A recent literature review found that typical success rates of monovision for contact lens wearers are between 59% and 67%. Although the review also showed a lack of double-masked, randomized, placebo-controlled trials, this research design is inappropriate because participants are likely to know when they are wearing monovision. In studies comparing different methods of presbyopic correction (eg, monovision vs multifocal contact lenses), it should be possible for the researcher to be masked; however, few studies in this review stated whether this was the case. How successful is monovision compared with other contact lens options for correcting presbyopia? This article attempts to answer this question from the viewpoint of a contact lens practitioner.

Rigid gas permeable (RGP) contact lenses can be fitted so that the lens and eye movements are decoupled, thus facilitating their use as translating multifocals. Optically, this can provide normal distance, near, and stereo vision. But this type of contact lens is challenging to fit, and not all patients adapt to RGP lenses.

There is now a wide range of simultaneous-vision multifocal contact lenses—typically soft contact lenses—that have the distance correction at the edge, or, less commonly, at the center of the lens. Pupil dependence can be problematic with these lenses, although some designs minimize its occurrence. The problem with the simultaneous-vision multifocal contact lens approach is that in addition to the clear (ie, desired) image of the object of regard, there will also always be an out-of-focus image present. Many patients adapt; however, it is likely to have a detrimental effect on visual performance.

This seems to be an inevitable limitation of simultaneous-vision multifocal contact lenses. If a lens simultaneously provides two foci, one is always likely to be defocused. A physiological mechanism exists for interocular blur suppression, and so monovision may be less of a compromise for many patients than simultaneous-vision multifocal contacts.

**TAKE-HOME MESSAGE**

- Monovision may be less of a compromise of image defocus than simultaneous-vision multifocal contact lenses.
- Although monovision impairs stereoacuity, depth perception can still be powerful.

**VISUAL ACUITY, STEREOACUITY**

Most studies comparing monovision with simultaneous-vision multifocal contact lenses find that monovision provides slightly better visual acuity but worse stereoacuity. One advantage of simultaneous-vision multifocal contact lenses (and multifocal IOLs) is that they are typically marketed as a novel, high-tech approach, which, if communicated to the patient, is likely to create a greater placebo effect than monovision. It is therefore desirable for research comparing monovision with simultaneous-vision multifocal contact lenses to control for the placebo effect by providing an equally convincing explanation for each mode of correction. It is unclear whether much of the available research has taken this precaution, which may account for some of the contradictions in the literature as illustrated by the following summary of three recent studies.

Situ and colleagues refitted successful monovision wearers with simultaneous-vision multifocal contact lenses and found that 68% preferred the latter. However, 1 year later, only 53% were still wearing their multifocal lenses. One crossover study found that 76% of participants preferred simultaneous-vision multifocal contact lenses to monovision, another found that only 40% preferred simultaneous-vision multifocal contact lenses, with 50% preferring monovision and 10% undecided.

**INDICATIONS AND CONTRAINDICATIONS**

Monovision impairs stereoacuity, and the effect increases...
as the degree of induced anisometropia increases.\textsuperscript{11} However, monocular cues to depth perception are still operable and can be powerful.\textsuperscript{12} The effect of monovision on binocular coordination is slight,\textsuperscript{1} but monovision should not be prescribed to patients with long-standing unilateral strabismus, ambylophia, incomitant deviations, or intermittent strabismus/decompensated heterophoria.\textsuperscript{13} However, some cases of alternating strabismus\textsuperscript{14} or acquired incomitant strabismus\textsuperscript{15} are well suited to monovision.\textsuperscript{1} Binocular status should be carefully assessed\textsuperscript{16} in potential and existing monovision patients.\textsuperscript{1}

**FITTING MONOVISION CONTACT LENSES**

In most people, the dominant eye varies with testing method, position of gaze,\textsuperscript{1} and monocular blur.\textsuperscript{1} Blur suppression\textsuperscript{18} is a more meaningful test than sighting dominance to detect the proper eye to fit with the distance lens.\textsuperscript{1} A simple test of blur suppression is as follows: correct both eyes for distance vision and, while the patient binocularly fixates on a distance target, introduce a plus lens of the near addition power first over one eye and then the other. Ask the patient to state which option gives the best distance vision. The limiting case for monovision is often night driving, so the test can be repeated while the patient views a spotlight in the dark.

Good monocular visual acuities are important for monovision. The correction of low degrees of astigmatism can therefore be helpful.\textsuperscript{19}

Is age a limiter to successful monovision? In some patients, higher reading additions can prove too much for their interocular blur suppression; others can cope with the maximum add without experiencing blur. Depending on pupil size and reading distance, some older patients may have problems with intermediate vision. In patients over the age of 70 years, monocular blur may increase the risk of falls.\textsuperscript{20}

**PATIENT MANAGEMENT**

As with any mode of presbyopic correction, the patient should be carefully quizzed about his vocational requirements. Monovision is generally considered unsuitable for pilots\textsuperscript{21} or those with other vocations requiring precise stereocuity. Patients must understand the limitations of monovision; informed consent is required. Typically, patients are advised not to drive until they are adapted to monovision.\textsuperscript{1} Not all patients adapt to monovision, and therefore a monovision contact lens trial before surgical monovision is strongly advocated.\textsuperscript{22}

Many patients can drive safely with monovision during the day\textsuperscript{23} and at night.\textsuperscript{24} Indeed, monovision causes fewer symptoms of glare during night driving than simultaneous-vision multifocal contact lenses.\textsuperscript{24} Patients who have difficulties under specific conditions (eg, night driving, computer use) may need spectacles to correct the induced anisometropia during problematic tasks, although this is uncommon.

The distinction between monovision and simultaneous-vision multifocal contact lenses is becoming increasingly ill defined, and modified monovision or enhanced monovision are common options.\textsuperscript{1}

In summary, monovision is a simple solution to presbyopia that is effective in most cases. With modern disposable contact lenses, it is relatively straightforward for patients to undertake a trial with contact lens monovision.\textsuperscript{1}

Bruce J. W. Evans, BSc (Hons), PhD, FCOptom, DipCLP, DipOrth, FAAO, FBCLA, is the Director of Research, Institute of Optometry; Visiting Professor, City University; and Visiting Professor, London South Bank University, all located in London. Professor Evans also is a practicing optometrist and contact lens practitioner in Brentwood, Essex. He may be reached at e-mail: bruce.evans@virgin.net.