

Dermatologists and the Aging Eye: Visual Performance in Physicians

Caitlyn N. Myrdal, MD; Paras P. Mehta, MD; Clara Curiel-Lewandrowski, MD

PRACTICE POINTS

- With presbyopia becoming clinically apparent starting at 40 years of age, dermatologists should be vigilant for correctable visual impairment.
- Although many corrective options exist, more research is needed to understand whether dermatologic subspecialties are better suited to specific options.
- As a specialty, we should consider standardized visual correction guidance.

The years start coming and they don't stop coming.
Smash Mouth, "All Star"

Dermatologists, similar to everyone else, are subject to the inevitable: aging. More than 80% of the US population develops presbyopia, an age-related reduction in visual acuity, in their lifetime. The most common cause of refractive error in adults, presbyopia can contribute to reduced professional productivity, and individuals with uncorrected presbyopia face an estimated 8-fold increase in difficulty performing demanding near-vision tasks.¹

As specialists who rely heavily on visual assessment, dermatologists likely are aware of presbyopia, seeking care as appropriate; however, visual correction is not one size fits all, and identifying effective job-specific adjustments may require considerable trial and error. To

this end, if visual correction may be needed by a large majority of dermatologists at some point, why do we not have specialized recommendations to guide the corrective process according to the individual's defect and type of practice within the specialty? Do we need resources for dermatologists concerning ophthalmologic wellness and key warning signs of visual acuity deficits and other ocular complications?

These matters are difficult to address, made more so by the lack of data examining correctable visual impairment (CVI) in dermatology. The basis for discussion is clear; however, visual skills are highly relevant to the practice of dermatology, and age-related visual changes often are inevitable. This article will provide an overview of CVI in related disciplines and the importance of understanding CVI and corrective options in dermatology.

CVI Across Medical Disciplines

Other predominantly visual medical specialties such as pathology, radiology, and surgery have initiated research evaluating the impact of CVI on their respective practices, although consistent data still are limited. Much of the work surrounding CVI in medicine can be identified in surgery and its subspecialties. A 2020 study by Tuna et al² found that uncorrected myopia with greater than 1.75 diopter, hyperopia regardless of grade, and presbyopia with greater than 1.25 diopter correlated with reduced surgical performance when using the Da Vinci robotic system. A 2002 report by Wanzel et al³ was among the first of many studies to demonstrate the importance of visuospatial ability in surgical success. In

From the Division of Dermatology, Department of Medicine, University of Arizona College of Medicine–Tucson.

The authors report no conflict of interest.

Correspondence: Caitlyn N. Myrdal, MD, The University of Arizona College of Medicine, 7165 N Pima Canyon Dr, Tucson, AZ 85718

(cmyrdal@email.arizona.edu).

doi:10.12788/cutis.0604

radiology, Krupinski et al⁴ demonstrated reduced accuracy in detecting pulmonary nodules that correlated with increased myopia and decreased accommodation secondary to visual strain.

Most reports examining CVI across medical disciplines are primarily conversational or observational, with some utilizing surveys to assess the prevalence of CVI and the opinions of physicians in the field. For example, in a survey of 93 pathologists in Turkey, 93.5% (87/93) reported at least 1 type of refractive error. Eyeglasses were the most common form of correction (64.5% [60/93]); of those, 33.3% (31/93) reported using eyeglasses during microscopy.⁵

The importance of visual ability in other highly visual specialties suggests that parallels can be drawn to similar practices in dermatology. Detection of cutaneous lesions might be affected by changes in vision, similar to detection of pulmonary lesions in radiology. Likewise, dermatologic surgeons might experience a similar reduction in surgical performance due to impaired visual acuity or visuospatial ability.

The Importance of Visual Performance in Dermatology

With presbyopia often becoming clinically apparent at approximately 40 years of age,^{1,6} CVI has the potential to be present for much of a dermatologist's career. Responsibility falls on the individual practitioner to recognize their visual deficit and seek appropriate optometric or ophthalmologic care. It should be emphasized that there are many effective avenues to correct refractive error, most of which can functionally restore an individual's vision; however, each option prioritizes different visual attributes (eg, contrast, depth perception, clarity) that have varying degrees of importance in particular areas of dermatologic practice. For example, in addition to visual acuity, dermatologic surgeons might require optimized depth perception, whereas dermatologists performing detailed visual inspection or dermoscopy might instead require optimized contrast sensitivity and acuity. At present, the literature is silent on guiding dermatologists in selecting corrective approaches that enhance the visual characteristics most important for their practice. Lack of research and direction surrounding which visual correction techniques are best suited for individual tasks risks inaccurate and nonspecific conversations with our eye care providers. Focused educated dialogues about visual needs would streamline the process of finding appropriate correction, thereby reducing unnecessary trial and error. As each dermatologic subspecialty might require a unique subset of visual skills, the conceivable benefit of dermatology-specific visual correction resources is evident.

Additionally (although beyond the scope of this commentary), guidance on how a dermatologist should increase their awareness and approach to more serious ophthalmologic conditions—including retinal tear or detachment, age-related macular degeneration, and glaucoma—also would serve as a valuable resource. Overall, prompt identification of visual changes and educated discussions surrounding their correction would allow for optimization based on the required skill set and would improve overall outcomes.

Final Thoughts

Age-related visual changes are a highly prevalent and normal process that carry the potential to impact clinical practice. Fortunately, there are multiple corrective mechanisms that can functionally restore an individual's eyesight. However, there are no resources to guide dermatologists in seeking specialty-specific correction centered on their daily tasks, which places the responsibility for such correction on the individual. This is a circumstance in which the task at hand is clear, yet we continue to individually reinvent the wheel. We should consider this an opportunity to work together with our optometry and ophthalmology colleagues to create centralized resources that assist dermatologists in navigating age-related visual changes.

Acknowledgments—The authors thank Delaney Stratton, DNP, FNP-BC (Tucson, Arizona); J. Daniel Twelker, OD, PhD (Tucson, Arizona); and Julia Freeman, MD (Pittsburgh, Pennsylvania), for their contributions to the manuscript, as well as Susan M. Swetter, MD (Palo Alto, California) for reviewing and providing feedback.

REFERENCES

1. Berdahl J, Bala C, Dhariwal M, et al. Patient and economic burden of presbyopia: a systematic literature review. *Clin Ophthalmol*. 2020;14:3439-3450. doi:10.2147/OPTH.S269597
2. Tuna MB, Kilavuzoglu AE, Mourmouris P, et al. Impact of refractive errors on Da Vinci SI robotic system. *JSLs*. 2020;24:e2020.00031. doi:10.4293/JSLs.2020.00031
3. Wanzel KR, Hamstra SJ, Anastakis DJ, et al. Effect of visual-spatial ability on learning of spatially-complex surgical skills. *Lancet*. 2002;359:230-231. doi:10.1016/S0140-6736(02)07441-X
4. Krupinski EA, Berbaum KS, Caldwell RT, et al. Do long radiology workdays affect nodule detection in dynamic CT interpretation? *J Am Coll Radiol*. 2012;9:191-198. doi:10.1016/j.jacr.2011.11.013
5. Akman O, Kösemehmetoğlu K. Ocular diseases among pathologists and pathologists' perceptions on ocular diseases: a survey study. *Türk Patoloji Derg*. 2015;31:194-199. doi:10.5146/tjpath.2015.01326
6. Vitale S, Ellwein L, Cotch MF, et al. Prevalence of refractive error in the United States, 1999-2004. *Arch Ophthalmol*. 2008;126:1111-1119. doi:10.1001/archophth.126.8.1111