

Diffraction Multifocal IOLs: The Acriva^{UD} Reviol MFM 611 IOL and Acriva^{UD} Reviol MF 613 IOL

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Minoru Tomita

10.1 Introduction

Multifocal intraocular lens (IOL) implantation, which was introduced more than 20 years ago, has been a popular procedure that achieves good visual acuity for both distance and near vision [1, 2]. In general, there are three types of multifocal IOLs: refractive, diffractive, and a combination of diffractive and refractive lenses' design [3, 4]. Multifocal IOLs with a diffractive optic design have been proven to provide a significantly better near vision and reading performance than refractive multifocal IOLs and monofocal IOLs [5]. With the addition of a +3.75 D near power, good intermediate distance visions from diffractive multifocal IOL models were also proven in previous studies [6, 7]. In this report I will describe our experience and two recent studies, one in which the visual and optical performances were evaluated and compared between two new-generation multifocal IOL models, both with a near addition power of +3.75 D but with different haptic designs, and the other study comparing these lenses' performance to other IOLs in the market with different near additions.

M. Tomita
Eye Clinic Ginza,
4th Floor, Nissho-Kosan Bldg., Ginza,
Chuo-Ku, Tokyo 104-0061, Japan
e-mail: tomita@eyecanmedical.com

10.2 Acriva^{UD} Reviol Multifocal IOLs

The diffractive multifocal IOL with a plate haptic design used in this study was the Acriva^{UD} Reviol MFM 611 IOL (VSY Biotechnology, Amsterdam, Netherlands) (Fig. 10.1, left). According to the manufacturer, this diffractive multifocal IOL has 3.75 D of addition power and can provide high-quality far, middle, and near visions. It has been verified to have smooth ridges at the diffractive ring transitions to increase the retinal image quality. It also has a 360° continuous square optic and haptic edge to reduce the PCO formation [6]. The Acriva^{UD} Reviol MF 613 IOL (VSY Biotechnology, Amsterdam, Netherlands) has the same optic design as the Acriva^{UD} Reviol MFM 611 IOL, but with a modified C haptic design (Fig. 10.1, right). The C haptic size is 13.00 mm with 0° haptic angle. Both multifocal IOL models are made of hydrophilic acrylic with a hydrophobic surface. Sixty percent of the intraocular light was allotted for far focus and 40 % for near.

10.3 Comparison of Acriva^{UD} Reviol MF 613 IOL with Acriva^{UD} Reviol MFM 611 IOL

In a prospective single-center study, cataract patients who underwent cataract surgery with diffractive multifocal IOL implantation from June