

LETTER TO THE EDITOR

I read with interest the nicely done study by Sassanov et al.¹ on the effect of test sequence on fusional vergence range measurements. I would like to comment on a statement they made on page 25: “The basis for this [order of testing] is the previously mentioned assumption that vergence adaptation due to BI can momentarily alter the BO finding but this change will not be significant. As previously stated the reverse is said to produce a significant change although there does not appear to be a study that directly measured the amount of this change.” I previously reported such a study,² but seeing that it was published in a journal which likely would not show up in an electronic search, it is not surprising that the authors did not find it.

I tested some subjects in a BI, BO, BI order and some in a BO, BI, BO order. Testing was done at both 6 m and 40 cm using the rotary prisms on a Bausch & Lomb Greens refractor. At distance, the BO, BI, BO order did not result in statistically significant (paired t-test) changes in the BO blur, break or recovery. At near, the BO, BI, BO order did not show a significant effect on the BO findings for blur or recovery, but it did for the break: averaging 20.0Δ before the BI and 18.1Δ after the BI.

With regard to the BI, BO, BI order, distance testing showed a statistically significant effect on both the BI break and the BI recovery, the average break

changing from 8.4Δ to 6.6Δ and the average recovery from 3.0Δ to 2.5Δ. At near, the BI, BO, BI order did not result in a statistically significant effect on the BI blur or recovery, but it did for the BI break: an average of 17.9Δ before the BO and 16.7Δ after the BO. It may be noted that while statistically significant changes were found for some test results, the differences were all small – averaging less than 2Δ for all test findings. Perhaps there are smaller differences with rotary prisms than with a prism bar as used by Sassonov et al.¹ Using rotary prisms for distance testing, Rosenfield et al.³ found similar results to my study, except that while they did find a difference in the BI recovery based on whether the BI done before or after BO, they did not find such a difference for the BI break.

Sincerely,

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References

1. Sassonov O, Sassanov Y, Koslowe K, Shneur E. The effect of test sequence on measurement of positive and negative fusional vergence. *Optom Vis Dev* 2010;41(1):24-27.
2. Goss DA. Effect of test sequence on fusional vergence ranges. *New Engl J Optom* 1995;47(2):39-42.
3. Rosenfield M, Ciuffreda KJ, Ong E, Super S. Vergence adaptation and the order of clinical vergence range testing. *Optom Vis Sci* 1995;72:219-223.