Valiation of the Dyop Acuity Test

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PURPOSE

The Dyop is a novel method of measuring visual acuity that is strongly associated with, and may offer advantages over, traditional visual acuity measurement. In addition to a strong correlation with traditional methods, the Dyop was reported to be advantageous due to the speed at which the threshold endpoint was defined. It is important to confirm its validity and test-retest reliability. We report our findings of the first two years of testing in a large, urban academic setting.

METHODS

Subjects were recruited from students and staff at the Southern College of Optometry. A total of 312 subjects were tested for each of the following test conditions for all subjects:

- Refraction corrected with: +2.00 lens; +3.00 lens; +4.00 lens
- Acuity measures were developed via regression models.
- Correlation was performed for the log of the Sloan VA/20 and the log of the Dyop.
- All data were log transformed before analysis.

RESULTS

There was a strong linear relationship between Sloan and Dyop acuity measures (r² > 0.9). A multiple regression model explained 89% of the variance in Sloan acuity. The correlations model included multiple independent variables with each Sloan acuity measure including the log of Sloan acuity measure and the log of the Sloan VA/20. The model variances were found to be significant at the p < 0.001 level.

CONCLUSIONS

The Dyop is a novel method of measuring visual acuity that is strongly associated with, and may offer advantages over, traditional visual acuity measurement. It is important to confirm its validity and test-retest reliability. We report our findings of the first two years of testing in a large, urban academic setting.