

## Types of intraocular lenses used in cataract surgery.

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### Introduction

#### Monofocal lenses

Monofocal lenses are the most commonly used intraocular lenses in cataract surgery. These lenses have a single focusing distance, usually set for distance vision, which means that patients may still need glasses for reading or other close-up tasks. Monofocal lenses can be made of a variety of materials, including silicone and acrylic, and can be either spherical or aspherical in shape [1].

#### Toric lenses

Toric lenses are a type of monofocal lens that are designed to correct astigmatism. Astigmatism is a condition in which the cornea of the eye is not perfectly round, resulting in blurred or distorted vision. Toric lenses are designed to correct this condition by having different powers in different parts of the lens, which compensates for the irregular shape of the cornea. Like monofocal lenses, toric lenses have a single focusing distance, usually set for distance vision [2].

#### Multifocal lenses

Multifocal lenses are a type of intraocular lens that are designed to provide clear vision at multiple distances, reducing or eliminating the need for glasses or contact lenses. These lenses have a series of rings or zones that focus light at different distances, allowing patients to see clearly at both near and far distances. Some multifocal lenses can also correct astigmatism. While multifocal lenses offer the advantage of reducing dependence on glasses, they can also cause some visual disturbances, such as halos or glare, particularly in low light conditions [3].

#### Accommodating lenses

Accommodating lenses are another type of intraocular lens that can provide clear vision at multiple distances. These lenses work by mimicking the natural focusing ability of the eye. The lens is designed to move slightly within the eye in response to changes in the position of the ciliary muscle, which controls the shape of the natural lens. This movement changes the lens' focusing power, allowing patients to see clearly at different distances. Accommodating lenses are designed to reduce or eliminate the need for glasses for most tasks [4].

#### Extended depth of focus lenses

Extended depth of focus lenses are a relatively new type of intraocular lens that provide a continuous range of vision

from near too far, without the visual disturbances associated with multifocal lenses. These lenses work by using a series of diffractive or refractive zones that gradually change the focus of the lens, creating a smooth transition from near to far vision. Extended depth of focus lenses offer a good balance between clear vision and visual comfort, making them a good option for patients who want to reduce or eliminate the need for glasses [5].

### Conclusion

There are several types of intraocular lenses available to patients undergoing cataract surgery. Monofocal lenses are the most commonly used and offer clear vision at a single distance. Toric lenses are designed to correct astigmatism in addition to providing clear vision at a single distance. Multifocal lenses and accommodating lenses provide clear vision at multiple distances, reducing or eliminating the need for glasses. Extended depth of focus lenses offer a continuous range of vision from near too far, without the visual disturbances associated with multifocal lenses. Patients should discuss the different types of intraocular lenses with their eye surgeon to determine which type of lens is best suited for their individual needs and lifestyle.

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