SQUARE-EDGED LENS DESIGN

Eye Learn

All about the Eye

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- During the past decade it has become clear that optic edge design plays an important role in the prevention of PCO.
- When the Acrysof lens (Alcon) was introduced in the early 1990s, several studies showed that PCO development was significantly less than with other IOLs.
- This first was attributed to the acrylic material and to the surface properties of the IOL
- Later it could be shown that the sharp-edge design of the lens seemed to be the key factor for this effect.
- The sharp IOL edge was a result of the manufacturing process, and it's blocking effect on LEC migration, therefore, rather coincidental.
- Further studies confirmed that the rectangular shape of the IOL rim with its sharp edges, in combination with the acrylic material, was in fact the main reason for the reduced formation of PCO.
- The capsular bend at the posterior optic edge causes mechanical pressure and/or contact inhibition of LEC growth on the posterior capsule

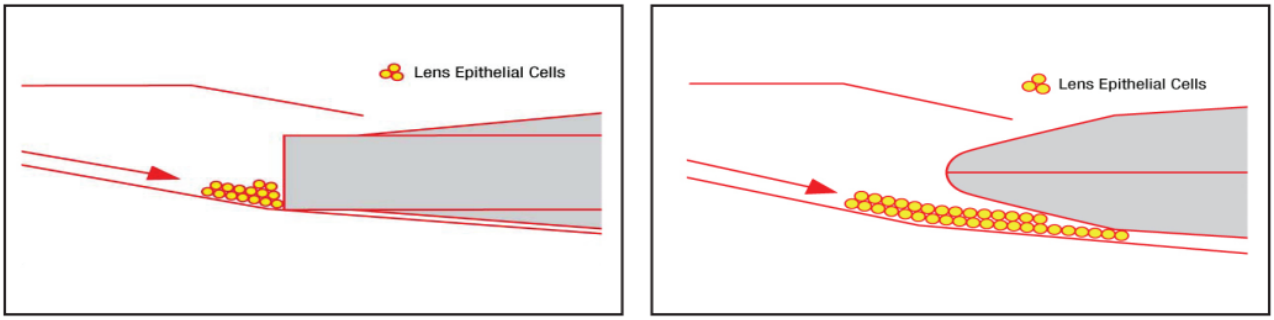

Figure 12-6. Blocking of LEC migration at posterior sharp optic edge due to bending of the capsule (left) compared to round edge IOL (right).

Disadvantages.

- As described previously, in some cases with implantation of lenses with a rectangular edge shape combined with a high refractive index, such as found with the Acrysof lens, an increased incidence of persistent edge-glare phenomena was reported.
- Sharp-edge IOL designs cause the light rays that are refracted through the peripheral IOL to be more intense on the peripheral retina.
- Round-edge IOL designs disperse the rays of light over a larger surface area of the retina, leading to less glare.
- However, the half-rounded edge profile of some newly developed IOLs with a round anterior and sharp posterior optic edge seems to avoid this disturbing side effect.