

Presbyopia Correction – The Importance of Choosing The “Right” Patient

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A clear and uncontroversial definition of presbyopia is the following: The loss of the eye’s ability to change focus to see near objects. The reasons for this loss of the power of accommodation are not yet fully known. It is conventionally said to be due to the lens becoming less elastic with time. Presbyopia is associated with aging. It occurs in everyone. The first sign is often the need to hold reading material farther away.

Pseudo-accommodation is any other method used to improve intermediate and near vision performance using either the Cornea or Intraocular optics. Pseudo-accommodation can be positional, multifocal or depth of focus related. In no case is there a change in power related to ciliary body activity.

Presbyopia initially was treated with near vision optical aids using magnifying lenses, reading glasses, and monacles. Patients were constantly removing reading glasses and losing them because the reading glasses interfere with vision at all other distances. The problem with these reading aids is that they only allow sharp near vision at a given distance and the near visual field is limited by the lens when using bifocal, trifocal or multifocal spectacle lenses. Multifocal lenses produce multiple images at various focal points. Light reflected or emitted by an object must be dispersed by the multifocal lens over all the focal points. Therefore, the intensity at any given focal point will be reduced and the contrast sensitivity diminished. To avoid prismatic effects, the visual field of a multifocal lens is reduced. In addition, the patient must learn to select the appropriate image.

Given the growing visual requirements at near and intermediate distances, it is nowadays common practice in cataract surgery to implant multifocal intraocular lenses (MIOLs), although monofocal still account for a majority of lens implantations. Multifocal intraocular lenses aim to provide patients with spectacle independence at any distance. Although many different lens designs exist, when compared with refractive MIOLs, diffractive designs, particularly those with aspheric profiles, have been documented to provide superior visual acuity (VA) at far and near distances and better contrast sensitivity. For those patients demanding better performance in challenging conditions such as driving at night, some diffractive MIOLs have renounced to pupil independence in favor of apodized designs, in which the height of the diffractive step decreases towards the periphery of the optical zone to boost the incidence of light energy at the distant focus. These designs have also proved beneficial to limit the occurrence of unwanted phenomena such as halos and glare, albeit in this regard monofocal lenses, per design, are always superior to simultaneous image based MIOLs. Recently, trifocal lens designs have been introduced to improve vision at intermediate distances.

One of the keys to success with any means of correction for presbyopia is a proper patient selection. The patient, motivated to reduce his/her dependency on glasses, is possibly the most significant key factor, given that multifocal intraocular lenses are a premium IOL technology in the practice chosen, and this requires the patient to pay an additional cost. Bilateral implantation is a must. It has been demonstrated a binocular summation effect, with quality-of-vision studies showing improved patient comfort once the second eye is implanted. Another group of candidates are the young cataract patients who did not need to wear glasses until presbyopia set in. Patients who had been considering refractive surgery will be successful candidates for presbyopic refractive surgery. The patient with normal visual demands who work and read in normal light conditions is also a good candidate.

The patients to discourage from having presbyopic refractive surgery is also important. Those who have unrealistic expectations of visual improvement above all and further have a history of excessive complaints regarding their glasses and contact lenses. Those patients who drive at night as a profession are to be avoided. Patients who are happy wearing glasses have not got the right motivation and those patients having pre-existing problems with nighttime glare. Glare is common even with conventional IOLs and there are slightly higher levels with multifocals. Making your patient aware before surgery of the possibility for glare and haloes minimizes the shock factor should. Patients with dry eyes should not be treated with any surface ablation technique. However, ocular surface disease, including sub-clinical dry eye, can adversely impact the quality of vision with multifocal intraocular lenses as well. Keeping cognizant of the possibility of tear-film disruption and subsequent blurring of vision cannot be overly stressed.

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