

5. Jiang B-C, White JM. Effect of accommodative adaptation on static and dynamic accommodation in emmetropia and late-onset myopia. *Optom Vis Sci* 1999; 76:295-302

**Reply:** Liu and coauthors have written in response to our article describing methods to measure accommodative amplitude.<sup>1</sup> They suggest that we overlooked the refractive status of the subjects and this may impact the "accuracy of the measurements" and "the validity of the data."

Thirty-one subjects participated in our study. Subjects were excluded if they had astigmatism greater than 0.5 diopter (D) and a refractive error greater than  $\pm 2.5$  D. The mean spherical equivalent refractive error in the subjects was  $+0.14$  D  $\pm$  0.74 (SD) (range  $+1.75$  to  $-2.50$  D). In 2 subjects, the mean spherical equivalent refractive errors were  $-2.00$  D and  $-2.50$  D; in 24 subjects, it was between  $-0.50$  D and  $+0.50$  D and in 6 subjects, between  $+0.75$  D and  $+1.75$  D. For all measurements, subjects were distance corrected and could read the 20/20 Snellen line at 20 feet.

Accommodative amplitude, expressed as the dioptric difference between the far point and the near point, was measured in our study using several methods. We demonstrated objective methods to measure each individual's accommodative amplitude. Liu and coauthors state, "If a sophisticated measurement of accommodation is to be made, inattention to the refractive status of the subjects will definitely affect the accommodative response gradient and the amplitude of accommodation measured." While a subject's refractive error may cause them to have a lower accommodative amplitude,<sup>2</sup> we described methods of measuring the amplitude in a subject population with a large age range and various refractive errors. The method whereby the accommodative amplitude is stimulated and measured does, as we show (see Figure 1), influence the amplitude measured.

Myopes and emmetropes respond differently to different kinds of accommodative stimuli.<sup>3</sup> If one is to measure the accommodative amplitude, it is necessary to elicit the full accommodative response. Using the most compelling near stimulus is the best method to elicit the strongest response. Accommodation occurs in response to multiple cues including blur, proximity, and vergence. Targets viewed binocularly generally elicit stronger response than targets viewed monocularly. The most compelling near stimulus would be a real near target that provides blur, proximal, and convergence cues viewed binocularly. In our study, we used blur cues. That may have resulted in lower responses being elicited from the myopes than the emmetropes and, possibly, lower amplitudes in all subjects than if real proximal targets had been used.

Tonic accommodation or dark focus is not likely to be an issue in our study because the subjects were distance corrected to 20/20 and viewed a distance target, not a dark field, when distance refraction was measured. Disparity in accommodation relaxation is also not likely to be an issue in our study as we performed it. With each method, distance refraction was measured while the subjects viewed a distance target. That was the baseline, unaccommodated state. Following that, the accommodative responses to various near stimuli were measured. Accommodative amplitude with each method was calculated as the difference between the initial distance refraction and the maximum near refraction. Furthermore, the accommodation testing performed was not strenuous and frequent rest periods were available throughout the testing. Subjects were not required to

accommodate continuously or to sustain accommodation for more than a few seconds at a time. Rest opportunities were available each time a stimulus position was adjusted, a lens was changed, or the subject moved to a new test. Other studies from our lab show that human subjects are capable of much more rigorous, sustained, uninterrupted periods of repeated accommodation over the full amplitude available than the testing used in this study without overt indications of fatigue or alteration of the accommodative response or amplitude.<sup>4</sup>

We do not believe the "accuracy of the results" and the "validity of the data" can be questioned, as our goal was to simply describe and demonstrate methods to measure accommodation. As shown in Figure 7, A, the response amplitudes in our population are similar to those reported in other studies.—*Lisa Ostrin, Adrian Glasser, PhD*

## REFERENCES

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- McBrien NA, Millodot M. Amplitude of accommodation and refractive error. *Invest Ophthalmol Vis Sci* 1986; 27:1187-1190
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## Prevention of endophthalmitis

We congratulate Buzard and Liapis<sup>1</sup> on the absence of endophthalmitis following cataract surgery in their series of 5131 patients. The authors attributed this achievement to 4 factors: povidone-iodine prophylaxis, meticulous draping of the eyes, blue-line incision, and postoperative subconjunctival antibiotic injections. We would like to raise several points that may broaden the discussion.

First, the lack of a control group in this retrospective study made it difficult to conclude which surgical steps effectively reduced the rate of endophthalmitis. The presumptive factors suggested by the authors were based solely on evidence from existing literature, together with logical deduction.

Second, the 4 factors are commonly practiced perioperative routines. Montan and coauthors<sup>2</sup> and Aaberg and coauthors<sup>3</sup> have shown that the combination of these factors can effectively reduce the occurrence of postcataract endophthalmitis. However, the zero endophthalmitis rate reported in Buzard and Liapis' series compares favorably with the rate reported by Montan and coauthors (0.20%) and Aaberg and coauthors (0.09%). This suggests additional factors may account for this unusually low endophthalmitis rate.

We would like to point out that all 5131 cataract surgeries were done by the same surgeon. This may contribute to the unusually low endophthalmitis rate in the study. Buzard took "meticulous" care in the surgical steps, including preoperative disinfection and draping. In addition, the mean surgery time was 10 minutes. These factors may be the reasons the results in this series stand out from those in other studies.