

Eli Peli, MSc., O.D.

Functional Fields of BiOptic Telescopes: Implications for driving

BiOptic telescopes are used in driving to compensate for acuity loss, yet their impact on the visual field of the driver is the functional aspect of the biOptic that has received the greatest attention. In particular many authors have argued that the ring scotoma caused by the housing of the telescope is detrimental to driving. I will show that the ring scotoma is a direct and unavoidable consequence of the magnification and usually is not related to the telescope structure. To some extent the size of the ring scotoma, as well as its effect on driving, have been misrepresented in the literature. The possibility of shifting the magnification scotoma to maintain a full horizontal field on the road has already been implemented in two commercially available devices and in a new-patented in-the-lens-telescope design. The use of a monocular biOptic by binocular drivers and its effects on the binocular visual field will be discussed, using various telescopes as examples. The impact of a central scotoma on the visual field through a biOptic telescope in monocular and binocular vision will be considered and results from preliminary assessment of naive and experienced biOptic users will be presented. This presentation will show that visual field considerations and assessment of biOptic drivers may be helpful in selecting devices, in training and in design of future devices.