taught in New York by Charles Kelman, MD, in 1972, when the procedure was considered radical and so difficult to learn that only 5% of those who took these courses went on to employ the technique. At the time, few surgeons in the US implanted IOLs; they included Turgut Hamdi, MD, Henry Hirshman, MD, and Norman Jaffe, MD. These surgeons used the iris-supported or anterior chamber lenses designed by Cornelius D. Binkhorst, MD, Jan Worst, MD, and Peter Choyce, MD. This article focuses on the influence that the development of phacoemulsification and IOLs had on each other.

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## THE FALL OF PHACO, THE RISE OF IOLs

After the 1974 International Congress in Paris, a number of top surgeons spent a week with Drs. Binkhorst and Worst to learn how to implant iridocapsular and iris-supported lenses. IOL use increased thanks in part to intracapsular surgeons, who used the novel technology as part of their fight to

keep from losing patients to surgeons performing phacoemulsification. At the same time, phaco surgeons also began to implant IOLs.

The difficulty in learning phacoemulsification led to its decline in the mid-1970s, while the Choyce and Binkhorst lenses became the most popular IOL designs. In 1974, I introduced phacoemulsification to surgeons in Rio de Janeiro, Brazil (and to surgeons in more than 41 countries during the next 15 to 20 years). Resistance within the profession to phacoemulsification was strong, particularly abroad, not only because of the difficult learning curve but because of the procedure's cost. A study by



The author (left) and Dr. Kelman pose at the 25th anniversary of ASCRS celebration in 1999 with the original phaco machine developed by Cavitron Corporation.

Cavitron Corporation, the manufacturer of the first commercially available phaco machine, demonstrated how very few of these units could be sold in Europe (this conclusion later proved false as the procedure became easier technically and the equipment grew more reliable).

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#### AWAY FROM THE INTRACAPSULAR TECHNIQUE

The introduction of the Shearing flexible-loop, posterior chamber lens (IOLAB Corporation) in 1977 encouraged surgeons to transition to extracapsular surgery, but not phacoemulsification, because IOL implantation required a 6- to 7-mm incision. The Sinsky lens (IOLAB Corporation), introduced in 1980, was easier to implant than the Shearing lens, and its debut further encouraged the practice of extracapsular surgery but, again, not phacoemulsification.

#### POPULARIZATION OF PHACOEMULSIFICATION

Phacoemulsification underwent a surge of popularity in 1984, when Tom Mazzocco, MD, introduced the first flexible, silicone plate IOL that could be introduced through a 3-mm incision. The concurrent development



Jack Dodick, MD (left), Dr. Kelman (center), and the author disembark in the Hamptons, New York, from Dr. Kelman’s helicopter.

of more reliable phaco equipment and better techniques made the advantages (eg, lower postoperative astigmatism, less trauma to the cornea, and fewer retinal detachments) of a small-incision cataract technique apparent. By the year 2000, 90% of US surgeons were performing phacoemulsification,<sup>1</sup> and its use was rising worldwide, despite the surgery’s higher cost compared with intracapsular or non-automated extracapsular techniques.

Dr. Kelman’s phacoemulsification procedure has quickly and painlessly restored the vision of millions of patients. In addition, its development and popularization stimulated the movement toward small-incision techniques in other areas of surgery such as orthopedics, general surgery, and heart surgery. ■

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Dr. Kelman appears behind the Duke of Edinburgh at the 1975 Live Surgical Congress in London.

1. Minassian DC, Rosen P, Dart JKG, et al. Extracapsular cataract extraction compared with small incision cataract surgery by phacoemulsification: a randomised trial. *Br J Ophthalmol.* 2001;85:822-829.