

MULTIFOCAL CONTACT LENSES. A NEW PRACTICAL FITTING TECHNIQUE

BY

SANFORD L. ZIFF, O. D.

Miami, Florida, U. S. A.

A traumatic cataract was surgically removed from the right eye of a 46 year-old business executive. As a monocular aphakic the right eye refracted +10.00 diopters, and the left non - aphkik eye refracted -1.50 diopters. The patient was corrected to anormal 20/20 visual acuity with single vision contact lenses. As a further aid he was prescribed plano distance bifocal glasses. For two years, until he was referred to me for bifocal contact lenses, he was told by eye specialists, one after the other, that he could not be fitted with bifocal lenses. The patient was frustrated and depressed knowing that he was successful lens wearer and yet he still had to wear glasses al day for near and occupational purposes. The reasons were, o fcourse, twofold: Firstly, the patient was not fully informed due to lack of sufficient public information. Generally speaking, the public has little cognizance of the tremendous advancement toward the perfection of multifocal contact lenses that has taken place through research and clinical, as well as practical experience. Secondly, contactologists were retreating from their professional responsibilities by not informing and advising the patient of advancements and new developments that exist in multifocal contact lenses.

The specifications of the lenses with which I successfully fitted this monocular aphakic patient for all day comfortable and efficient vision were as follows:

B.C.	Prism	C.T.	Size	2nd Curve	P.C.	Power
7.41 mm	1°P.D.@110°	.024"	9.4x9.0 mm	9.50/1.0 mm wide	12.25/.2	+10.00
Left:						
7.50 mm	½°P.D.@75°	.019"	10.0x9.0 mm	9.50/1.3 mm wide	12.25/.2	-1.50
Bifocal add:			Seg.height:	R 3.6mm O.Z	7.0 mm	
	R + 2.25			L 3.8mm	7.0 mm	Pink N° 1
	L + 2.25					

The lenses were lumicon fused bifocals.

His visual acuity was 20/20 for near and far monocularly as well as binocularly. His wearing time was 16 to 18 hours daily. After two years of wearing bifocal contact lenses this same patient, at a routine six month progress analysis, mentioned the problem of a blurred intermediate area of vision for the dash board while the problem of a blurred intermediate area of vision for the dash board while driving and at his desk while in the office. I discussed with him the development of the new multifocal lens. It was brought to his attention the advantage of the intermediate area of vision which is incorporated with the distance and near areas of his bifocal contacts. These new lenses were then fitted and the patient is now wearing them with as complete comfort as his previous lenses. He is enjoying the added visual efficiency of having more continuous vision during his everyday business as well as social activities. I have cited this particular patient's record as I consider it to be in a category most difficult to fit with multifocal contact lenses. Yet, it was as successful as any of the less complicated cases. Time does not permit further discussion of other specific cases, but I will outline a practical method of fitting multifocal contact lenses for all cases, as I see it.

The lumicon fused bifocal was introduced at the Seventh National Contact Lens Congress and at the American Academy of Optometry meeting in 1962 by Dr. George Jessen. At the Tenth National Contact Lens Congress and at the American Academy meeting in 1965 the one piece multifocal (trifocal) contact lens was introduced by the same internationally recognized optometrist. Both of these lenses are, in my opinion, the finest and most effective multifocal lenses available today when properly fitted.

With the new practical fitting technique, contactologists should be able to fulfill their professional obligations to most all of their presbyopic contact lens patients. There is no justifiable reason why the potential of millions of non-contact and single vision presbyopes should not be fitted with the full confidence of being able to wear multifocal contact lenses comfortably and efficiently. Tens of thousands of presbyopic single vision contact lens wearers are still using reading glasses for near vision over their contact lenses. In some cases, bifocal glasses are used over single vision contacts. Is it good judgment to prescribe single vision contact lenses and reading or bifocal glasses when these same patients can be fitted successfully for distance, intermediate and near with multifocal lenses? Housewives, office workers, salesmen, business executives, nurses and professional people that I have fitted with multifocal contacts are grateful for a service rendered in the fulfillment of a long awaited need. Let me again emphasize that the percentage of success can be the same for *multifocal* or *single vision contact lens* wearers in your practice as it is in mine. With a well-motivated presbyope, and a completely dedicated con-

tactologist, your successful multifocal contact patients will be as prevalent as your single vision patients, if not more so, since the potential is even greater. The presbyopic binocular or monocular aphakic, the presbyopic myope, hyperope or astigmat; it makes no difference what the ametropia is, but it is of paramount importance to exercise your professional judgment in prescribing for the condition.

My recommended fitting technique for multifocal contact lenses is contained in the following 3 sections.

1. Accept the potential multifocal contact lens patient by the same criteria as that of a single vision patient. Among the usual criteria the two most important factors are healthy eyes, free of pathology, and the patient having maximum motivation.

At the first office visit I recommend a preliminary multifocal contact lens examination where the patient can experience wearing contact lenses and can be advised whether or not in my judgment he will be able to successfully wear lenses. Central and peripheral keratometric readings are taken. A diagnostic lens is placed on the patient's eye to determine if visual acuity through lenses is as good or better than with glasses. Psychologically, the patient must have a good response to the preliminary wearing of the diagnostic lenses. At this point, if the patient is accepted as a single vision wearer then he is also accepted as a multifocal contact lens wearer. I now indicate verbally to the patient the following: "As result of this preliminary examination and all diagnostic tests, including the wearing of diagnostic lenses, it is my professional judgment that you should be a successful multifocal contact lens wearer". Patient's motivation is now stimulated to its highest degree. A second and final fitting appointment is arranged.

2. I use Photo Electronic Keratometry analysis on all contact lens patients for determining the complete topography of the cornea. This is an invaluable diagnostic aid in designing a contact lens that is most compatible to the cornea.

Corneal distortion or existing scar tissue are clearly defined on PEK keratographs. This information is most important, specially if the patient has been wearing single vision contacts from another practitioner and is now being fitted with multifocal lenses. PEK information becomes a part of the patient's permanent record. Of equal importance is the determination of the patient's corneal condition throughout the extended care of his case. A successful case is one that possesses no corneal insult as well as having clear, comfortable and efficient vision.

3. PEK is not always available for diagnostic purposes, consequently my recommended fitting technique will include keratometric readings.

At the final fitting office visit the refraction is completed. A single vision diagnostic lens is placed on the eye incorporating the power determined from the refraction and the base curves determined by the K readings. The multifocal contact lens will be the same size that would be designed if you were prescribing a single vision lens. In other words, if you were to prescribe for this particular patient a large 10.5 to 9.6, or average 9.5 to 8.8mm, or small 8.7 to 7.5mm single vision lens, then the multifocal lens should be same size. The smaller the multifocal lens is, the steeper the base curve (from, 50D to 1.5D) to compensate for the necessary weight and lag of the lens.

4. To determine the seg height with the same diagnostic lens on the eye the patient looks straight ahead in the primary position. The distance from the lower lid to the inferior edge of the pupil is determined. One half mm is added to this measurement for the bifocal height. For total seg height of a multifocal lens with an intermediate segment, add 1.5mm to the distance from the lower lid to the inferior edge of the pupil.

5. If the lenses desired are of a bifocal design, then:

a. I find the lumicon fused segment to be the most effective one available. The lenses are ordered incorporating base curve, size, distance refractive power, reading add (the same as would be prescribed for glasses), optical zone size and peripheral curve. A round nontruncated lens is used ordering $1\frac{1}{2}$ BD x 90 for a myopic case and a 1 BD x 90 for a hyperopic case. Prism stabilizes movement of the lens keeping the segment in its proper position in relationship to the inferior edge of the pupil. In determining the size of the lens, the upper lid is in only slight contact with the superior portion of the lens while blinking.

b. If the lenses are to be of a multifocal design with an intermediate area of vision, then a one piece segment with a second flatter inside radius is used. A 10mm x 9mm size is recommended. B.D. prism is not necessary, as it is already part of the design.

6. At the third visit the lenses are dispensed. Wearing time for the first day is as follows: Two hours on, three hours off, and two hours back on. Thereafter wearing time should be increased one hour each time the lenses are worn (2 hours daily). At six hours the lenses off are decreased by $\frac{1}{2}$ hour daily until a continuous wearing time of 14 to 16 hours is achieved. Weekly appointments are scheduled during this tolerance period.

7. After full wearing schedule is achieved reevaluation is made to determine the extent of complete patient satisfaction and compatibility of the lenses. One or both lenses may have to be adjusted or replaced depending on the extent of changes necessary. If the seg is too low on the bifocal lenses a truncation of 2mm will allow the lens to rest on the lower lid, consequently raising the height of the seg when looking down. If the lens appears tight causing limited movement, the O. Z. can be decreased assuming flare has not been a problem. Where the lenses are multifocal with an intermediate zone, the truncation can be increased to lower the segments. Decrease the size to lessen movement if the upper lid interferes excessively. Reduce the optical zone size if tightness, limiting movement of the lens, appears to be a problem.
8. To assure the patient of maximum visual comfort and efficiency, a second pair of single vision contact lenses are prescribed. They are to be used alternately with the multifocal lenses for specific purposes. This is most acceptable to the patient. With bifocal glasses they have had alternate single vision prescription for special occupational tasks, driving or reading only, and recreational or hobby pleasures.

An architect because of occupational need, was prescribed bifocal contacts with the 1mm above the inferior edge of the pupil. He is now comfortable with maximum visual efficiency for distance and near. A registered nurse wears her bifocal contacts for tedious and technical purposes aiding the physician in his office and surgery. She uses her alternate single vision contacts for night driving and recreational activities.

A case referred to me was that of a housewife wearing single vision contact lenses with reading glasses. I used the forementioned fitting technique to fit her with multifocal lenses. Within a week she became completely adjusted and has comfortably and efficiently worn her lenses 16 hours daily for all general purposes. As mentioned earlier time does not permit discussion of other specific case records. However, by using the recommended fitting technique, most every incipient or advanced presbyope can be successfully fitted with multifocal contact lenses.

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Miami 56—