The Evolution of Renovation® E MULTIFOCAL

Available Only From ART Optical contact lens, inc.

Renovation is an updated variation of Art Optical's MagniClear/MagniClear Plus design. As our first version of front surface design technology, we learned that MagniClear, when used in conjunction with higher add powers, significantly increased in lens mass resulting in near vision issues. MagniClear Plus was developed to resolve this problem by reducing peripheral lens mass and improving centering capabilities through the use of a mild amount of back surface eccentricity.

When Renovation was developed by Art Optical, the increased mass issue was addressed with peripheral lenticular control. There was no need to use back surface eccentricity to control lens mass. The flexible front surface eccentricity control platform eliminated any spherical aberrations in the transition from the distance/intermediate zone to the spherical add power zone. We also included the ability to increase or decrease the size of the front surface distance/intermediate zone diameter to accommodate varying pupil sizes.

The standard Renovation design has a spherical base curve and is fit on K to slightly steeper than flat K depending on the amount of corneal cylinder present. There is no difference in the fitting philosophy of Renovation than that of a spherical single vision lens. Renovation has enjoyed good success in the United States and is one of the most popular multifocal designs prescribed by practitioners today. It was believed that there would be no need to use an eccentric posterior surface with this design; however, variances in corneal eccentricity were found to affect lens translation and peripheral corneal alignment for some patient fits.

The use of a spherical base curve on corneas with higher eccentricity values can cause binding in the mid-periphery. This is due to the rapidly flattening cornea as the spherical base curve radius remains constant throughout the posterior optical zone diameter. A cornea with a central primary curvature of 43.75D and an eccentricity of .55 to .70 will flatten to 42.00D or greater by the time it reaches 6.00mm in circumference. This is why not all Renovation standard spherical back surface designs will provide adequate near vision. There is an inability for the lens to translate properly when there is a higher than normal amount of corneal eccentricity present.

Renovation E is a new addition to Art Optical's Renovation design. It combines the effective front surface technology of Renovation with a low .50 eccentricity value on the posterior. The end result is improved alignment, the promotion of translation, and an enhanced near power effect.

Test lenses were manufactured to see if the effect of including the .50 eccentricity had any negative impact on the front surface eccentricity control platform. We manufactured a range of base curves from flat to steep with a combined range of high plus to high minus powers. This test was then duplicated in lenses with smaller and larger front distance/intermediate zone diameters. All lens powers and optics were verified using the Visionix Millennium 2001 power mapping device. The results showed no variation in the ability of the front surface eccentricity control platform to eliminate peripheral spherical aberrations. What was noted, however, was a marked increase in the add power generated by the .50 back surface eccentricity. The gradual change in base curve flattening generated an increased add value averaging +0.50D over what the standard Renovation design produces.

For even greater add power enhancement, Renovation E can be manufactured in the Contamac HR 1.53 high refractive index material, resulting in as much as an additional +0.50 of near add over Renovation E lenses manufactured in standard refractive index materials.

With a .50 eccentricity back surface, Renovation E should be fit approximately .50D steeper than the standard Renovation design. This base curve compensation will change with the amount of corneal eccentricity present for each patient. Higher corneal eccentricity patients should be fit flatter than lower, more spherical, eccentricity corneas. We do not recommend automatically using the reduced distance/intermediate front zone option with the .50 eccentricity design unless it is truly necessary. This is due to the rapid power change occurring in the distance/intermediate front zone which can lead to distance vision issues when the lenses do not maintain a center position.

RENOVATION E STANDARD FITTING NOMOGRAMS

When Corneal Eccentricity is unknown or less than .55:

IF CORNEAL CYLINDER IS:	SELECT BASE CURVE:
Spherical - 1.25D	.50D steeper than flat K
1.25 - 2.00D	.75D steeper than flat K
2.00 - 2.75D	1.00D steeper than flat K
3.00 - 3.75D	Consider Back/Bi-Toric Renovation/Renovation E

When Corneal Eccentricity is .55 to .70:

IF CORNEAL CYLINDER IS:	SELECT BASE CURVE:
Spherical - 1.25D	.25D steeper than flat K
1.25 - 2.00D	.50D steeper than flat K
2.00 - 2.75D	.75D steeper than flat K
3.00 - 3.75D	Consider Back/Bi-Toric Renovation/Renovation E

Renovation & Renovation E are available in Back Toric, Bi-Toric and Front Toric Options. For complete information and fitting assistance, call Art Optical Consultation at **800.566.8001.**

OPTIMUM HR

RENEWP-409