

Description of a Preferred Surgical Procedure

Prior to surgery, the following variable parameters of the lens have to be determined for each patient:

- A. The diameter of the posterior haptic part is based on the <white to white diameter>>of the cornea. 5
- B. The diameter of the groove will be derived from the measurement of the pupillary diameter in normal daylight and distance vision, using a computer assisted pupillometer. 10
- C. The diameter of the anterior part of the lens will be based on the diameter of the pupil measured in the dark, using a computer assisted infra-red pupillometer.
- D. Pupillary decentration will be determined using anterior segment photographs. 15
- E. The refractive power of the intraocular lens will be determined according to well-known parameters such as the refractive index of the material used, curvature of the anterior surface of the optical part, and biometric data from the eye receiving the intraocular lens. 20

Once the parameters of the lens are calculated, the surgery can be performed according to the following preferred procedure.

After proper anesthesia has been administered, the eye is opened with a corneal or limbal incision. The length of the opening will depend on the foldability of the intraocular lens. The anterior chamber is partially filled with viscoelastic material while the iris is gently dilated and separated from the natural lens during the same manoeuver. The intraocular lens is then introduced in the anterior chamber of the eye with the optional help of a folder. The posterior part of the lens is placed behind the iris and before the natural lens. The iris is inserted in the groove so that the anterior part of the lens is positioned before the iris. To ensure a good positioning of the lens a drug that constricts the pupil can be injected in the anterior chamber of the eye at this stage of the surgery. In order to prevent a pupillary block type of glaucoma, an iridectomy can be performed prior to surgery with the Q-switched Nd-YAG laser. This can also be done during surgery using specific micro-surgical instruments for this purpose. After removal of the viscoelastic material, the incision of the eye is closed. 30

Although the above description of the new lens and its method of insertion contain many specifications, these should not be considered as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of the invention. Other embodiments of the invention, including additions, subtractions, deletions or modifications of the disclosed embodiments will be obvious to those skilled in the art and are within the scope of the following claims and their legal equivalent. 45 50

I claim:

1. An intraocular lens for implantation in the human eye comprising the elements of:

- A. an anterior optical part constructed of a flexible substance and having an anterior surface capable of refracting light;
- B. a posterior haptic part comprising support means, said support means having extensions for positioning in the sulcus of said eye;
- C. a compressible groove, separating said anterior optical part and said posterior haptic part, said compressible groove accommodating the pupil margin of the iris of said human eye;

whereby a constriction of said pupil during the process of accommodation of said eye will compress said groove to a variable degree, and thereby cause a change in said anterior surface of said anterior optical part.

2. An intraocular lens for implantation in the human eye according to claim 1 wherein said optical part is coated or doped.

3. An intraocular lens for implantation in the human eye according to claim 1 wherein said optical part and said haptic part are of different substances selected from the group containing rigid and deformable biomaterials.

4. An intraocular lens for implantation in the human eye according to claim 1 wherein a diameter of said anterior optical part is larger than the average diameter of said pupil of said eye in darkness.

5. An intraocular lens for implantation in the human eye according to claim 1 wherein the largest diameter of said support means approximates the white to white corneal distance of said eye.

6. An intraocular lens for implantation in the human eye according to claim 1 wherein a diameter of said groove approximates the average diameter of said pupil of said eye in daylight.

7. An intraocular lens for implantation in the human eye according to claim 1 wherein said anterior optical part is decentered with regard to said posterior haptic part.

8. A method for correcting a decreased capability for refracting light in the human eye comprising the steps of permanently positioning an intraocular lens in said eye so that a flexible optical part of said intraocular lens is placed before the iris of said eye, a haptic part of said intraocular lens is placed behind said iris, and the pupil margin of said iris is situated within a compressible groove separating said flexible part and said haptic part of said intraocular lens, and further having said groove of said intraocular lens compressed to a variable degree with said pupil margin of said iris whereby said compression results in an increased capability for refracting light passing through said flexible optical part. 45 50

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