5 reasons to upgrade patients from monovision to multifocals

Multifocal contact lenses have become the center of attention for two widely different markets: presbyopes and young myopic children.

In the next decade, we will see an increased number of contact lens wearers turning age 50 or older.1 Of those who are already contact lens wearers, the majority have worn them for their adult lives. This population desires to continue contact lens wear, reinforcing the need for successful multifocal contact lens designs and optometrists willing to fit them.

Fit multifocal lenses for older, younger patients

Tackle both ends of the age spectrum with presbyopia and myopia control

See Monovision on page 28
See Multifocals on page 22

Scleral contact lenses can be a positive, life-changing experience for our patients. For example, envision a young man with keratoconus who would like to pursue a career but is unable to see in order to study, or a middle-aged female with Sjogren’s syndrome who is unable to drive or work due to the severity of her ocular discomfort. Scleral lenses have demonstrated a significant improvement in quality of life for patients who had failed or are intolerant to conventional rigid gas permeable (GP) contact lenses.1

Some practitioners have dabbed in scleral lenses, while others have embraced the technology and have tremendous success and growth of their practices with this technology. Successful practitioners have embraced the intricacies of scleral lens fitting. Let’s focus on 10 clinical pearls to enhance scleral lens success.

STEP 1
Master handling
In order to succeed with scleral lenses, successful scleral lens handling is imperative. Verify that each patient understands that scleral lenses differ from soft or standard GP lenses and require specific care products and techniques.

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PERFORMANCE DRIVEN BY SCIENCE™
10 tips to enhance SCLERAL CONTACT LENS SUCCESS

Improve your scleral fitting skills and your patients’ quality of life

By Melissa A. Barnett, OD, FAAO

Scleral contact lenses can be a positive, life-changing experience for our patients. For example, envision a young man with keratoconus who would like to pursue a career but is unable to see in order to study, or a middle-aged female with Sjögren’s syndrome who is unable to drive or work due to the severity of her ocular discomfort.

Scleral lenses have demonstrated a significant improvement in quality of life for patients who had failed or are intolerant to conventional rigid gas permeable (GP) contact lenses.¹ Some practitioners have dabbled in scleral lenses, while others have embraced the technology and have tremendous success and growth of their practices with this technology.

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STEP 1 Master handling
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By Julie Ott DeKinder, OD, FAAO, and Vinita Allee Henry, OD, FAAO

Multifocal contact lenses have become the center of attention for two widely different markets: presbyopes and young myopic children. In the next decade, we will see an increased number of contact lens wearers turning age 50 or older.¹ Of those who are already contact lens wearers, the majority have worn them for their adult lives. This population desires to continue contact lens wear, reinforcing the need for successful multifocal contact lens designs and optometrists willing to fit them.

5 reasons to upgrade patients from monovision to multifocals

By Kristopher A. May, OD, FAAO

Although multifocal contact lenses have existed since 1938,¹ it wasn’t until the 1990s that multifocal designs advanced enough for widespread use by eyecare practitioners. Given that multifocal contact lenses have almost 80 years of existence, why does monovision persist as a treatment of choice for many presbyopes even if they are good candidates for multifocals?

By Melissa A. Barnett, OD, FAAO
Comfort that can breathe.

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supply purchase of clariti® 1 day brand contact lenses. Terms and conditions apply.
Overcoming our fear of change

By Ernie Bowling, OD, FAAO
Chief Optometric Editor

T he dictionary defines fear as an unwelcome emotion caused by a perceived threat that something is dangerous or may cause us harm or pain.

A fear of some things is necessary and drilled into us at an early age lest we hurt ourselves, like a hot stove. We all have fears, whether they are of actual threats like venomous snakes (my biggest) or perceived threats like, oh, a zombie apocalypse.

We are all human with more than our fair share of phobias and fears.

My fears have changed over the years. When I was younger, my greatest fear was leaving a comfortable job with a nice salary and a well-established routine and going to another practice or of opening cold. These of course are normal. Perhaps underlying those surface fears is a basic fear of change.

We humans are creatures of habit, and habits are hard to break. It takes nerves of steel to open a practice cold in today’s environment, yet several of my former students have done precisely that and are doing extremely well. So, it can be done, but I am quite sure they had their moments of fear.

When I was leaving my first paid gig with an ophthalmologist to purchase my own practice, I recall waking in the middle of the night in a cold sweat thinking, “What am I about to do?” Taking on still more debt, moving my family, venturing into the unknown, did I have fears.

After I had purchased my practice, I found that I was afraid of the future. I would dream about finding no one to purchase my practice, it going in another direction, the practice being closed, or it going back to another practice. This was a fear of losing the practice I had worked so hard to build.

One of the biggest I hear is a fear of working out on your own—the fear of leaving a comfortable job with a nice salary and a well-established routine and going to another practice or of opening cold. These of course are normal.

Perhaps underlying those surface fears is a basic fear of change.

The human mind is a creature of habit, and habits are hard to break. It takes nerves of steel to open a practice cold in today’s environment, yet several of my former students have done precisely that and are doing extremely well. So, it can be done, but I am quite sure they had their moments of fear.

When I was leaving my first paid gig with an ophthalmologist to purchase my own practice, I recall waking in the middle of the night in a cold sweat thinking, “What am I about to do?” Taking on still more debt, moving my family, venturing into the unknown, did I have fears.

Years later, I awoke in the same cold sweat asking the same question as I was preparing to sell the practice and teach. In both instances, things turned out better than I expected.

It doesn’t have to be as big as starting a practice. Adding new equipment, relocating your practice, adding a new employee, or perhaps the worst, letting an employee go. All these scenarios can cause us to lie awake at night.

Is it a fear of what might happen? Probably not. It is an underlying fear of change. But change is good. Change forces us outside our comfort zones and as a result, we expand our vistas.

I preached to my children as they were growing to never be afraid to take a change. They took me quite literally, and I’ve had to bite my tongue a number of times to hold my opinion on their ventures. Again, it appears to be working out well for them.

I recently overcame another of my fears, a long-standing one. My first novel will be available on Amazon this fall.
5 ways media coverage can benefit your practice

Local media coverage within your community may help boost exposure and attract new patients to your practice. Dr. Leslie O’Dell suggests five ways to help boost your practices’ publicity.

OptometryTimes.com/MediaCoverage

Diet Review: Picking the best diet for your patients

Finding the best diet to suit patients’ needs can be a challenge. Dr. Tracy Schroeder-Swartz reviews some of the more popular diets available to help find which diet may work for your patients. OptometryTimes.com/DietReview

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Examining poster themes at ARVO 2017

Certain topics stood out to the casual observer in the vast poster session

By Stuart Richer, OD, PhD, FAAO

This year’s Association for Research in Vision and Ophthalmology (ARVO) annual meeting in Baltimore brought together 12,000 researchers from 75 countries.

Whoever said that spending five days walking around a massive indoor convention center looking at cardboard posters is boring hasn’t lived and breathed an ARVO meeting.

Besides improving one’s Fitbit scores (I logged 10,000 strides [three miles] per day), this meeting is like no other—it provides the opportunity for one-on-one interaction with scientists. It’s speed dating for science geeks.

No one individual can digest the 5,647 posters and myriad oral presentations and panel discussions, but certain themes emerged, even to the casual observer. Poster numbers are included.

Non–invasive vascular imaging, blood flow, and chronic eye disease

There’s a wealth of new information on ocular coherence tomographic angiography (SD-OCTA) and the newer swept source (SS-OCT) imaging of the choroid—the latter providing even faster scanning, higher sensitivity, and better penetration with better signal-to-noise ratio. #49

The further commercial realization of Doppler SD-OCT modes provide non-invasive visualization and quantitative analysis of the blood flow to the retina, optic nerve, and choroidal vasculature. #3040

Qualitative vascular images of hidden ocular tissue as well as quantitative blood flow analysis will drive the future of primary eye care because diabetic retinopathy, glaucoma, and age-related macular degeneration (AMD) all involve early subclinical disruption of circulation and subsequent pathophysiology tissue damage, now managed by the subspecialist. #712

A State University of New York (SUNY) study showed AMD eyes have an enlarged foveal avascular zone area (FAZ). This decreased capillary vesselularity could not be explained by age or thinner para-foveal ganglion cell complex thickness. #36

There is a relatively strong correlation of approximately $r=0.45$ between enlarged FAZ and choroid vascular density in AMD. #1659

For optometrists who have yet to purchase an SD-OCTA system, consider the Vessel Analysis System Program (VASP), a neat HIPAA-compliant program from Commonwealth Scientific and Industrial Research Organisation (www.csiro.au), Australia’s equivalent to the United States’ National Institutes of Health. #655

This magnificent telehealth program allows optometrists to upload ordinary fundus images and obtain back automated quantitative analysis of 61 retinal vascular parameters. These include a/v and arteriolar light reflex ratios (ALR), fractal segmentation, and analysis of the “big six” vessels off the optic nerve. Here is an inexpensive way to merge retinal vascular health change analysis with preventative ocular medicine strategies.

Using this system, Australian neurologists found that the ALR correlates with Alzheimer’s disease amyloid accumulation. Remember that the eye has the same embryonic origin as the brain. #656

Hypertension medications may worsen glaucoma

In a 10-year retrospective study of 6,625 patients prescribed systemic anti-hypertension medications, 32 percent of patients showed progression compared to 23 percent of diet-managed
The gastrointestinal microbiome has been found to be altered in patients with acute anterior uveitis, so think about probiotics the next time you treat an iritis. #2166

The microbiome of the nose and throat is also distinctly different from that of the ocular microbiome. #3821

**Apps everywhere**

Some 30 percent of diabetes worldwide occurs in China, and it is not uncommon for Chinese males to discover that they have advanced blinding diabetic retinopathy at their first eye exam. #79

One scientist told me the increase in diabetes is likely due to the newfound cultural desirability of fast food, higher meat consumption, and avoidance of “peasant vegetables.” Other emerging countries like Mexico have similar concerns as they plan for the expected public health care explosion in diabetes. #4837

Absent optometrists, one solution is the combined and coordinated use of smartphone camera attachments such as CellScope and VisionQuest Eyestar Pictor, automated retinal analysis algorithms, and telemedicine. #659, #4837

Yet, consumer telemedicine may not be

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**Collagen cross-linking Phase III keratoconus results published**

**WALTHAM, MA—Avedro, Inc. has published 1-year safety and efficacy data from the randomized, controlled pivotal Phase 3 clinical trials that supported the FDA approval of Avedro’s Photrexa Viscous (riboflavin 5’-phosphate in 20% dextran ophthalmic solution), Photrexa (riboflavin 5’-phosphate dextran ophthalmic solution) and KXL System for the treatment of progressive keratoconus.**

Results from the clinical trials, in which 205 patients with progressive keratoconus were treated at multiple U.S. sites, were published in *Ophthalmology.*

The clinical trials exceeded the primary efficacy endpoint of 1.00 D difference in $K_{max}$ over 1 year between the cross-linking treatment arm and the control group, according to the company, $K_{max}$ is defined as the topography-derived maximum keratometry value.

Data from the clinical trials demonstrated that $K_{max}$ improved by 1.6 D ($\pm$ 4.2 D) from baseline to 1 year in the cross-linking-treated group and worsened by 1.0 D ($\pm$ 5.1 D) in the control group, for a difference between groups of 2.6 D ($p < 0.0001$).

Additionally, eyes treated with cross-linking had a mean gain of 5.5 ETDRS letters over baseline corrected distance visual acuity (CDVA), which was significantly different than the 2.2 letter gain in CDVA in the control group ($p < 0.01$).

In addition, 24 percent of cross-linking-treated eyes gained two or more lines of CDVA, a clinically meaningful improvement in visual function.

Cross-linking was safe and well tolerated. There was one reported case of ulcerative keratitis (0.3 percent) in the trial.

“With these trials, Avedro’s cross-linking treatment has changed the paradigm for how we treat patients with progressive keratoconus,” says Peter Hersh, MD, lead author and cornea specialist at The Cornea and Laser Eye Institute – CLEI Center for Keratoconus.

“Not only did we see significant improvements in the steepness of the cornea and visual acuity,” he says, “but patients who underwent cross-linking reported subjective improvements across several measures of visual function, including night driving, reading, double vision, glare, fluctuation in vision and foreign body sensation.”

The randomized, controlled clinical trials included 205 patients with documented progression of keratoconus at 11 clinical study sites in the U.S. Eyes in the treatment group underwent standard epithelium-off corneal cross-linking with Photrexa Viscous and Photrexa riboflavin drops and 3mW/cm² UVA light. Eyes in the control group received Photrexa Viscous and Photrexa but did not have the epithelium removed and did not receive UVA light. The primary efficacy criterion was the change over 1 year of topography-derived $K_{max}$ comparing treatment with the control group.
ready for prime time. A Johns Hopkins (remote vs. office) autorefractor comparison study showed that only 75 percent of participants were successfully refracted remotely using an Smart Vision Labs SVOne smartphone autorefractor now marketed in more than 100 optician establishments on the East Coast. #2393

Marijuana, pregnant mice, and your glaucoma patient

While marijuana may not be good for pregnant mice, causing lasting retinal effects to offspring, the general public believes that marijuana can be an effective means to treat glaucoma. #271

Denise Valenti, OD, presented U.S. statistical use data emphasizing that patients electing to use marijuana as their sole treatment for glaucoma-related vision loss risked blindness because of an absence of adequate medical monitoring, follow-up, and guidance. #4614

Marijuana also has deleterious short timeframe effects on the visual field, so ask your patients to bring a designated driver or walk to your practice.

AMD diagnosis and staging

It’s assumed that about 12 percent of patients over age 60 have abnormal dark adaptation (DA). One ophthalmologist found that more than 50 percent of his 200 patients thus far have an abnormal DA with or without a family history of AMD. #1553

Absent a billing code, National Eye Institute scientists presented use of a nifty $65 opaque filter for using visual function to stage AMD with a strong correlation of r = 0.85, p < 0.001.

This low luminance test involves testing Early Treatment Diabetic Retinopathy Study (EDTRS) visual acuity with and without a 2.0 neutral density filter and recording the difference in the number of letters correctly identified with and without the opaque filter.

The greater the difference, the more severe the photoreceptor retinal pigment epithelium dysfunction and AMD. This is a simple technique to add to your routine examination of patients 50 years or older and correlates with a validated low luminance questionnaire. #1526, #2334

Speaking of low vision, a new wide-angle intraocular lens called Eyemax (London Eye Hospital Pharma, UK) is capable of providing both AMD and cataract patients an additional plus lines of Snellen visual acuity upon implantation. #2730

Omega 3 fatty acids and acne rosacea

Use of omega 3 supplementation improves goblet cells function, tear break-up time, lacrimal meniscus, and Ocular Surface Disease Index (OSDI) burning and foreign body sensation scores at one month of use. #2707

My friend and colleague Kerry Gelb, OD, reminded me that he treats acne rosacea using fish oil combined with probiotics and B complex vitamins for an even greater therapeutic effect. This is an example of great clinical conversations that occur at ARVO.

Where does meso-zeaxanthin come from?

Meso-zeaxanthin is a macular-specific carotenoid with no common dietary source, and RPE65 is the key enzyme of the vertebrate visual cycle for converting all-trans to 11-cis-Retinoids. Retinal specialist Paul Bernstein, MD, and his team of scientists from the Moran Eye Center in Salt Lake City have determined that RPE65 has a secondary function converting lutein to meso-zeaxanthin. Eat spinach or consume lutein supplements, and make mesozeaxanthin. #3579

Auto fluorescence and alternative methods

After much basic science work, we now have a commercial device (Heidelberg qAF) for automatic quantification of lipofuscin induced autofluorescence of the human retina. #4853

In a 50-patient study, smoking has been quantitatively found to significantly age the human retina. #4854

In the future, primary-care optometrists will use such instruments to combine quantitative imaging with anti-aging health counseling, following the lead of chiropractic medicine. For example, Temple University ophthalmologists have shown that foot reflexology is superior to alternate nostril breathing to lower IOP in patients with ocular hypertension. #4615

“Further studies will be necessary to determine the optimal treatment parameters in the hope that this form of alternative medicine may be an additional IOP lowering option,” according to these ARVO scientists.

We will need high-quality sleep to take in everything that ARVO has to offer optometry. Narrow blue blockers 480±20 nm worn for a few hours before bed limit melatonin suppression and improve sleep quality. #4134

There is a lot of work to be done by optometrists of the future, even in the United States. A study on trends in the eyecare workforce over two decades shows that even in the United States, 62 percent of counties have no ophthalmologist. #5088

Dr. Richer is president of the Ocular Nutrition Society (ONS). He is associate editor of Journal of the American College of Nutrition and associate professor of family and preventative medicine at Chicago Medical School.

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The National Eye C.A.R.E. (Current Attitudes Related to Eye Health) Survey was conducted online within the United States by Harris Poll on behalf of Shire between July 6th and 27th, 2016. The consumer arm of the survey included a total of 1,210 US adults ages 18+ who report dry eye symptoms (“adults with dry eye symptoms”), including 375 adults who have been diagnosed with dry eye disease (or chronic dry eye) by a healthcare professional and 835 adults who have not been diagnosed, but experience dry eye symptoms and have used artificial tears to relieve those symptoms within the past month. The professional arm of the survey included 1,015 US adults ages 18+ who are optometrists (n=502) or ophthalmologists (n=513) (“ECPs”). For complete research method, including weighting variables and subgroup sample sizes, please contact Clotilde Houzé, Director, Portfolio Communications, Shire, at chouze0@shire.com.
Focus On

GLAUCOMA

New concepts in diagnosis and treatment

Advancements in technology help move glaucoma diagnoses forward

In the past decade, several significant advancements have been made in the arena of glaucoma diagnosis. Spectral domain optical coherence tomography (SD-OCT), newer algorithms in trend analysis of visual field studies, and combined visually evoked potential (VEP) and pattern electroretinography (ERG) studies have been the hallmarks of such recent advancements.

I delivered two lectures recently at a conference in Halifax, Nova Scotia, which highlighted novel devices and concepts in glaucoma diagnosis and treatment.

Diagnosis concepts

The first course was on diagnostic advancements, and it included a review of SD-OCT studies, VEP/ERG analysis, and visual field analysis and progression algorithms. I also covered conceptual considerations, such as low cerebral spinal fluid pressure and its potential link to glaucoma.

The second course, which went through potentially promising therapeutic approaches on the horizon, left the audience with one cold hard fact: With all that we can do on the diagnostic side of glaucoma, there has yet to be a therapeutic approach to date which should come before lowering intraocular pressure (IOP). ODs need to look for signs earlier and treat glaucoma early on in an effort to preserve ganglion cell vitality and its corresponding visual function.

Someday, the future of glaucoma therapeutics will likely deliver a novel neuroprotective approach that will be proven effective in preserving ganglion cells. However, it is always important to treat glaucoma earlier in the hopes of preserving visual function. ODs are left with the task of detecting glaucoma earlier or—perhaps more conceptually—determining which patients will get glaucoma.

Research findings

In a small but potentially significant study, the authors purported to have accurately and safely identified apoptotic neurons in the retinas of glaucoma patients. The investigators labelled a molecule known as annexin A5 with a fluorescent dye and injected it into patients intravenously in combination with detecting of apoptosing retinal cells (DARC)—an imaging technique. The DARC count is the number of apoptosing retinal neurons. This metric was higher in patients with progressing glaucoma. Whether patients have sick or healthy neurons, apoptosis (programmed cell death) occurs in all people. It is commonly accepted that apoptosis accelerates early on in glaucoma (and other neurodegenerative diseases). This early sign of the disease has been elusive to in vivo assessment in humans. If this imaging technique proves to be effective (more and larger studies are needed), then it could be possible to identify and stage glaucoma in its earliest form.

A major implication with respect to this study is that it may be possible to identify the presence or progression of glaucoma much earlier than contemporary clinical application of science permits. The ability to intervene earlier on in patients who need intervention could lead to better patient outcomes.

Another major implication would be the possible application of a biomarker for progression in patients already being treated for glaucoma. It can be inferred that the rate of accelerated apoptosis in glaucoma patients could someday be directly measured as a means of determining the effectiveness of therapy.

Applying treatment options

Target IOP is defined as the IOP at which glaucoma does not progress. We make use of landmark studies such as the Ocular Hypertension Treatment Study and the Collaborative Normal-Tension Glaucoma Study to guide us on how aggressive we should be in setting initial target IOPs in glaucoma patients or glaucoma suspects.

If a patient’s glaucoma progresses, by definition, that patient is not at his target IOP. At this point, changing or adding to current therapy becomes appropriate, and current markers include noticeable changes to the optic disc appearance, changes to the retinal nerve fiber layer (as seen by the human eye upon fundoscopy or with imaging studies such as SD-OCT), progression of visual field defects, and functional changes of ganglion cells as seen with VEP/ERG studies.

Adding another objective biomarker for the detection of glaucoma progression (especially progression in its earliest form) would have the potential to prove beneficial. I am eager to see if this purported technique can be reproduced in larger scale prospective cohort studies.

The potential for clinical application of such science could lead to a future of glaucoma management that would not only be more effective—but also highly individualistic to each patient.

REFERENCES

Jennifer Lyerly, OD
Triangle Visions Optometry
Cary, NC

Dr. Lyerly was compensated by Alcon for her participation in this advertorial.

Today’s contact lens wearers expect perfect visual clarity, convenience and all-day comfort. As eye doctors, we understand they “want it all,” but why do we assume they can’t have it or that they are happy with the lenses they have? As a member of the millennial generation, I can relate to patients’ performance and clarity expectations. Today’s visual demands, especially when it comes to near vision, are greater than ever — 30% of U.S. adults spend 9 or more hours/day on digital devices; and digital device use has negative impacts on blink frequency, blink motion and tear film stability. With nearly half of the visual correction population also having at least 0.75D of astigmatism in one eye, the imperfections we leave uncorrected are an unnecessary detriment to visual performance. Toric contact lenses present a real opportunity to satyfisic patients’ needs, and for me, the DAILIES AquaComfort Plus® contact lenses were also designed specifically for a daily replacement schedule. By releasing the moisturizing polymer polyvinyl alcohol (PVAl) with every blink, DAILIES AquaComfort Plus® contact lenses provide all-day comfort and tear film stability — including superior tear film stability versus 1-Day ACUVUE® MOIST. The tear film helps maintain clear vision, comfort and ocular health, but can be destabilized by common activities of daily living, which makes lenses that support tear film stability a priority for all contact lens wearers. Being able to provide the tear film benefits of DAILIES AquaComfort Plus® Toric contact lenses is incredibly important to my astigmatic patients’ lens-wearing success.

Another key for me is Alcon’s commitment to patients and practitioners. This includes the DAILIES® Choice Program (www.DAILIESCHOICE.com), which makes Alcon daily disposable contact lenses more affordable than ever for patients. The DAILIES® Choice Program has helped more of my patients experience the benefits of daily disposable contact lenses and increased our practice’s annual supply

My patients consistently tell me how much they love DAILIES AquaComfort Plus® Toric contact lenses. My new contact lens wearers are delighted by the comfort and visual clarity they experience. DAILIES AquaComfort Plus® Toric contact lenses are also an ideal first toric contact lens option because they are easy to handle, with clear alignment markings, which makes insertion and removal easy.

My experienced contact lens wearers who switch to DAILIES AquaComfort Plus® Toric contact lenses also appreciate the stability and visual clarity, as well as the all-day comfort, the lenses provide. They regularly tell me that for the first time, they can comfortably wear their contact lenses all day. Even giving happy monthly contact lens wearers the opportunity to try DAILIES AquaComfort Plus® Toric contact lenses can make a huge difference in their satisfaction — they didn’t know how much better their lens-wearing experience could be!

With the wide range of fit parameters available, I know I can fit DAILIES AquaComfort Plus® Toric contact lenses on almost any astigmatic patient. Availability in both hyperopic and highly myopic prescriptions allows me to deliver precise vision to patients with even low amounts of astigmatism.

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References
How sleep affects the ocular surface

Insufficient or poor sleep hygiene may play role in ocular surface health.

At every age we need adequate, uninterrupted sleep for optimal, wakeful functioning. Insufficient sleep is associated with a number of chronic diseases and conditions such as diabetes, cardiovascular disease, obesity, and depression. Traditional medicine also considers appropriate sleep, among other factors, essential to maintain ocular health.

Sleep and ocular health

A 2016 study from Japan concluded sleep quality is associated with dry eye disease (DED), and sleep disturbance seems to be an influencing factor on DED, especially dry eye symptoms.

We are familiar with ocular surface disease (OSD) in patients with sleep apnea, often associated with floppy eyelid syndrome.

In a longitudinal examination of risk factors for severe dry eye symptoms in U.S. veterans, sleep apnea was identified as a risk factor for severe dry eye symptoms. Additionally, sleep posture may be a factor in OSD.

Alevi et al reports that in addition to current dry eye treatments, patients who sleep on their sides or face down may see a reduction in dry eye and meibomian gland dysfunction (MGD) if they change their sleep pattern to the supine position.

It is interesting to note that sleep disturbance is a common nonmotor phenomenon in Parkinson’s disease as well as dry eye syndrome. A 2016 study from Japan concluded sleep quality is associated with dry eye disease (DED), and sleep disturbance seems to be an influencing factor on DED, especially dry eye symptoms.

We are familiar with ocular surface disease (OSD) in patients with sleep apnea, often associated with floppy eyelid syndrome.

Sleep disturbance can be identified by abnormal or unusual behavior of the nervous system during sleep such as sleepwalking and REM behavior disorder.

Sleep bruxism (nocturnal tooth grinding)

Circadian rhythm sleep disorders

A 2009 Centers for Disease Control (CDC) survey disclosed that adults who reported sleeping less than the recommended seven to nine hours per night were more likely to have difficulty performing daily tasks.

Identifying sleep disturbance

In addition, sleep disturbance can be identified and quantified using the Pittsburgh Sleep Quality Index (PSQI) questionnaire tool (http://www.psychiatry.pitt.edu/sites/default/files/page-images/PSQI_Instrument.pdf). The PSQI is a self-report questionnaire that assesses sleep quality over a one-month interval.

The PSQI measures the quality and patterns of sleep in older adults by measuring seven domains. It consists of 19 individual items generating seven component scores:

- Subjective sleep quality
- Sleep latency (i.e., how long it takes to fall asleep)
- Sleep duration
- Habitual sleep efficiency (i.e., the percentage of time in bed that one is asleep)
- Sleep disturbances
- Use of sleeping medication
- Daytime dysfunction

This questionnaire differentiates “poor” from “good” sleep.

Patients may suffer from several sleep disorders, including:

- Parasomnias (disorders characterized by abnormal or unusual behavior of the nervous system during sleep such as sleepwalking and REM behavior disorder)
- Sleep bruxism (nocturnal tooth grinding)
- Circadian rhythm sleep disorders

Combating sleep disorders

The CDC recognizes insufficient/poor sleep as a public health problem, especially since CDC surveillance of sleep-related behaviors has increased in recent years.

Additionally, the National Academy of Medicine encouraged collaboration between the CDC and the National Center on Sleep Disorders Research to support development and expansion of surveillance of the U.S. population’s sleep patterns and associated outcomes.

The National Sleep Foundation offers suggestions to enhance patients’ sleep patterns—including the promotion of regular sleep habits.

This begs the question: Should ODs incorporate a sleep survey into their dry eye exams?

Akin to dry eye disease, there are numerous validated global and targeted patient sleep/sleepiness/insomnia questionnaires available. Questionnaires can be selected to help identify sleep disorders in subsets of patients such as pediatric, adolescent, adult patients, or obstructive sleep apnea suspects.

With novel technologies and emerging discovery, our evaluation of the OSD patient has become more sophisticated and fine-tuned. Each snippet of information supplements the profile of individual dry eye patients and adds a target for therapeutic intervention.

One prescription we should possibly include is lid and sleep hygiene. Patient sleep survey results may add the extra clinical sign/symptom that may be the tipping point for our OSD patients.

REFERENCES

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Focus On

COMANAGEMENT

Intense pulsed light bridges eye care and aesthetics

Using YAG laser combined with IPL may assist patients with dry eye

For the past few months, my wife Jill has been visiting a boutique for a quick 10-minute procedure to remove debris and trapped oils from her facial skin. If you ask Jill, she will tell you that this laser procedure is “amazing” and it has made a huge difference in the appearance of scarring and the occasional acne breakout.

What is this age-defying modern technology that a young, nonmedical professional is applying to her face? It is a YAG laser combined with an intense pulse light (IPL).

Yes, the very same YAG that we use to break up the opacified capsule. The YAG is commonplace in the ophthalmic office; however, IPL may be an irregular fit in eye care. I will argue that both are right at home in the ophthalmic practice and venture to say our utilization for the skin should be normal as well.

IPL uses

The YAG laser light has been used in dermatology for decades to treat a variety of skin problems, including facial rosacea.1

As commonly occurs with procedures and medicines, anecdotal changes often accompany the original goal. Take the lash growth seen with the use of bimatoprost (Latisse, Lumigan; Allergan) as an example of a sequela that is fortuitous for the patient.

Because studies have concluded that 80 to 90 percent of patients with facial rosacea also have ocular rosacea, it should come as no surprise that patients experienced an improvement in symptoms of dry eye after IPL treatment for their facial rosacea.2 It appears that breaking up the inflammatory cycle may be utilized for both rosacea as well as dry eye.

IPL procedures

The mechanism of action for IPL is to absorb light filtered to certain wavelengths into selective target tissues. IPL shares similarities with laser treatments in that it uses light to heat and destroy its target—unlike lasers that use a single wavelength (color) of light which typically matches only one chromophore, and hence only one condition. IPL uses a broad spectrum which when used with filters allows it to convert light into heat. This conversion can then be used against several conditions.

IPL therapy is considered a non-ablative resurfacing technique, meaning it targets the lower layers of skin (dermis) without affecting the top layers of skin (epidermis). The results are not as dramatic as ablative resurfacing in which both the dermis and epidermis are injured to produce a more noticeable overall outcome.

In the treatment of inflammation, the laser targets oxyhemoglobin, which is present in the walls of telangiectatic blood vessels, to induce thrombosis. These superficial leaky blood vessels release inflammatory mediators that are often the impetus for inflammatory-related conditions, including dry eye.

Dermatologists tend to target the oxyhemoglobin of the skin by starving the glands of the inflammatory mediators that are needed to perpetuate the inflammatory cascade. Targeting the eyelids and lid margins for thrombosis of these vessels may decrease the symptoms of inflammatory dry eye.

By addressing the telangiectatic vessels that feed the meibomian glands, IPL may provide these glands with an opportunity to return to homeostasis. This may not always be accomplished in atrophied glands, and often a series of treatments is needed to provide relief.

The multifactorial nature of dry eye disease makes a single treatment or diagnostic test nearly impossible. Optometrists must manage this condition with multiple resources, utilizing non-invasive and practical treatments.

Patients who have symptoms of dry eye disease and have signs of meibomian gland dysfunction, telangiectatic vessels around the lid, or have failed on other therapies may benefit from the use of this novel treatment idea. When patients are preparing for surgery that will impact their vision, whether it is refractive or cataract refractive surgery, the YAG laser may be enough to balance the tear film for a more stable recovery.

The future of IPL treatment

As the population seems to have peaked with the baby boomers, ODs are seeing an increase in the percentage of millennials with this condition. We must find ways to prevent these conditions from exacerabating.

As we see this bridge between aesthetic services and ophthalmic treatments, IPL seems poised to provide that opportunity. When I am treating patients, my goal is to provide treatments that go beyond a single treatment paradigm. Light may target pigment in the exoskeleton of Demodex, reducing its number and the possible negative effects related to rosacea.

Our role as ODs creates a profound opportunity for us to participate in treatments that can add benefit to our patients. IPL is one such non-invasive opportunity to add an aesthetic and practical resolution of eye-related problems—more importantly, my wife is happy.

REFERENCES


InflammaDry is the only test that detects elevated levels of MMP-9, a key inflammatory marker for dry eye. This rapid, point-of-care test produces results in 10 minutes allowing patients to be tested and treated in the same office visit. The test is easy to perform, is minimally invasive and requires no additional equipment. InflammaDry utilizes innovative patented technology, is FDA cleared, CE marked, and CLIA waived.

Quidel is a long-standing leader in the manufacture and sale of rapid, point-of-care diagnostics. Contact your Quidel Account Manager today at 800.874.1517 to learn more about how InflammaDry can help improve the health of your dry eye patients.
How zinc affects AMD

Dietary zinc may save your patients’ vision and health in the long term

One of the greatest ongoing food fights in eye care concerns the role of antioxidants and zinc in age-related macular degeneration (AMD) prevention and the movement of genetic testing from the theoretical research lab to applied science.¹

Two principals, Dr. Carl Awh and Dr. Emily Chew, have done a great service in moving forward this debate. However, amidst battles among dueling statisticians, commercial interests, and NEI recommendations much has been lost in this conversation concerning zinc.

Age-Related Eye Disease Study (AREDS) 1 nutrients are not synonymous with AREDS 2 nutrients because the latter have lutein and zeaxanthin—which dampen potential for the “high-dose hyper-immune zinc effect” in specific genetic groups by reducing alternate compliment factor D.² Lampalizumab, one of the most promising Phase 3 drugs for the future intravitreal treatment of geographic atrophic AMD, inhibits factor D.² There is no such thing as an average patient, and populations are not people.³ Genetic testing is therefore appropriate and reasonable, especially if one eye is at risk. Genetic testing may help AMD patients live longer.⁴

Zinc for systemic health
Zinc is the second most abundant mineral ion after magnesium and is the only mineral that appears in all enzyme classes.³ Zinc maintains cellular division, cellular growth, and gene regulation.

Zinc is crucial for fertility through maintenance of testosterone and estrogen levels. Zinc helps maintain serum acid base balance through sustaining proper carbonic anhydrase concentrations. Maintenance of normal bones, hair, skin, blood clotting, and thyroid function all involve zinc. Zinc is needed for maintaining a robust immune system through thymus hormone activation and maintenance of balanced prostaglandins for efficient wound healing.⁶

Zinc is required for all five senses and cognitive functions. Zinc helps vision by mobilizing vitamin A (as retinol binding protein) from the liver. Zinc helps deliver vitamin A to the eye, where the enzyme alcohol dehydrogenase is responsible for converting retinol to retinal in the visual photo-transduction cycle.

Preventative measures
For males over age 40 and females approaching menopause, zinc supplementation is wise in order to maintain systemic health because the diet provides marginal amounts of zinc. For these patients, suggested dosage is 25 to 30 mg per day with accompanying vitamin B6 (no more than 25 mg) to increase absorption. I also suggest 200 mcg of selenium to facilitate release of zinc from its binding protein metallothionein.⁷ While zinc pills don’t cure AMD, taking zinc pills may help AMD patients live longer.⁸

REFERENCES

Dr. Richer is president of the Ocular Nutrition Society (ONS). He is associate editor of Journal of the American College of Nutrition and associate professor of family and preventative medicine at Chicago Medical School.

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Scleral lens dropout rates can be high, ranging from 25 percent to 49 percent. Handling is the most common reason for scleral lens dropout.

For each patient, it is critical to review specific care, cleaning, and handling procedures. Using detailed written, verbal, and demonstrated care and cleaning procedures will lead to short- and long-term success with scleral lenses. Staff members are key to teaching patients how to apply, remove, and care for scleral lenses. Even with an ideal fit, improper care can negate the entire scleral lens process.

Some patients may have difficulty seeing or handling the lens for application, including patients with high refractive error, rheumatoid arthritis, tremors and dexterity hand challenges, or missing digits. In these cases or for those who need extra help, additional tools may be used to successfully handle scleral lenses.

Several tools have helped many of my patients. One is See Green Lens Inserter by Dalsey Adaptives, which is available with and without a stand (Figure 1). The lighted plunger helps center the device for application. The stand holds the plunger and lens in place prior to application, which is helpful for patients who have unsteady hands or for those who need both hands to hold their eyelids open.

Another tool is EZi Scleral Lens Applicator by Q-Case Inc. (Figure 2). This device is placed on the finger like a ring and features a base for scleral lens application. This design provides stability and allows patients to apply scleral devices with one finger.

A third option is a #8 O-ring that is available at any hardware store (Figure 3). O-ring dimensions are 3/8” x 9/16” x 3/32”. The scleral lens rests on the O-ring on a patient’s finger, which can allow for stable application.

An additional option for scleral lens application is a sterile orthodontic ring placed on a patient’s hand. These come in packages of 100 and may be used for single-use insertion of scleral lenses.

Educate prior to dispensing
The Scleral Lens Education Society (SLS) video “Scleral Contact Lens Insertion, Removal, Troubleshooting, and Lens Care” (www.scleralens.org/how-use-scleral-lenses) is a useful resource for both practitioners and patients alike.5

In my practice, patients watch this video prior to their scleral lens dispense and training appointments. Not only does the video help to put my patients at ease, it reduces the amount of time my staff spends with each patient.

The Gas Permeable Lens Institute (GPLI) (www.gpli.info) is another organization to provide practitioners with tools for success. Both the SLS and GPLI provide useful tools such as calculators, peer-reviewed literature, frequently asked questions (FAQs), free webinars, along with the option to “Ask an Expert.”

Improve wettability
Surface wettability on scleral lenses can be frustrating for both the patient and practitioner. Poor wettability has the potential to decrease vision, diminish lens comfort, increase chair time, and increase costs for both the patient and practitioner.

Patients at high risk for surface wettability challenges include those with ocular surface disease, including ocular rosacea and meibomian gland dysfunction.

Lipids and mucins are attracted to the hydrophobic GP material, causing an uneven surface (Figure 4). Dry eye that includes filamentary keratitis can lead to poor surface wettability. Exposure from a cranial nerve palsy or lagophthalmos can also be risk factors for poor surface wettability. Treatment and management of ocular surface disease is imperative.

Prior to handling scleral lenses, all patients must wash hands with a mild, basic hand soap, contact lens hand soap, or acne treatment hand soap. Inform patients to apply face, eye creams and makeup after lens application. Patients should avoid oil-based moisturizers on the eye lids.

Handling is the most common reason for scleral lens dropout

10 tips to enhance scleral lens success
Continued from page 1
Scleral lenses

Continued from page 15

eyelids and avoid applying makeup to the inside area of the eyelid margin.

Management strategies include removing, cleaning and re-applying lenses midday; using on-eye surface cleaning techniques (Figure 5); or adding another cleaner added to nightly disinfection.

Lens coating Tangible Hydra-PEG was FDA approved in 2016. Tangible Hydra-PEG is made from the lubricant polyethylene glycol (PEG) and is a 90 percent water polymer mixture that is permanently bonded to the surface of the scleral lens. It encapsulates the lens, creating a mucin-like wetting surface which minimizes friction and surface deposition, shielding the lens from the ocular surface and tear film. Tangible Hydra-PEG improves wettability, lubricity, surface water retention, and tear break-up time.

Coated lenses are cleaned daily with a multi-purpose or peroxide-based solution. It is important to avoid abrasive or alcohol-based solutions. Tangible Hydra-PEG may last permanently, but duration is variable. Patients who are heavy depositors or have lagophthalmos may experience a shorter duration of effectiveness.

Because coated lenses will be more slippery, educate patients that the Tangible Hydra-PEG surface will result in a slicker lens. They may require a brief adjustment period for handling, applying, and removing lenses.

To obtain Tangible Hydra-PEG, contact a Tangible Hydra-PEG certified laboratory at www.tangiblescience.com. No changes to the scleral lens fit, prescription, or design are required when ordering lenses with Tangible Hydra-PEG.

STEP 1 Utilize back surface toricity

Back surface toricity incorporated into the scleral lens design may improve lens comfort.

In a 2006 study of 27 eyes wearing a spherical scleral lens, subjects experienced improved comfort and wearing time after being refit with a back toric design.6

In 2013, Visser et al evaluated 213 eyes fit with bitangential peripheral landing zones. This study confirmed the findings of the 2006 study. Lenses with bitangential peripheries provided good fitting characteristics (lens movement and position), improved visual acuity, and patient satisfaction.7

A 2015 study demonstrated that three lens stabilization methods incorporated into the posterior periphery of a scleral lens provided better stability than lenses with spherical peripheries.8

STEP 2 Allow scleral lenses to settle

Scleral lenses need time to settle into the scleral conjunctiva over time. Although the exact mechanism is unknown, settling results in reduced post-lens fluid reservoir depth.

During the scleral lens fitting process, allow lenses 20 to 30 minutes to settle prior to lens evaluation and over-refraction.

A 2016 study of 16 patients that evaluated how the change in fluid reservoir depth affects the total refractive power of the scleral lens/reservoir system determined that settling appeared to have a relatively small impact (0.25 D) on lens power needed to provide optimal visual acuity in this group of patients.9

Keep in mind that many factors that can lead to variability in settling amounts can occur during scleral lens wear.

STEP 3 Incorporate multifocal optics

Shortly after age 40, the most significant contact lens dropout rate occurs.

In patients under age 45, comfort concerns are the main reason for contact lens dropout. After age 45, vision and comfort are almost equally stated as the reason for contact lens dropout.10 Interestingly in the soft contact lens population, 93 percent of patients were not wearing multifocal contact lenses at the time of dropout.

Patients, especially those with astigmatism, often discontinue contact lens wear due to poor vision and are unaware that multifocal options exist.

Many novel multifocal scleral lens designs have been introduced to the market in the last few years.11 Multifocal scleral lenses can be used for both irregular and healthy/normal corneas. There is massive potential market growth for scleral multifocal lenses.

To be successful with multifocal lenses, scleral lenses should be precisely centered on the cornea. With smaller diameter scleral lenses, spherical peripheries may be used. However, if a larger lens is needed, toric peripheral curves may aid with lens centration.

If lens misalignment is present, the optics of the lens may be decentered to match the visual axis, enhancing the visual outcome. This process requires increased chair time and laboratory consultation. Your laboratory consultant can help determine the ideal multifocal design each patient.

STEP 4 Enhance performance with solutions

In order to optimize corneal health, utilize preservative-free solutions in the bowl of the scleral lens. Because solutions are in contact with the cornea for the length of scleral lens wear and there is minimal tear exchange with scleral lenses, preservative-free solutions help to maintain a healthy cornea.

LacriPure (Menicon) is an FDA-approved solution for use as an application solution for scleral lenses after disinfection. LacriPure can also be used to rinse lenses prior to application and to rinse lens cases or lenses as needed during the day. This solution is a 5 mL sterile single-use unit dose preservative-free non-buffered, 0.9% NaCl (normal saline) solution.12

ScleralFil (Bausch + Lomb) is an FDA-approved preservative free, sterile, buffered isotonic saline solution that can be used for

Figure 2. EZi Scleral Lens Applicator by Q-Case Inc.

See Scleral lenses on page 18
WHY DAILIES® AQUACOMFORT PLUS® IS MY 
#1 CONTACT LENS CHOICE FOR TEENS

One of the most rewarding parts of being an eye care professional is the opportunity to impact not only how people see, but also how they look and feel. I still remember how I felt when, as a teenager, I got to experience the sense of freedom that contact lenses can provide. While today’s eyeglasses are certainly more appealing than what was available when I was a teenager, the young people that I see in my practice are no less excited about experiencing what contact lenses can do for them.

Thinking back to my own experience and about my patients’ needs today, one of the real keys is how DAILIES® AquaComfort Plus® contact lenses can make young people feel. Teens who wear DAILIES® AquaComfort Plus® contact lenses experience meaningful emotional benefits, including more positive attitudes about their appearance, perceived improved athletic performance, greater overall satisfaction, and feeling accepted by their peers.

Daily disposable contact lenses allow patients to start with a fresh, new lens every day and support replacement compliance and ocular health, which makes them a great option for new wearers. For teenagers and young adults, I recommend DAILIES® AquaComfort Plus® contact lenses. The lenses’ built-in compliance fosters healthy wearing habits from the start, a benefit that I emphasize with my patients and their parents.

DAILIES® AquaComfort Plus® contact lenses, which feature Blink-Activated Moisture Technology, release PVA-out the day to help stabilize the tear film. Tear film stability is critical to successful contact lens wear, and this is especially important for young people, who are frequent digital device users. Digital device use can decrease tear film stability, so the ability of DAILIES® AquaComfort Plus® contact lenses to support a stable tear film is important.

New DAILIES® AquaComfort Plus® packaging sets your patients and practice up for success

After wearing DAILIES® AquaComfort Plus® contact lenses, study results show teens enjoyed:

- More positive attitudes about physical appearance
- Perceived improved athletic performance
- Higher overall satisfaction vs. spectacles
- Feeling more accepted by peers

New DAILIES® AquaComfort Plus® packaging, sold only to authorized customers in the U.S., also helps to make lens wear easy for young patients, with the refreshed 90-pack design including patient support information such as illustrated insertion and removal instructions. Now, with the DAILIES® CHOICE program (DAILIESCHOICE.com) you can offer your new DAILIES® patients up to $200 off on their annual supply. Take advantage of the opportunity to help your young patients see, look and feel their best with DAILIES® AquaComfort Plus — something tells me they will thank you for it!

The Alcon DAILIES® Choice Program

is designed to help you support every patient, including patients new to contact lenses

Patients can SAVE up to $200 on their first annual supply purchase via mail-in rebate

Packaging illustrations on the back of the new 90-pack support new wearers at home, helping them remember how to successfully wear their contact lenses

Updated box designs provide every patient with more at-home online support

New packaging sold to authorized customers in the U.S. only

“Rebate is in the form of an Alcon VISA® prepaid card. Must be a new patient to DAILIES® AquaComfort Plus® contact lenses and must purchase an annual supply of DAILIES® AquaComfort Plus® contact lenses within 90 days of eye exam and/or contact lens fitting. Applies to purchases from participating retailers only. Visit DAILIESCHOICE.com for full terms and conditions. Offer ends 12-31-17.

References:
Scleral lenses
Continued from page 16

rinsing and applying scleral lenses. This solution is a 10-mL single-use dose. The solution contains boric acid, sodium borate, and sodium chloride in purified water.

Prior to FDA-approved solutions, standard of care in the United States was non-FDA approved preservative-free 0.9% non-buffered sodium chloride inhalation solution in a single-use vial. Sodium chloride 0.9% inhalation solution may be obtained with a prescription from a pharmacy or purchased without a prescription online.

According to the SCOPE study, the majority of prescribers recommended preservative-free single use vials of 0.9% sodium chloride (60.2 percent) and sterile preservative-free saline (57.4 percent) to fill and apply lenses.13 Of note, participants could select multiple solutions in this study.

Hydrogen peroxide solutions are often a problem solver and are effective for all scleral lenses, particularly for patients sensitive to chemicals and preservatives in multipurpose solutions. Brands of hydrogen peroxide systems in the United States include Clear Care (Alcon) and PeroxiClear (Bausch + Lomb), which is currently recalled.

According to the SCOPE study, hydrogen peroxide-based systems were the most common recommended disinfection systems (61.4 percent), followed by gas permeable lens cleaner (37.8 percent), and gas permeable condition solution (33.8 percent).13 Participants could select multiple solutions in this study.

STEP 8 Immerse the ocular surface
Dry eye disease is a highly prevalent condition, ranging from 7 percent to 34 percent.14,15 Dry eye is a common and chronic condition where there are not enough tears or poor quality of tears to lubricate and nourish the eye.

Many different factors cause dry eye disease; this condition is more common in people 50 years old or older.16 Hormonal changes, especially in women, are a common cause of dry eye.17-19 Other conditions that can exacerbate dry eye symptoms include diabetes, glaucoma, Sjögren’s disease, lupus, and rheumatoid arthritis. Medications can worsen dry eye symptoms, including antihistamines, hormonal replacement therapy, and androgen therapy. Environmental factors such as pollen or allergies, digital device or computer usage, overhead ceiling fans, or contact lens wear can worsen dry eye.20 In advanced stages of the condition, the severity of dry eye may damage the front surface of the eye and impair vision.

Dry eye may have multiple presentations and can range from mild to moderate to severe. In all forms of dry eye, especially in the severe ocular surface disease including Sjögren’s disease, graft versus host disease (GVHD), Stevens-Johnson syndrome, or limbal stem cell deficiencies, scleral lenses are an option to alleviate symptoms of dry eye that may be debilitating.21

Scleral lenses are advantageous to protect and lubricate the ocular surface. The post-lens fluid layer between the posterior surface of the scleral lens and the anterior portion of the cornea acts as a tear reservoir. This layer constantly bathes the cornea with scleral lens wear. This tear reservoir can dramatically improve patient comfort and symptoms of dry eye. The scleral lens also serves as a barrier between the ocular surface and the outside environment, which can aid in protecting the eye.

The use of scleral lenses to manage ocular surface disease prior to the introduction of GP lenses, including exposure and neuropathic keratitis, neuropathic keratitis, and dry eye conditions, has been well documented in the literature.22-24 Several papers reported the use of scleral lenses manufactured with GP materials for ocular surface disease.25-28

Currently, scleral lenses have been reported to improve corneal epithelial integrity, vision-related quality of life, and visual acuity in patients with ocular surface disease.29-31 In clinical practice, patients who had failed or were intolerant to conventional GP contact lenses showed a significant improvement in quality of life.31

See Scleral lenses on page 20
ANNUCING...
THE PRESSURE’S ON!
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Embrace scleral lenses for healthy eyes

Scleral lenses help optimize visual acuity with crisp optics from GP materials.1 Lenses can be customized to reduce higher order aberrations, glare, and haze.

Comfort is exceptional due to the minimal movement of scleral lenses that do not touch the cornea or limbus.

Scleral lens candidates are any patient wearing any type of contact lens, including soft and GP, who complains of discomfort or experiences visual disturbance.

Novel scleral lens designs and technology are available for patients with healthy/normal corneas and regular astigmatism. These patients are great candidates for scleral lenses, especially when their visual needs exceed standard soft lens parameters.

Patients with high astigmatism, refractive error, post-LASIK, along with presbyopia and mild-to-moderate dry eye are all candidates for scleral lenses.

By offering scleral lens technology to the healthy cornea population, not only are patients thrilled with the vision and comfort of scleral lenses, it profoundly enhances practice growth.

Utilize manufacturer consultants

Each scleral lens design has its own features and specifications. Because manufacturer laboratory consultants are experts in their specific lens designs, it is important to develop a close relationship to succeed with scleral lenses.

Scleral lens consultants can aid in designing the customizable features and capabilities of specific lens designs. Additionally, in order to troubleshoot complicated cases, communicate with your laboratory consultant in order to achieve success. Even if you do not know exactly what needs to be altered, contact the laboratory consultant to be guided to a successful scleral lens result.

Scleral lenses can significantly improve our patients’ quality of life. However, scleral lenses may have their own complexities. These 10 pearls will help eyecare practitioners better succeed with the intricacies of scleral lens fitting.

REFERENCES

At Alcon, we are committed to helping you move ALL of your contact lens patients to a more compliant replacement schedule. Recent studies show that when compared to 2-week replacement schedule, a monthly replacement schedule can have several benefits: 65% of monthly replacement wearers replaced their lenses on time vs. 30% of 2-week replacement wearers; and the interval between annual office visits was shorter with monthly replacement vs. 2-week replacement. Because we believe that all patients should have access to contact lenses with a healthy replacement schedule, we are proud to introduce the Alcon AIR OPTIX® Choice Program. Now, patients will benefit when upgrading to many of the products in the AIR OPTIX® contact lens family,* including AIR OPTIX® plus HydraGlyde®, our latest monthly lens innovation combining our 2 breakthrough technologies—SmartShield® surface technology and HydraGlyde® Moisture Matrix—for long-lasting lens surface wettability.1,2

As a practitioner, you expertly consider several factors when choosing which lens brands to recommend to a patient, including lens materials, ocular technologies, and replacement frequencies. The goal of your recommendation is to best meet the needs of your patient as well as the needs of your practice; but, another factor sometimes gets in the way of your top choice: cost. That’s why Alcon continues to pioneer support programs like the Alcon AIR OPTIX® Choice Program—to allow your patients to save on Alcon’s monthly replacement contact lenses.

The Alcon AIR OPTIX® Choice Program is intended to help your 2-week replacement lens wearers upgrade to a monthly replacement contact lens option within the AIR OPTIX® family of contact lenses—so you can continue to help your patients see, look and feel their best with up to $100 savings on their first annual supply.* Patients can sign up for the Alcon AIR OPTIX® Choice Program and access program benefits at AIROPTIXCHOICE.com. Your Alcon sales representative can also provide you with Point-of-Purchase (POP) materials to help promote the Alcon AIR OPTIX® Choice Program to your patients.

**Savings via mail-in rebate in the form of an Alcon VISA pre-paid card. Must purchase an annual supply or semi-annual supply of eligible AIR OPTIX® brand contact lenses (excluding AIR OPTIX® AQUA lenses) within 90 days of eye exam or contact lens fitting. Reddit submission must be postmarked (or submitted electronically) within 60 days of lens purchase date. Void on purchases made at participating retailers through 12/31/17. Visit AIROPTIXCHOICE.com for complete terms and conditions.

†Based on a clinical study with AIR OPTIX® AQUA, AIR OPTIX® for Astigmatism, and AIR OPTIX® AQUA Multifocal contact lenses.

Visit AlconAIROPTIX.com for more information on the AIR OPTIX® Choice Program.*

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Thewed on a clinical study with AIR OPTIX® AQUA. AIR OPTIX® for Astigmatism, and AIR OPTIX® AQUA Multifocal contact lenses.

Importantly, Alcon is committed to helping you and your patients see, look, and feel their best. To do this, Alcon continues to help provide support programs like the Alcon AIR OPTIX® Choice Program to your patients.

The Alcon AIR OPTIX® Choice Program offers savings that significantly reduce the patient cost of a 6-month or 1-year supply of AIR OPTIX® contact lenses. Patients new to the AIR OPTIX® family of contact lenses or patients switching within the AIR OPTIX® family (excluding AIR OPTIX® AQUA lenses) can save up to $100 on an annual purchase or up to $40 on a semi-annual purchase of eligible AIR OPTIX® contact lenses, via mail-in or online rebate. Current AIR OPTIX® wearers who re-purchase a supply of the same lens may qualify for up to $50 savings on an annual supply via mail-in (or online) rebate and up to $25 savings on a semi-annual supply purchase via mail-in (or online) rebate through Alcon’s Family Rebate offer.** Purchases of AIR OPTIX® AQUA contact lenses do not qualify for the Alcon AIR OPTIX® Choice Program or the Alcon Family Rebate; consider upgrading your AIR OPTIX® AQUA patients to AIR OPTIX® plus HydraGlyde® contact lenses where they can save up to $100* and benefit from long-lasting lens surface moisture.1,2,3,4

Four mutually exclusive criteria are necessary to be eligible for the full rebate. Must be a new patient to the AIR OPTIX® family of contact lenses or an existing patient that is switching lenses within the AIR OPTIX® Family. Must purchase on an annual supply or semi-annual supply of eligible AIR OPTIX® brand contact lenses (excluding AIR OPTIX® AQUA lenses) within 90 days of eye exam or contact lens fitting. Reddit submission must be postmarked (or submitted electronically) within 60 days of lens purchase date. Void on purchases made at participating retailers through 12/31/17. Visit REBATE.ALCONCHOICE.COM for complete terms and conditions.

**Savings via mail-in rebate in the form of an Alcon VISA pre-paid card. Must purchase an annual supply or semi-annual supply of eligible AIR OPTIX® brand contact lenses (excluding AIR OPTIX® AQUA lenses) within 90 days of eye exam or contact lens fitting. Reddit submission must be postmarked (or submitted electronically) within 60 days of lens purchase date. Void on purchases made at participating retailers through 12/31/17. Visit AIROPTIXCHOICE.com for complete terms and conditions.

See product instructions for complete wear, care and safety information. © 2017 Novartis. 06/17 USACHS17E0181E(r)
In addition, an estimated 100 million people in the United States are myopic, and this number is increasing in prevalence each year. Multifocal soft contact lenses have been found to be a viable means of slowing the progression of myopia in children. A proactive optometrist can easily incorporate the practice of fitting soft multifocal contact lenses to our young patients to deter the myopic progression.

Presbyopic fitting
Fitting a patient in a multifocal lens is a multi-step process. Setting expectations and determining the most critical visual demands for each presbyopic patient are important steps before selecting a lens material or design. By exploring the patient’s visual environment, hobbies, occupation, and everyday tasks, lens selection can be narrowed down to the best lens design for that patient.

A thorough slit lamp examination evaluating the cornea, lids, tears, and anterior segment health will determine if the patient is better suited for a gas permeable (GP) presbyopic lens, a specialty design, or a soft multifocal lens with variable lens replacement schedules.

For example, a patient who has been a long-time soft contact lens wearer would be a great candidate for a soft multifocal design. If the same patient also suffers from dryness symptoms, a daily disposable soft multifocal would be a great option. Similarly, if the patient currently wears a hybrid design or a spherical GP lens, the transition to a multifocal design can be smooth by staying in the same lens material and incorporating multifocal optics.

After the patient’s needs have been assessed, the next step is to obtain an up-to-date refraction with add power, keratometry, and dominant eye. Using this information, the initial lenses can be selected from the appropriate fitting guide. Fitting guides are helpful and must be used when working with multifocal lenses. The manufacturer has produced the fitting guide based on many patient encounters with its product; deviating from the guide may result in unnecessary failure.

While the initial lenses are settling, discuss lens adaptation with the patient. Encourage patients to consistently wear the lenses every day for at least two weeks to allow their eyes to adapt. Unfortunately, many multifocal contact lens dropouts may be avoided if patients were better educated about the adaptation period.

This is a good time to use “real-world” examples to encourage the patient that success is obtainable with patience, persistence, and small adjustments to the lens. Reinforce that success is highly likely, but it may take adaptation to the lens and more than one office visit. Thorough education and

**Figure 1. Example of an aspheric design gas permeable lens.**

**TAKE-HOME MESSAGE** Becoming an experienced multifocal contact lens fitter allows ODs to address visual needs for two patient populations: presbyopes (and emerging presbyopes) and myopic children. Knowing when to choose a soft multifocal vs. a gas permeable or specialty design will increase fitting success for the OD as well as patient satisfaction.
inadequate vision in the lenses. Take all measurements binocularly in normal room illumination. Use an additional light source when checking near vision.

Perform binocular over-refraction in a phoropter-free environment. Low power plus and minus lens flippers are a great way to over-refract a patient with multifocal lenses.

If a patient has acceptable vision with the first set of multifocal lenses, we dispense the lenses without making power changes. We find that inexperienced practitioners tend to make too many lens power changes at the dispensing visit. We prefer to have the patient wear the lenses for a week or two to fully adapt. Several daily disposable multifocal lens designs can be used in this case.

A new presbyopic contact lens wearer may present with an interest in wearing a multifocal lens design on a part-time basis. Part-time multifocal lens wear can sometimes yield poor visual results secondary to poor adaption to the lens design.

To combat this, we encourage our patient to initially wear the lenses full time for a week or two to fully adapt. Several daily disposable multifocal lens designs can be used in this case.

1-Day Acuvue Moist for Presbyopia (Johnson & Johnson Vision), clariti 1 Day Multifocal (Alcon). Both lenses utilize the same center-near design and are interchangeable for patients desiring both lens replacement modalities.

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Refractive Cataract Surgery: Preoperative and postoperative patient management

Walter O. Whitley, OD, MBA, FAAO

Senile cataract is a consequence of the normal aging process, and its development is often first recognized by an optometrist who is serving as the primary eye care provider. In this setting, optometrists have an important role in educating patients about senile cataract and determining when surgery is necessary. Once surgery is deemed indicated, patients may not be aware that these alternatives to standard monofocal IOLs exist. Although they are not covered by insurance, many individuals are more than willing to pay an extra fee for an IOL that can reduce their need to wear glasses for a variety of activities.

I also inform patients that advances in intraocular lens (IOL) technology have created an exciting era in cataract surgery. With our current IOL options, cataract surgery has become a refractive procedure that provides the opportunity for good uncorrected vision across a range of distances. Patients may not be aware that these alternatives to standard monofocal IOLs exist. Although they are not covered by insurance, many individuals are more than willing to pay an extra fee for an IOL that can reduce their need to wear glasses for a variety of activities.

Within this category of implants, the TECNIS Symfony® extended-depth-of-focus IOL has been a valuable addition. The TECNIS Symfony® IOL provides a continuous range of vision from far to near and stands out particularly for function at intermediate distances, a performance which is highly valued today by patients who spend so much time looking at cell phones and computers. The difference in contrast sensitivity between TECNIS Symfony® IOL and a monofocal IOL is not clinically significant. This technology has also been associated with a low incidence of glare and halos. In addition, the TECNIS Symfony® Toric IOL offers the opportunity for many patients with significant pre-existing astigmatism to benefit from a presbyopia-correcting IOL. Patients are counseled that they may need glasses for reading up close or in dim light, but overall, patients implanted with TECNIS Symfony® IOLs have been very excited about their vision after cataract surgery. Their positive feedback and outcomes make me very comfortable about recommending this technology for appropriate candidates.

The counseling conversation

As part of the preoperative counseling process, optometrists should begin educating patients about the IOL options that are available. In situations in which the patient has been under our care for years, the optometrist will have knowledge about the individual’s vision needs, such as if the patient has significant astigmatism that will need to be corrected to reduce spectacle wear after cataract surgery with a toric IOL. In addition, we may be familiar with the individual’s lifestyle, which may give some insight for matching patients with an IOL that might best meet their goals for postoperative vision.

One tool that is often underutilized are lifestyle questionnaires that can give information to use as a framework for discussing IOL options and helping patients understand the features of different implants and how a particular IOL may or may not address their needs (Figure 1). Several questionnaires are available for use, and optometrists may reach out to the surgeon to see which one he or she recommends. After all, setting proper expectations about postoperative vision and need for spectacles is critical for maximizing patient satisfaction with the surgical outcome.

Before they leave the office, patients are given printed materials they can review at home and encouraged to reach out to our staff with any questions they may have. Patients appreciate and benefit from having

Figure 1. Lifestyle questionnaire used at Virginia Eye Consultants

Dr. Whitley is Director of Optometric Services, Virginia Eye Consultants, Norfolk, VA. Dr. Whitley has received honoraria from J&J Vision.
Optimizing ocular surface health

Outcomes of cataract surgery with implantation of a presbyopia-correcting IOL are particularly dependent on the condition of the ocular surface pre- and postoperatively. Dry eye disease is extremely common in the cataract surgery population. It is important to diagnose and treat dry eye disease, because it can affect the accuracy of the preoperative biometry readings used for IOL calculations as well as the quality of vision postoperatively. When ocular surface irregularities due to dry eye disease are identified preoperatively, artificial tear supplements are not enough. Patients need topical anti-inflammatory drops (corticosteroids, cyclosporine, or lifitegrast) and treatment for meibomian gland dysfunction when appropriate to address the underlying cause. Once the ocular surface is improved and stable, a referral for cataract surgery is warranted.

Similarly, it is important to diagnose and manage other ocular surface disorders. Anterior blepharitis is also fairly common in the cataract surgery population and needs to be treated before cataract surgery recognizing that Staphylococcus epidermidis is a leading cause of postcataract surgery endophthalmitis. Just as with dry eye disease, we need to treat blepharitis prior to the referral for surgery with lid hygiene and antibiotics as warranted.

Continuing care

The role of the optometrist as an educator and eye care provider for the cataract surgery patient resumes postoperatively. Beginning with the earliest follow-up visit, it is important to evaluate visual function and ask patients about their quality of vision at all distances and if they are experiencing any visual symptoms. Most patients are doing fantastic, but some recipients of a presbyopia-correcting IOL may particularly need time to adjust to their new vision. Counseling that makes patients aware of what to expect during the postoperative course and about the process of neuroadaptation with a presbyopia-correcting IOL can minimize concerns and allow patients to be more comfortable throughout their recovery period.

Although vision after uncomplicated cataract surgery is typically good on the first postoperative day, patients who have just had their first eye surgery need to be reminded that cataract surgery will be a binocular procedure. They can expect improvement of their vision after the second surgery is completed. If the patient is expressing disappointments about vision at near or intermediate distance after bilateral implantation and there is no identifiable cause, such as residual refractive error or ocular surface disease, the patient may simply require a longer period for adaptation while given encouragement that the surgery went well and to expect vision to improve. Sometimes, using a loose trial lens for demonstrating to patients what their vision would have been without the presbyopia-correcting IOL allows them to appreciate the quality of their vision and the benefit of the implant.

One question many providers have relates to complaints about glare and halos after the procedure. In my experience, this occurs infrequently when patient expectations are properly set preoperatively, the ocular surface is adequately addressed, and by matching the technology to the patient and the patient to the technology, such as by looking for higher-order aberrations. Although all IOL options improve vision, some come with potential compromises that include the possibility of glare and halos or a need for reading glasses. In the event patients experience photic phenomena, explain to them that this may be due to the design of the IOL, inflammation, or mild corneal edema. Photonic phenomena are a notable side effect of multifocal IOLs used for presbyopia-correction. Overall, my TECNIS Symfony™ IOL patients have had a high level of satisfaction.

As part of the ongoing follow-up, it is also important to watch for development of posterior capsule opacification that can particularly affect vision with a presbyopia-correcting IOL. Other pearls to remember when managing cataract surgery patients postoperatively include: be aggressive in treating any ocular surface disease; watch out for cystoid macular edema; and discuss any residual refractive error with your patient and surgeon to determine the solution. Continuous communication with your patient and surgeon is key.

Conclusion

The landscape of cataract surgery has changed in terms of provider responsibilities for care delivery. Today, optometrists are more active participants in the preoperative and postoperative management of patients. This increasing role is personally and professionally rewarding and can help to optimize outcomes for the benefit of patients and surgeons. In addition, patients today are benefiting from cataract surgery’s transition into a refractive procedure and from having new IOL technology as an option for addressing presbyopia.
**Multifocals**  
Continued from page 23

design with the highest add power that will not decrease the distance vision.

Biofinity Multifocal “D” lens or Oasys for Presbyopia are both center-distance lenses that can be used. If the child also has a significant amount of astigmatism, Proclear Toric Multifocal “D” (CooperVision) lens can be used.

**Case examples**

**Case 5.** An 8-year-old female presented with interest in lenses to be worn to control myopic progression. Over the past six months, her prescription has advanced from -1.00 D in each eye to -1.75 D in each eye. She was fit with Biofinity “D” lenses in both eyes with power of -1.75 D and +2.00 D add. She has had good success and good vision with this lens design. She was fit in 2012; as of January of 2017 she has had less myopic progression than predicted by more than 1.00 D.

**Case 6.** An 11-year-old female presented to clinic for her yearly exam. It was determined that she had progressed approximately 0.90 D per year in her right eye over the last two years and 0.75 D per year in her left eye. She refracted with over 1.50 D of astigmatism in both eyes. We educated her parents about myopia control, and they opted to try soft multifocal lenses. Due to the patient’s high amount of astigmatism, she was fit in Proclear Multifocal Toric “D” lens in each eye with a +2.00 D add.

**Case 7.** An 8-year-old female interested in orthokeratology for myopia control presented with a prescription of -7.25 D in both eyes. She was fit into Oasys for Presbyopia with high add in both eyes, and she is wearing the lenses with good success. Over the last two years, she has had no progression in her myopia.

**Wrapping up**

In our experience, fitting multifocal contact lenses has never been more rewarding or in greater demand. Newer lens designs are easier to fit and patient friendly in terms of eye health and disposability.

Fitting multifocal contact lenses helps build the practice by keeping patients in contact lenses as they move into presbyopia and by offering myopia control to concerned parents of myopic children.

Practitioners will find that as they become more experienced with multifocal contact lens fitting for both presbyopes and myopia control, their confidence will increase and creative solutions to fitting the patient will become more straightforward.

**REFERENCES**


Dr. DeKinder is an associate clinical professor at University of Missouri St. Louis College of Optometry. She is director of academic programs and director of residencies, and chief of contact lens services. She is a fellow of The Scleral Lens Education Society. dekinderj@umsl.edu

Dr. Henry is clinical professor, director of clinical operations and co-instructor in contact lens courses. She has also served as director of residencies, program coordinator for the cornea and contact lens residency, and chief of the contact lens service. She has co-authored four books and participated in over 50 clinical studies. She is a Diplomate in the Cornea and Contact Lens Section of the American Academy of Optometry. She is a past officer of the Association of Optometric Contact Lens Educators (AOCLE). HenryVi@msx.umsl.edu

**Encourage patients to consistently wear the lenses every day for at least two weeks to allow their eyes to adapt to the new lens design**

Figure 3. Over-refracting a patient while he is wearing multifocal lenses looking at near.

Figure 4. Over-refracting a patient while he is wearing multifocal lenses looking at distance.
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5 reasons to upgrade patients from monovision to multifocals

Continued from page 1

Why monovision persists

One explanation is there is no clear-cut evidence-based conclusion on which modality is superior.

A study of presbyopic contact lens corrections by Arthur Back in 1992 concluded that monovision provided superior visual performance. In 2006, Rajagopalan concluded visual performance with multifocal correction was superior to monovision. However, Gupta’s 2009 study found monovision superior on objective visual acuity tests, but that superiority was not supported by subjective patient ratings.

Another explanation may be practitioner perception that fitting monovision requires less chair time than fitting multifocals.

Many optometrists use the “if it ain’t broke, don’t fix it” excuse for not fitting multifocals.

Many optometrists use the “if it ain’t broke, don’t fix it” excuse for not fitting multifocals. It is time for ODs to get comfortable with multifocal contact lenses and the opportunity they provide our practices as well as the ability they give us to meet modern patient demands.

Here are five reasons why.

1. It really is an upgrade

With the demands that our technology places upon near and intermediate vision, modern life is hard on presbyopes.

A third of Generation Xers and a quarter of baby boomers spend nine hours a day on digital devices. Plus, blink rates can decrease as much as 66 percent when using a digital device, according to a literature review conducted by Marjorie Rah, OD, PhD, making comfort as much a factor as fatigue.

Technology has also helped make our current multifocal lens options the best we have ever had. Advances in lens design deliver better vision at distance and near. Material designs have brought comfort and visual stability to the forefront, allowing us to successfully fit more patients. Early bifocal designs did not have the fit success that we now enjoy with modern designs and materials, often with the first trial lens.

Technology upgrades can be as much of a marketing tool as a patient care option. In its most basic form, upgrading patients to new technology shows you and your practice stay on top of advances—not just the status quo.

Some 97 percent of patients want to know about or try new technology. Not upgrading your patients is no longer “if it ain’t broke, don’t fix it.” We are actively ignoring patient desires and falling behind. If your patients find they have friends who visit a doctor “who has these ‘new’ contact lenses for seeing near and far,” your patients perceive that you do not offer such lenses and are behind the times.

Think beyond baby boomers; Gen Xers actually outnumber boomers, and their demands and expectations are completely different. As a Gen Xer and an emerging presbyope, I can tell you I expect technology to solve all my problems. There had better be an app for this!

More sobering is that in 2015 millennials surpassed all others as the largest generation in the U.S. workforce. As ODs, we need to adapt how we react to presbyopia and continuously evolve to meet the greater demands from patients. If we minimize patient complaints and fail to integrate new technology, we could find ourselves well behind the times as the first millennial presbyopes walk into our offices in the next few years.

2. Binocularity

While binocularity can be unexciting, it matters from a safety standpoint.

For example, the Federal Aviation Administration does not allow airline pilots to wear monovision contact lenses for flying. The FAA’s position is scientifically sound: distance stereopsis decreased significantly with increasing contact lens powers (P<0.01 with +2.50 D lens power).

Consider that after your monovision patient shells out extra to see that cool new superhero movie in 3D on date night, he will be very disappointed. Multifocal treatment of presbyopia not only gives back binocularity, it can restore range of vision from distance to intermediate to near as well.

3. Improved night vision

Yes, increased night visual acuity. We talk about multifocal scotopic visual acuity negatively so often we forget that while multifocals may not be the same as spherical distance vision contact lenses, vision can be much better than with monovision.

One of the biggest feedback points you will hear as you convert more monovision wearers to multifocal lenses is improved night visual acuity. This is especially true, in my experience, for hyperopes with higher add powers.

Contrast sensitivity may explain what is happening for these patients. Monovision photopic and mesopic distance contrast sensitivity decreased significantly with progressive increase in power.

4. We don’t have three eyes

Monovision worked well for many patients who had discrete distance and near demands, but it stumbles now that intermediate vision is so important.

Intermediate demands are now critical across all age groups. For example, Pew Research Center data shows almost 60 percent...
Satisfy patients
Increased patient satisfaction retains more than fitting fees and materials fees—it retains patients.

Some 76 percent of patients preferred multifocals to monovision. Presbyopes want and need more from their eyecare providers and their contact lenses, but we are busier and inundated with product options and new fit guides.

However, the process is also easier than before. When surveyed about fitting 3-Zone Progressive Design multifocals, 92 percent of eyecare providers said they are easy to fit, and 96 percent of patients were successfully fit by the second visit.

Optometrists must break the habit of adding plus over the nondominant eye and instead start the patient in a multifocal when she is an emerging presbyope, not when she needs high adds. Why start an early presbyope down a road we cannot sustain? Use those low add lenses. Set yourself and your patients up for future success.

Another perspective
To get another opinion on fitting processes, I spoke with Amanda K. Lee, OD, who has a full-scope family practice in Myrtle Beach, SC.

She says that in the late 1990s and early 2000s, practitioners didn’t have many choices for soft multifocal contact lenses.

“At the time, my lens of choice was Acuvue Bifocal (Johnson & Johnson Vision),” she says. “Wanting to use new technology for my patients, I reached a lot for that product. Although I had less success fitting that product that today’s disposable multifocals, I

One of the biggest feedback points you will hear as you convert more monovision wearers to multifocal lenses is improved night visual acuity
changing from near to distance, the design incorporates areas of consistent power at distance, intermediate, and near with seamless transitions between zones. The result is a high consistency of power than can provide better vision at multiple distances.

According to Dr. Quinn, the AOA envisions that the HPI will build on and supplement the work begun by the National Commission on Vision and Health (NCVH) almost 10 years ago.

The NCVH, a national, non-partisan group of public health leaders—including optometrists—works to improve the nations’ visual health by helping assure access to vision care as an integrated part of public health programs at the national, state, and local levels.

“Policymakers and the public often need assistance from AOA to better understand how trends and changes in healthcare policy affect eye health and vision care,” says Dr. Quinn. “The Health Policy Institute will provide that expertise.”

In related news, Johnson & Johnson Vision Care announced the launch of Advocacy Academy, an on-demand virtual learning tool to educate, empower, and mobilize eye health advocates to engage with lawmakers, agencies, and patient associations on topics impacting eye health.

The self-paced modules are designed with generational learning styles in mind and provide guidance to eye health professionals who have an interest in sharing their expertise and insights to effectively advocate for policies that put patients first, according to the company.

“So many eyecare professionals have asked me how to get involved: what they can do to make an impact,” says Carol Alexander, OD, director of professional communications, vision care, for Johnson & Johnson Vision in North America.

“It is exciting because there actually is so much we can do, but even a simple phone call, or sharing the right information with a network on social media can bring necessary attention to important issues in eye health,” she says.

Coinciding with the launch of Advocacy Academy, Johnson & Johnson Vision Care has revamped its Vision to Action website, formatting the site for easier search and quicker access to the most relevant resources.

According to the company, Vision to Action is the next-generation one-stop shop for resources that eyecare professionals, policymakers, and the public can use to stay updated on policy initiatives and proposals at the state and federal levels impacting eye health.

 AoA, J&J launch optometric advocacy groups
WASHINGTON, DC—At the recent American Optometric Association’s (AOA) Optometry’s Meeting, both the AOA and Johnson & Johnson Vision Care announced the launch of advocacy groups.

The AOA launched the AOA Health Policy Institute (HPI), a policy think tank that will develop evidence-based research, analysis, and solutions in health care policy.

During his inaugural address to the AOA’s House of Delegates during Optometry’s Meeting, AOA President Christopher J. Quinn, OD, discussed the importance of optometrists continuing to focus on health care policy and the profession’s place in the overall healthcare arena.

HPI will be under the direction of AOA past president Steven A. Loomis, OD, and AOA staff member Rodney Peele, JD, as director.

According to Dr. Quinn, the AOA envisions that the HPI will build on and supplement the work begun by the National Commission on Vision and Health (NCVH) almost 10 years ago.
Monovision
Continued from page 29

had at that time equal success to fitting monovision. Fast forward to today and the newest technology in multifocals, and we get 80 to 90 percent success even with the first trial lens selection. I can fit a modern-day multifocal as fast as I can fit a spherical or toric product.”

Dr. Lee says two things prevent eyecare practitioners from fitting multifocals.

“One is the unwillingness to break ingrained habits of fitting monovision and the misperception that monovision is easier or faster as well as cheaper for the patient,” she says. “The other is the unwillingness to take the time to understand and try new technology.”

Dr. Lee brings up the multifocal option to patients by asking if there is a time that vision in their contact lenses has failed them—she calls this “needs-based” prescribing.

“Patients will often answer one of two ways: ‘I can’t see well at night when I try to drive,’ or ‘I can’t see my computer screen unless I move my head around.’ That allows me to open the conversation and offer them new technology so they can achieve those activities or unmet needs. Many patients still do not even know that soft disposable multifocal contact lenses exist,” she says.

Great lens options
Putting a patient in multifocal contact lenses historically required material compromises. Our latest materials were often available only in spherical lenses, but today we have our most wettable, breathable, and comfortable materials available in multifocal designs.

In the past, our lens options often limited fitting options. Most practitioners wanted to avoid mixing wear schedules or materials, which led to difficult-to-fit situations. If a patient wanted daily disposable lenses but needed a toric design, the patient and practitioner needed to choose between the desired modality or the required vision. Multiple manufacturers offering complete families of sphere, toric, and multifocal lens designs gives us the ability to provide for most—if not all—patient needs.

Alcon’s Air Optix Aqua and Dailies Aqua Comfort Plus have had complete families of monthly and daily sphere, toric and multifocal for some time. Johnson & Johnson Vision’s Acuvue Oasys and 1-Day Moist are also available in sphere, toric and multifocal designs.

CooperVision spans all three designs with monthly Biofinity, includes extended parameter ranges in Biofinity XR, and offers full daily disposable correction options in Clariti. Bausch + Lomb recently expanded its Ultra and BioTrue platforms to include toric designs, making full family options for daily and monthly as well.

Our multifocal contact lens options are better than ever before. With patient satisfaction we would have dreamed of in the past and a fit process that is simpler and more streamlined, optometrists are able to bring better technology to make happier patients even when we are under pressure to see more patients and find them solutions faster.

REFERENCES

Dr. May serves as adjunct and guest faculty at Southern College of Optometry. Previously, he was center director for West Tennessee Eye Care and team eyecare provider for the Memphis Grizzlies and the St. Louis Cardinals Triple-A affiliate Memphis Redbirds. Dr. May is also head cook for the competition barbecue team The Memphis Squeal.

IN BRIEF
Topcon launches research foundation

OAKLAND, N.J—Topcon Medical Systems has established the Topcon Research Foundation. The Topcon Research Foundation will provide support for studies sponsored by independent investigators and institutions that utilize Topcon products to advance medical and scientific knowledge in the field of ophthalmology, according to the company.

Researchers and institutions are invited to apply for a grant from Topcon Medical Systems by submitting their funding request and study details to www.topcon-researchfoundation.com. “We are very excited to begin this initiative. The Topcon Research Foundation closely aligns with Topcon’s mission of continually striving for excellence in product manufacturing through the development of innovative technologies,” says Bob Gibson, vice president of marketing and product planning.

“By partnering with independent researchers, the Topcon Research Foundation will allow Topcon to lend its support to studies that can generate valuable medical and scientific information which can eventually lead to improvements in clinical care, the development of new treatments, and better delivery of healthcare to patients,” he says.
Getting comfortable with cloud storage

Personal and practice data storage options provide access and backup

By John Warren, OD

Consider how you stored data with technology back in 2005. Back then almost all computers had Wi-Fi capability to access a network and the Internet to send emails and surf the Web, but most programs, applications, and data resided on computer hard drives.

When it was time to update an application or buy a new one, you might have downloaded the application from the Internet to the computer and installed it. The program was then on your computer and would save your data to its hard drive.

The same process was true for music and video.

You might buy music via iTunes or another source for digital music, but you stored the actual music files on your computer and copied them to your iPod or other MP3 player. Video was just starting to be available for download—this changed significantly as Internet speeds greatly improved.

Moving with the times

Jump to 2010 with smartphones and faster Internet speeds at home and in the office more common—we started to see more streaming of audio and video. The founders of YouTube realized that people wanted to upload and view “home videos” they had created.

People started turning to the Internet for more data and were even storing data on the Internet to retrieve and use on different computers. Online storage services, such as Dropbox, changed the way that we stored and accessed data.

Fast-forward to today, and almost everyone over the age of 13 has a smartphone that can capture quality audio, still images, and video that can be uploaded either via Wi-Fi or cellular network. And yes, we’re running programs/applications on the Internet and displaying the results of the application on our computer, tablets, and smartphones. QuickBooks Online is a great example of this.

Furthermore, you no longer need much storage on your computer, tablet, or smartphone. You can allow your data and applications to reside on someone else’s computer—“the cloud”—and have access to it from as many different devices as you want or need.

Cloud computing in the practice

So, what does this mean to an eye-care provider?

It means that we’re able to reduce the amount of technological infrastructure that we need in our offices and homes and still have access to data and functions from just about anywhere on the planet—from the office software that is likely running “in the cloud” to accounting software such as QuickBooks Online to image and data storage.

Storing data in the cloud has become simple with services available for the task. With costs varying from free (with limited but significant storage) to $40+ per month for large data limits, there’s a service that’s right for your personal or practice needs.

Regardless of which cloud storage solution you choose, remember that it must be HIPAA compliant if you plan to store any patient data

I’ve provided data on a few of the leading providers.

- Offers apps to allow access to and use of data from a computer or mobile device
- Saves files to a local drive on your computer with a copy placed in the cloud and synced across all devices
- Shares files or directories of data with others easily
- Apple’s version of Dropbox
- Saves and accesses files created in Apple’s Pages, Numbers, and Keynote apps
- Ability to edit these files from Mac computers, iPhones, and iPads or via the iCloud app service
- Able to store and access other data, such as images, music, etc.
- Google Drive www.google.com/drive
- Provided by online giant Google
- Able to store and access images, documents, music, etc.
- Cloud Drive
- Amazon Cloud Drive www.amazon.com/clouddrive/home
- Offers unlimited storage from all devices for $60 per year
- Provides no encryption, which could cause security concerns, especially for business or patient-related data

- Not useful for sharing or editing documents with others
- Regardless of which cloud storage solution you choose, remember that it must be HIPAA compliant if you plan to store patient data.

Storing personal data

Another typical use of cloud storage is backing up digital photos.

I store all of my photos on the cloud when they are taken on a smartphone or tablet. Cloud storage not only allows me to access the photos from any of my numerous devices, it also provides a backup of the files in the event that I have a hard drive malfunction or lose a mobile device.

CalCloud by Apple and Google Photos are widely used by many people, and it is likely already use the cloud for storage, even if they don’t realize it. Services such as Dropbox and Google Drive are cloud based. Using cloud storage for both personal and professional data allows ODs to access data from any device (such as computer, tablet, or phone) and provides an off-site backup of data.

TAKE-HOME MESSAGE Optometrists

Likely already use the cloud for storage, even if they don’t realize it. Services such as Dropbox and Google Drive are cloud based. Using cloud storage for both personal and professional data allows ODs to access data from any device (such as computer, tablet, or phone) and provides an off-site backup of data.
Cloud storage
Continued from page 31

part of operating system software for iPhones and most Android phones. I recommend you give strong consideration to using one of these services if you want to be sure you will have a copy of your photos no matter where you are or what happens to your devices.

A final cloud service consideration is for videos or movies for which you own the digital rights. Apple and Amazon both offer this type of service.

Storing data in the cloud has become simple with services available for the task

Viewers are able to purchase a video from Apple’s iTunes store in digital format and stream it to a device or download it to a device for offline viewing. Amazon allows viewers to purchase and stream or download videos; Amazon Prime members also receive access to thousands of TV shows, movies, and other video content at no extra cost. Android and iOS apps allow users to watch and download videos for offline viewing.

Chances are many ODs are already using the cloud more than they know for both personal and professional use.

Dr. Warren is past president of the Wisconsin Optometric Association and a software developer, helping to create RevolutionEHR. He enjoys cycling, skiing, and traveling with his wife and two sons.

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How tear proteomics can help optometry

Optometrists undervalue in-office ocular point-of-care tear testing

By Ernie Bowling

Laboratory testing has not traditionally been a feature of an eyecare practice. Optometrists may obtain blood work for a patient with a recurrent anterior uveitis or order imaging for a suspected orbital fracture, but routine ocular point-of-care (POC) tear testing isn’t part of our normal daily routine.

I suggest it should be now, and I predict that it will be in the near future.

Think about what occurs when you visit your doctor for a cold. Technicians will gather your vital signs; likely draw blood to check your white cell count; obtain a throat swab for Streptococcal pharyngitis, a sinus swab for flu, and a chest X-ray. The results of these tests are at the physician’s disposal before he ever steps foot into the exam room to see you.

With POC tear testing, eyecare profession-

Despite the small sample volume, tear fluid offers advantages for biochemical analysis

Tear sample collection is a non-invasive process. Tears can be easily obtained from healthy subjects, while other ocular fluids (i.e., aqueous and vitreous) are not realistic for routine collection and carry risks with their capture, such as endophthalmitis.

Perhaps the greatest advantage is that tears are close to the disease site (as in ocular surface disease) as compared to detecting cancer biomarkers in blood where the biomarker molecules are highly diluted.2

Ocular surface disease

The tear layer covering the ocular surface is a complex body fluid containing thousands of molecules of varied form and function from several origins. Close to 2,000 tear proteins have been reported in humans.3 At least 90 small molecule metabolites have been seen in human tears.4

This comprehensive array of biomolecules in human tears is a potential source for the discovery of disease biomarkers.

Ocular surface disease is among the first eye diseases studied using proteomics, and currently five POC tests that make use of human tears in the diagnosis of ocular disease:

- Osmolarity, TearLab Corporation (Figure 1)
- InflammaDry Matrix metalloproteinase (MMP) 9 inflammatory marker, Quidel Corporation
- AdenoPlus, Quidel Corporation
- Lactoferrin, Advanced Tear Diagnostics (ATD)
- Immunoglobulin E (IGE), Advanced Tear Diagnostics

Other possibilities exist for additional POC testing.

Meibomian gland dysfunction (MGD) also contributes to dry eye, and one study demonstrated that levels of some lipids critical for the maintenance of tear film stability increased after a 12-week eyelid warming treatment in MGD.7

Tear bioassays may have advantages over conventional clinical assessments (i.e., Schirmer test, tear break-up time, corneal staining) for patient diagnosis, prognosis, and monitoring treatment responses.6

Potential

The potential for in-office POC testing is colossal. The tear film proteomic profile has been found to provide basic biological information for many ocular diseases such as keratoconus,7 thyroid eye disease,8 vernal keratoconjunctivitis,9 diabetic retinopathy,10 and primary open-angle glaucoma.11

TAKE-HOME MESSAGE Point-of-care laboratory tear testing has a place in optometry practices to aid clinical diagnostic decisionmaking. Tear sample collection is a non-invasive process, and tears are close to the disease site. New POC tear testing will be available soon, and its potential for even greater application is colossal.
Point-of-care testing

Tear testing
Continued from page 33

that correlate with a variety of other specific ocular conditions, according to company CEO Marcus Smith.

“ATD has one goal: to provide ophthalmic physicians POC science-based lab testing tools necessary to yield diagnostic precision, guide focused treatment decisions, measure treatment efficacy and improve clinical workflow efficiency on a platform that is rapid, inexpensive, and simple to use,” he says.

Other players in this space also foresee expansion.

TearLab plans a global launch for its Discovery platform in 2018.

“The TearLab Discovery platform utilizes a lab-on-a-chip technology to simultaneously collect and analyze nanoliter samples of tear fluid in less than two minutes,” says David C. Eldridge, OD, FAAO, vice president of clinical affairs and professional development.

Dr. Eldridge says that the first test card that TearLab will commercially launch includes osmolarity plus two inflammation markers, IL1-RA and MMP-9.

RPS Diagnostics is developing a second-

Tear film proteomics has the potential to use tears as a means to assess systemic as well as ocular disease

Figure 1. Tear Lab Readout. A Tear osmolarity of greater than 308 mOsm/L is considered diagnostic for hyperosmolarity. Intereye variability exceeding 8 mOsm/L is also indicative.

Figure 2. A positive InflammaDry test result. The bold red line is indicative of a positive result. The dark grey line is a control line.

Figure 3. Technician administering the TearLab Osmolarity test.
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generation, quantitative single-use test for inflammation that should be available in two years, according to Robert Sambursky, MD, CEO, president, and chairman.

The new test will provide a quantitative result instead of the positive/negative result the test now yields. See Figure 2. Note that InflammaDry and AdenoPlus were acquired by Quidel Corporation from RPS Diagnostics in May 2017.

**Future is now**

The future of tear proteomics is exciting, but clinicians have been slow to adopt POC testing.

“Optometry has an opportunity to blow out point-of-care testing in contact lenses and dry eye,” says Dr. Sambursky. “There are many more indications for the technology’s use, such as glaucoma, dry eye, cataract, LASIK, and PRK.”

“Manufacturers are making continuous progress in terms of research and development to create new products with newer, advanced technology,” says Smith. “The adoption of diagnostic lab testing has been measured but is growing steadily, and in the future testing will be incorporated into the great majority of ophthalmic clinics worldwide. Unfortunately, some states still prohibit optometrists from performing POC laboratory testing on their patients, and that will need to be addressed.”

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**Tear collection is fast, safe, non-invasive, and yields data helpful in determining local pathology close to the disease site**

Human tears are a complex extracellular fluid of the ocular surface which contains molecular information useful in the diagnosis and treatment of ocular surface diseases and has the ability to address an emphasis on personalized medicine and disease biomarkers.

Tear collection is fast, safe, non-invasive, and yields data helpful in determining local pathology close to the disease site. The relatively simple sample preparation techniques make tears an ideal source for laboratory diagnosis and prognosis. See Figure 3.

The time will arrive when a tear test used in eye clinics will become as valuable as a blood test or a urine test to aid in the diagnosis and treatment of our patients’ diseases.

Says Smith, “The clinical value of POC testing is simple: It is better to know than to think you know.”

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**REFERENCES**


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**IN BRIEF**

**ODwire.org, GPLI launch online CL CE**

LAKE GENEVA, OR—ODwire.org and the GP Lens Institute (GPLI) have created GPLIwire2017, the first online CE event focused exclusively on specialty contact lens education. Participants can earn up to 32 COPE CE credits focused on specialty contact lenses with live wet labs from the comfort of their homes.

The event will be hosted live online Saturday, September 23, and Sunday, September 24, 2017.

For those who cannot attend live, the courses will be offered on-demand until December 1, 2017. Participants can log in from any broadband-connected computer or mobile device.

Early registration pricing through August 1, 2017, is $199 for all 32 credits, a $50 savings. Pricing increases August 2, 2017, to $249.

The conference will also feature a virtual exhibit hall where participants can see contact lens technology and meet with specialty contact lens manufacturers.

GPLIwire2017 includes two tracks focused on scleral lenses, ortho-k, custom soft lenses, presbyopia, hybrid lenses, managing ocular conditions with contact lenses, and instruments for specialty contact lens fitting.

Conference profits will be donated to the GP Lens Institute (GPLI), the educational division of the CLMA.
Rohit Sharma, OD  President, Southern Eye Specialists, Atlanta

Optometry missions, salsa dancing, customer service, and partying in Thailand

Q: How did your initial VOSH experience keep you working with developing countries? I’ve always known the need for eye care. Growing up in Kenya, a lot of people are impoverished and have a hard time accessing healthcare. My first mission in remote Chetumal, Mexico, was a fantastic experience... the gratification you get seeing people smile. From then on, I dedicated myself to helping others, and that led to a second mission. You get greater gratification helping people in that part of the world as opposed to what I do on a day-to-day basis because what we do is expected. When you go to other parts of the world, it’s never expected, but it’s appreciated. Just the difference puts everything in perspective.

Q: Why did you return to Kenya in 2002? I got burnt out working in commercial optometry, and I was given the opportunity to work with missionaries and nongovernmental organizations. I worked six weeks in Tanzania and two weeks in Kenya and Tanzania. From a personal point of view, whatever I contributed I think I got 10 times back out of it.

Q: What’s something your colleagues don’t know about you? That I’m very passionate about what I do. I was born for optometry. The other thing my colleagues don’t know about me is I love to dance, and I love Latin music. I used to dance in the exam room between patients to learn my routine. [Laughs] Salsa is my favorite.

Q: Why do you come back to having a private practice? My family is here in Atlanta. I love business in general, and I love striving to make a profitable business by providing the best healthcare. My office mission statement is to provide the best eye care in Atlanta in the best atmosphere possible. Every day, I strive to be better than the day before.

Q: What’s one thing you’d change about optometry as it is now? The heavy involvement of commercialization of optometry. The advent of box chains has devalued the profession. We are one of the few professions that have cheapened and devalued the business side of medicine—you never see it in primary care. No one says, “Go see that doctor. As long as you get an Rx and buy a bottle of cream from them, it’s free.” Everybody’s quick to make a sale, but nobody says, “This patient is spending his hard-earned money. Let’s fit him with the best product available, not the best product they have in the store. Online retailers and box store employees are paid heavily on commission. These are not skilled people; they are taught to sell but not taught to treat patients.

Q: What’s the craziest thing you’ve ever done? On our honeymoon in Thailand, another couple invited me and my wife to the “Full Moon Party.” We got on a speedboat, and we were doing 50 or 60 miles an hour into oblivion, into darkness. I’m thinking this guy’s going to kill me—he’s going to cut me up and throw me to the sharks. Almost 45 minutes later, we get to an island with a rave party. It goes on until 4 a.m. My wife said, “I’m going to shoot you for agreeing to come here.” But when we look back, we had a great time.

—Vernon Trollinger

To hear the full interview with Rohit Sharma, listen online: optometrytimes.com/RohitSharma
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