

# Guest Editorial ▶ Seeing Book Retinoscopy From a Different Viewpoint

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Retinoscopy has been an important probe of refractive status since Helmholtz recognized its clinical relevance. Although retinoscopy has been associated with distance refractive error, dynamic retinoscopy has been used as a diagnostic technique for nearly a century.<sup>1</sup> The goal of near-point retinoscopy has been to probe accommodative and near-point function. Dr. David G. Hunter, an ophthalmologist, has even noted the value of this type of retinoscopy in solving accommodative problems.<sup>2</sup>

Throughout the years, different methods of dynamic retinoscopy have evolved for clinical practice. From Bell to Stress Point to Book to Monocular Estimation Method (MEM) to Just Look retinoscopy, the clinician has always had the option of using one or more procedures during their work-up. Ironically, the utilization of these techniques has waned over time, and most clinicians do not consider dynamic retinoscopy an important component of their overall examination sequence.

The origin of Book retinoscopy began at the Gesell Institute of Child Development. Although many optometrists and other professionals were instrumental in its development, Gerald N. Getman, OD is the individual who is most associated with the procedure. He reported four responses based on the type of motion, type of reflex, and cognitive response. A spot retinoscope was the preferred instrument over a streak retinoscope in order to observe these specific changes especially related to color.<sup>3,4</sup>

Over time, the dominance of streak retinoscopy as the retinoscopy of choice has made MEM retinoscopy the most commonly performed. Harold Haynes, OD from Pacific University is credited with developing this technique. "Haynes observed how different motions of the reflex could be correlated with different accommodative and convergence conditions as measured by other tests of the analytical sequence."<sup>5</sup> Rouse has shown that MEM is an effective technique for determining accommodative responses.<sup>6</sup>

Although the Visagraph and the ReadAlyzer are more sophisticated instruments, book retinoscopy allows a clinician to view the patient in a more natural reading environment. With the ongoing controversy regarding the impact of eyes on reading, which is based on evidence-biased opinions, seeing and listening to a patient read a grade-appropriate paragraph can be an important part of understanding the underlying problem or problems. For those professionals who completely dismiss any visual interference factor, they should try reading with their eyes closed.

A re-appraisal of Book retinoscopy is important since this procedure adds another critical dimension to the analysis of a child/patient with a potential reading problem. Beyond the

accommodative response, Book retinoscopy gives the clinician unique insight into the patient's approach and behavior during the act of reading.

The clinician's initial observation begins when the patient is handed the Gray Oral Passages booklet. Where does the patient hold their reading material? Is the booklet held within Harmon's distance or off to the side? Is there a head tilt present when reading? Does the patient tend to move their head (known previously as the typewriter effect) rather than their eyes when scanning across a line of print? These maladaptive responses could indicate a potential binocular, accommodative, and/or ocular motor dysfunction.

Another key variable is an informal probe of the child's/patient's reading level. The Gray Oral Passages are graded from first to twelfth grade. For any patient, the clinician can quickly determine whether there is a discrepancy between the child's grade placement and their reading level. Other common presenting complaints such as loss of place, re-reading sentences, miscalling words, visual guessing, or simply avoiding the task become evident during this procedure. Specific behaviors such as closing an eye, using a finger to track, misalignment of the eyes, or holding the booklet very close are also easily recognized during this testing sequence.

From an optical perspective, the clinician is able to determine whether or not there is with or against motion with a streak retinoscope. A spot retinoscope will be more sensitive to color changes within the reflex. With Book retinoscopy, against motion indicates a more natural rapport with the reading material. Any with motion will require a plus lens in order for the patient to achieve this balance. Rapport is an important variable in visual information processing. As stated by Glen T. Steele, OD, "Although not generally stated, the major goal in evaluating and manipulating the retinoscopic reflex by lens application is to assist the patient in coming to rapport with the task at hand."<sup>7</sup> The near-point lens, which is determined by Book retinoscopy, should be consistent with other clinical finding such as the Fused Cross Cylinder, NRA/PRA relationship, and a near-point subjective. Inconsistencies among findings could eliminate lens therapy as the first option. Vision therapy may be required before considering a near-point prescription.

The final advantage of Book retinoscopy is the impact of a plus lens on a child's/patient's reading performance. Since the major concern in many cases is a visually related reading problem, the child and his/her parent will see a spontaneous positive response to a potential reading prescription. Using an appropriate trial frame, the clinician can refine the lens prescription during the act of reading. It is important for the patient to be aware of differences in lens combinations.

Lenses can dramatically change posture, size of print, reading fluency, and comfort. A negative reaction to a lens could cause an inward shift of posture, smaller print, no change in fluency, or no awareness of change with or without the lenses. Psychological factors can also play a role in individual cases. A child may be against wearing glasses or may be in denial of any visual problems. In some instances, a child is willing to wear their glasses at home for reading and homework but is against wearing them in school. In time, they will make the transition to all near-point activities.

The Gray Oral Passages can also be helpful in demonstrating the value of a bifocal prescription. After establishing the positive impact of a near-point prescription on a child's/patient's reading performance, the doctor can then show the patient and parent the negative impact on the patient's distance acuity. In my experience, you do not want to compromise acuity at either distance. For this reason, single vision reading glasses may be inappropriate in a dynamic classroom setting.

It should also be noted that the visual stress created by near-point tasks such as reading has been rapidly replaced by the proliferation of hand-held electronic devices. Children of all ages have become addicted to these gadgets and can play nonstop for hours. There is a natural tendency for many children to hold these instruments closer and closer over time. Someday in the future, we will probably see a new type of retinoscopy that addresses this evolving technology.

In the art of prescribing, the child/patient must be cognizant of the positive value of the lenses. Without this appreciation, glasses may be recommended, but they may never be worn. A child/patient who acknowledges the true benefit of reading glasses will be less resistant to wearing them in a school environment. The use of the Gray Oral Passages during Book retinoscopy gives the clinician, the child/patient, and the parent a unique perspective into the impact of vision and the power of a lens during the reading process.

## References

1. Bejamen WJ. *Borish's Clinical Refraction*, 3rd ed. Chicago, IL: The Professional Press, 1970:659.
2. Hunter DG. Dynamic retinoscopy: The missing data. *Surv Ophthalmol* 2001; 46:269-74.
3. Getman GN. *Techniques and Diagnostic Criteria for the Optometric Care of Children's Vision*. Santa Ana, CA: Optometric Extension Program Foundation, 1959.
4. Getman GN, Kephart NC. *Developmental Vision*. Optometric Extension Program Curriculum II, vol 30 series 2, no 10,11, 1958.
5. Haynes HM. Clinical observations with dynamic retinoscopy. *Optom Wkly* 1960;51:2243-6, 2306-9.
6. Rouse MW, London R, Allen DC. An evaluation of the monocular estimate method of dynamic retinoscopy. *Am J Optom Physiol Opt* 1982;59:234-9.
7. Steele GT. Dynamic retinoscopy--more than a snapshot. *J Behav Optom* 2007;18:127-9.