WHY COOPERATIVE MANAGEMENT IS KEY FOR PROPER PATIENT CARE

Optometry Times®
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References:
6. In vitro study over 16 hours to measure wetting substantivity, Alcon data on file, 2015.

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A 71-year-old Caucasian male, JZ, presented to our office after previously wearing keratoconus-specific aspheric design GP lenses, customized soft lenses for keratoconus, and most recently a mini scleral design. See Figure 1 for his topography.

He complained that the GPs were uncomfortable, the customized soft lens did not yield great vision, and he had difficulty applying and removing the scleral.

In spectacles, he was correctable to OD -5.50-2.75 x 150 with visual acuity (VA) of 20/50, OS -0.75-3.25 x 095, VA of 20/30 +, and preferred glasses to contact lenses. He had discontinued lens wear several years prior.

Initial evaluation was undertaken utilizing Biofinity Toric XR lenses (CooperVision): OD 8.7 mm base curve, 14.5 mm diameter, -5.50-2.75 x 148 with visual acuity (VA) of 20/50, OS -0.75-3.25 x 095, VA of 20/30 +, yielding 20/25- vision OU.

Though the rigid lenses produced better vision, JZ stated that

9 simple solutions to complex cases

Sometimes the best answer to solving a problem is the easiest option

By Priya Patel, OD; Caryn Nearnberg, OD; and Susan Resnick, OD, FAAO, FSLS

The specialty lens-fitting optometrist has a variety of lenses in the arsenal to choose from for the simplest to the most complex patient. Armed with patient goals in mind, increasing options can push ODs to aim for the “troubleshooting” tool without a reason to consider the simpler solution.

Many times customized gas permeable (GP) lenses or scleral lenses are the only fix, but taking a step back can yield a creative solution using standard designs. This article will highlight several such cases.
Biofinity Energys® are the only contact lenses designed to help with eye tiredness and dryness associated with digital eye fatigue.¹ When 78% of wearers are interested in ways to reduce eye tiredness, yet only 14% report digital device use is brought up in their eye exam², the opportunity to prescribe true contact lens innovation and to drive satisfaction is now.

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I have a child with a hypersensitivity to cats. He is 10 years old, and our family cat, Athena, is going on 17 (in human years). Thankfully, my son does not experience anaphylaxis or significant respiratory symptoms from being around her. However, if he pets her and touches one of his eyes before washing his hands, he will have a significant conjunctival response as well as lid hyperemia.

It’s significant enough that I thought I came home from work to a bad case of viral conjunctivitis the first time it happened. Whoever said you really don’t get to be good at pediatric eye care until you have a child yourself was 100% correct. However, my at-home experience with a family member has proven to me that I’m likely overtreating the patient at least some of the time.

This dichotomy of thought and experience has led me to re-examine my approach to encounters with patients who are suffering a non-chronic hypersensitivity that is confined to the ocular surface without corneal involvement. I learned long ago with topical steroids qid is a low starting dose. However, maybe I should keep a bottle in my exam room for those few patients who may need a just single dose, then call me in an hour to describe their signs and symptoms. I have successfully followed this model for several years now with my son. Now, if I can get the kids to stop talking about a dog...

One steroid drop, one time for allergic response

By Benjamin P. Casella, OD, FAAO

One drop one time, and he’s perfect in about 20 minutes with no rebound flush. So, with this in mind, I got to thinking not long ago about what I would have done if my son had presented to my clinic as a patient with a significant allergic response to his conjunctiva and corresponding lids. I probably would have put him on a drop [a topical mast cell inhibitor/antihistamine or a topical steroid depending on severity of signs and symptoms] daily until a follow-up visit in five to seven days.

One drop, one time

Yes, the first step is prevention, but we all live under the same roof. Some, the inevitable does happen, albeit with decreasing frequency, and when it does, he gets a single (one-time) topical steroid drop. Which topical steroid do I prefer? I prefer whichever one is in our medicine cabinet. That’s all he needs. One drop one time, and he’s perfect in about 20 minutes with no rebound flush.
Optometry Times blogs

8 common cash flow pitfalls to avoid: Part 1

Only 40 percent of all businesses survive beyond the first six years. Common cashflow pitfalls can occur in any business, including OD practices. Avoiding them can significantly stabilize, strengthen, and even increase the value of a business.

OptometryTimes.com/Blog/cashflowpitfalls

4 uses for OCT in OD practices

The use of anterior segment OCT in clinical practices has enhanced ODs’ abilities to treat a wide range of patient demographics. Find out how.

OptometryTimes.com/Blog/OCTuses
Compromised sleep
Data now suggests that suggests sleep quality may play an important role in the development of dry eye disease (DED) by influencing tear secretion and tear film stability and/or by indirectly aggravating anxiety and depression, leading to higher self-reported symptom scores.

In a recent murine model, sleep deprivation was demonstrated to induce dry eye through abnormal superficial corneal epithelial cell microvilli morphology.

In another sleep deprivation mouse model, researchers found that sleep deficiency resulted in decreased aqueous tear secretion, increased corneal epithelial cell defects, increased corneal sensitivity and apoptosis; and induced squamous metaplasia of the corneal epithelium.

Sleep quality
A systematic review and meta-analysis of sleep outcomes associated with found that compared to non-DED patients, DED patients may have:
- Poorer sleep quality
- Greater daytime sleepiness

Patient sleep survey results may add the extra clinical sign/symptom that may be the “tipping point” for OSD patients
- Less sleep
- More sleep disturbances
- An increased prevalence, incidence, and severity of sleep disorders

There is now data that suggests sleep quality may play an important role in the development of dry eye disease

ODs’ role
This begs the question: Should ODs incorporate a validated sleep survey into dry eye exams? Akin to DED, numerous validated global and targeted patient sleep/sleepiness/insomnia questionnaires are available. They can be selected to tease out sleep disorders in subsets of patients, for example, such as pediatric, adolescent, and adults, or obstructive sleep apnea suscepts.

With novel technologies and emerging discovery, ODs’ evaluation of the ocular surface disease (OSD) patient has become more sophisticated and fine-tuned. Each snippet of information supplementsthe profile of individual dry eye patients and adds a target for therapeutic intervention.

Should ODs be prescribing lid hygiene and sleep hygiene? Patient sleep survey results may add the extra clinical sign/symptom that may be the “tipping point” OSD patients—the management of which should be addressed.

References
Consider the underrated significance of vitamin K in eye care

Fat-soluble nutrient found to play beneficial role for cardiac, AMD, and cataract patients

There are four fat-soluble vitamins—A, D, E and K—each with various subtypes. Unlike water soluble vitamins, these are stored in the body. However, the subtypes of vitamin K have not garnered as much attention as its three siblings.

A recent meta-analysis demonstrated that vitamin K2 lowers the rate of bone fractures by 22 percent.1 This is accomplished by facilitating the production of the bone hormone osteocalcin that results in the deposition of calcium in bone—the opposite approach to bone-hardening pharmaceuticals.

At the same time, vitamin K2 is extremely important to eye care professionals because it has the exact opposite effect in blood vessels; it prevents excess vascular calcification that results in age-related stiffness and atherosclerotic plaque of blood vessels found in the heart, kidneys, and retinal blood vessels.

Patients seeking the myriad ocular and health benefits of spinach, collards, and other leafy greens containing vitamin K1 should also consult their prescribing physician before including such vegetables in their diet.

Caution with warfarin

Most ODs are already aware of the vitamin K subtype K1 (phyloquinone) found in green leafy vegetable produce—sometimes problematic to age-related macular degeneration (AMD) and cataract patients. And they are mindful that the potent anticoagulant warfarin (coumadin, Bristol-Myers Squibb) and other related drugs act by blocking vitamin-K dependent pathways, thus decreasing the body’s ability to produce several crucial blood clotting factors.

Warfarin has been a lifesaver for cardiac patients with atrial fibrillation (AFib) and valvular heart disease, as well as genetically (Factor V Leiden) and occupationally (sedentary) susceptible patients at risk for deep vein thrombosis (DVT) and/or pulmonary embolism. Patients taking warfarin or a related medication should consult their prescribing physician before taking any type of vitamin K supplement. Patients seeking the myriad ocular and health benefits of spinach, collards, and other leafy greens (rich in folate, magnesium, and lutein, and containing vitamin K1) should consult their prescribing physicians before including such vegetables in their diets.

This because the so-called “coumadin level” of sugar or artificial sweeteners, simple carbohydrates, gluten intolerance, and some genetically modified foods and oral antibiotics.

Vitamin K2 has several subtypes denoted by numbers such as MK-4, MK-6, MK-7 and MK-9, all varying in molecular structure. MK-7—the long-acting form of vitamin K2—has garnered the most attention.2

So much of an OD’s time is spent managing ocular micro-vascular diseases such as glaucoma and AMD. Yet vitamin K2 found in microgram concentrations in the diet has a profound effect as a calcium manager.

Fat-soluble nutrient found to play beneficial role for cardiac, AMD, and cataract patients

For instance, the risk of coronary artery disease was reduced by 9 percent for every 10 mcg of daily dietary vitamin K2 in individuals age 49 to 70 years.3 In a 10-year Rotterdam study of 4,807 adults age 55 and older, the rate of newly diagnosed cardiovascular disease was 41 percent lower in those with the highest vitamin K2 intake, and cardiovascular-associated death was 57 percent lower. In fact, death from “any cause” was 26 percent lower.4

Vitamin K2 is the fat-soluble nutrient subclass that can no longer be ignored by the eye-care community.

REFERENCES


Dr. Richer is president of the Ocular Wellness and Nutrition Society. He is associate editor of Journal of the American College of Nutrition and associate professor of family and preventative medicine at Chicago Medical School. Dr. Richer is global scientific director of ZeaWaxin Trade Association, he receives research funding from ZeaWaxin, and he consults for Bausch + Lomb, Eyecheck, Douglas Labs, and Stereo Optical.

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Being robbed blind

Like a proverbial thief in the night, glaucoma has been creeping into this patient’s life. The resulting changes in the RNFL were gradual and subtle, and the new AngioAnalytics® OCTA metrics unveiled vessel loss that mirrored the structural damage. For quantitative OCTA data that adds new detail to glaucoma exams, look into AngioAnalytics—only from Optovue. Visit optovue.com/angiovue to learn more.

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Focus On Glaucoma

Maintain open communication with primary-care physicians

One glaucoma patient’s case highlights why ODs need to convey exam findings

Every three months, I have the opportunity to see a patient who goes way back in the lexicon of our practice. My grandfather stopped practicing about 50 years ago, and he saw this patient in the 1950s. This African-American male, now 78 years old, is a glaucoma patient of mine. His medical history is remarkable for systemic hypertension, for which he takes a daily dose of lisinopril.

Of note, he is functionally monocular, having suffered a severe wound to his left eye as a result of a BB gun when he was a young man. Unfortunately, that eye has no light perception.

Patient overview
Over the decade or so that he has been my patient, he has been mostly compliant. He has primary open-angle glaucoma of the right eye, which was diagnosed in the 1980s. He is phakic in that eye with mild nuclear sclerosis, and I currently have his intraocular pressure (IOP) under control with latanoprost (Xalatan, Pfizer) at bedtime and brimonidine (Alphagan, Allergan) 0.15% twice a day.

He last presented for a comprehensive eye examination in April 2019 at which time his IOP was 11 mm Hg in the right eye and 12 mm Hg in the left eye by means of Goldmann applanation tonometry at 9:30 a.m.

I have his target pressure set at 10 to 12 mm Hg for his right eye, for which he takes a daily dose of lisinopril. He was dilated at this visit, and fundus photography was obtained of his right eye (Figure 1). Severe scarring throughout his left eye precludes accurate optic nerve evaluation and photography.

He has been happy with his vision through his current spectacles for years and understands that he needs them to drive (uncorrected visual acuity is 20/80 in the right eye).

Primary care
At the conclusion of the examination, I was walking with him up to the front desk to make a follow-up visit for July when he asked me if I could send the results of his examination to his primary-care physician. I said I’d be happy to.

He told me that, at a recent visit to this doctor, he mentioned that he would be going in for a glaucoma check-up soon, and that the doctor was surprised to learn this. The patient had been seeing this doctor for about a year.

So, I faxed a copy of the examination notes to this doctor and also typed up a short letter explaining that the patient’s glaucoma was well-controlled with latanoprost and brimonidine. I also briefly stated that I am accepting new patients and perform diabetic eye examinations.

One potential practice builder.

Open communication
When I thought about this, I realized that I do a good job of sending diabetic eye examination notes to primary-care physicians. I do not utilize a checklist or form; I just hit the high points from the examination, being sure to note visual acuity, IOP, and findings indicative of pathology.

I make a point to note the fact that the patient was dilated for his examination.

In addition, I also make a point that I emphasize tight blood glucose control and compliance with the patient’s primary-care physician as well as when I advise the patient to return for follow-up care (which is one year, providing no pathology is present).

On the other hand, this brief series of events brought to my attention the fact that I could do a better job of conveying the findings of my glaucoma patients to their respective primary-care physicians.

I am going to do a better job of this moving forward.

I am interested to hear how you convey examination findings to primary-care physicians. I would expect that most ODs are diligent about conveying the results of a diabetic eye examination, but I suspect that there exists some variation in how we communicate with different diseases and conditions.

Please email me to share your typical modus operandi for such tasks. I’ll share results in the future. Thanks!
Comanagement Focus On

Practice cooperative management early to avoid later complications

ODs need to establish a baseline for maintaining regular and thorough patient care

ODs use their acumen to help patients maintain or establish the best quality of vision. They use tools of their trade to establish a diagnosis, then elaborate to patients how to create a cooperative treatment. How ODs establish that cooperation is critical to how they manage patients.

For eyecare professionals to establish themselves as the primary-care providers of eyes, they have to establish the importance of proactive therapy or, quite simply, maintenance.

ODs’ care

The irony is that ODs attempt to bring patients back for annual exams with the sole purpose of conducting a comprehensive examination of the eyes. A more granular way (yes, pun intended) of looking at the visit is as a physical for the visual system. I have often opined whether this yearly pilgrimage is necessary for a patient who has no comorbidities that could challenge the status quo.

For example, when ODs see patients who are diabetic, they are keen to provide a thorough visualization of the retina with great detail to the blood vessels accompanying the optic nerve. In addition, patients with a family history of macular degeneration are a cue for ODs to meticulously look at the macula, most likely taking photos or an optical coherence tomography (OCT). Furthermore, they check the intraocular pressure for years to come.

When patients do have a history or risk factors, ODs provide the guidance to “prevent” further damage

Sure (IOP) on every patient—regardless of the glaucoma status or family history. However, when patients do have a history or risk factors, ODs provide the guidance to “prevent” further damage. These patients are encouraged—much like patients with progressive corneal dystrophies—to cooperate in managing the disease state. More specifically, ODs need their cooperation so changes can be noted and intervention can occur before that condition exacerbates to a point of damage.

But what about the patients who don’t fall into that category?

The majority of patients are disease-free, young, or symptomless. Perhaps they are coming in to update their refractions, although they don’t have concerns: The contact lens patient who has not had a change in his prescription for years or the presbyope who is just increasing the power of her near readers.

Should ODs be seeing these patients yearly? The common thread involved in every patient is “vision.”

Patient care

For over two decades, ODs have had the ability to screen the cornea via a topographer; arguably, the topographer is now considered part of the standard of care.

This transcends those patients looking to have a corneal refractive procedure. Rather, the topography is used for early diagnosis of astigmatism, dry eye, contact lens measurements, and establishing a baseline. Think of the IOP measurement ODs take.

While topography has grabbed a foothold in ODs’ armamentarium, there is another common malady plaguing patients’ transcending age. It is now well-documented that the 2007 innovation placed a small computer in our hands.

There is an astounding correlation between dry eye and meibomian gland changes that is only getting worse. The change in the ocular surface has ramifications that go beyond just preparing patients for contact lenses or glasses. What ODs do today will determine patients’ vision for years to come.

Much like topography, ODs need to be able to view early signs of damage and changes to the meibomian morphology, then ensure patients’ cooperation in the management. Every time we do not blink, we are not secreting meibum. Every time patients allow obstruction to cease the flow of meibum, they are creating inflammation. Every time ODs see a patient, they need to gain a baseline of these crucial glands. Meibography may be a newer technology, but the visualization of the meibomian glands is a powerful image for patients.

Future of care

As more research elucidates the correlation with dry eye and meibomian gland changes, ODs will be able to give patients better guidance. It has already been established that clearing the obstruction, via heat and expulsion, can only help patients’ symptoms and set them up for the future.

However, ODs also already know that maintaining healthy and active glands is needed for all patients’ most important activities—yes, I am speaking to screen time. How can an OD evaluate that annually without imaging? When a patient walks into an OD’s lane, the prophylactic and proactive traits of the optometric profession need to be activated. It goes without saying that ODs are hoping to avert sight-threatening complications, but there are also the slow changes that they can affect daily. Much like how IOP, topography, and dilation provide ODs with a baseline, they also need to add meibography into their regimen to truly manage these patients.

When patients do have a history or risk factors, ODs provide the guidance to “prevent” further damage

Laser Eye Center in Schwartz Laser Eye Center in Scottsdale, AZ

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REFERENCES

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Best practices for managing keratoconus patients

By Scott Hauswirth, OD, FAAO, and Brooke Messer, OD, FAAO, FSLS

Over the years, we have managed many patients with keratoconus during every stage of the disease, from initial diagnosis to specialty contact lens fitting to end-stage treatment with corneal transplantation. Now that eyecare professionals have an FDA-approved therapeutic treatment for the disease, it’s more important than ever for optometrists to not just diagnose keratoconus but identify signs of progression and refer those patients for treatment.

Corneal collagen cross-linking (CXL) can help slow or prevent progression of keratoconus and should be considered as part of treatment plans in addition to maintaining good vision with glasses and disposable contact lenses. In addition, the majority of private insurers now cover the FDA-approved epi-off CXL procedure with Photorex (Avedro).

Patients doing well
Keratoconus is thought to be a progressive ectatic disease in a large percentage of patients. Over time, progressive keratoconus can make contact lens wear increasingly difficult, so the ideal strategy is to intervene early in the disease state.

Early diagnosis and treatment is the best way to preserve a variety of options for vision correction. If the patient is still able to wear glasses or soft disposable lenses, stabilizing the topographic changes with corneal cross-linking could mean that he will continue to succeed in these methods of vision correction.

In addition, early intervention may help patients to avoid the cost and complexity of managing corneal or scleral gas permeable (GP) lenses, which are typically reserved for more complex or advanced cases of keratoconus.

When a patient seems to be doing well in contact lenses, ODs can be tempted to put off a referral for cross-linking. But waiting too long to treat progressive keratoconus increases the chance of decreased best-corrected acuity as the cornea becomes more irregular. In some of these cases, the only way to restore acuity is via a corneal transplant.

Corneal transplant surgery, while still the most successful of all transplant surgeries, remains an invasive surgical procedure that has a long healing process and presents many postoperative challenges. It is also associated with a number of potential complications, including the possibility of graft failure. Younger patients with progressive keratoconus are more likely to reach a stage requiring a corneal transplant, typically in a more rapid fashion.

Corneal collagen cross-linking should be a first-line treatment for young patients with progressive keratoconus with the goal of reducing preventable vision loss and the need for corneal transplants.

It is important to understand that CXL alone does not correct the patient’s vision. Although the procedure is commonly associated with some flattening of the corneal curvature as well as post-cross-linking changes in refraction, in our experience patients will generally still need contact lenses or glasses to correct their vision. This maintains optometrists as integral care providers for these patients.

Corneal irregularity and progression
Topography is an important tool in diagnosing and managing keratoconus. In order to identify the earliest keratoconic changes, the posterior cornea needs to be examined with a more advanced tomography device. There are many uses for a topographer in an optometry office, but it is harder to justify the purchase of a tomographer. If you are suspicious a patient might have an irregular cornea, consider a referral to another colleague (optometrist or ophthalmologist) who has access to a tomographer for baseline scans.

Clinicians without access to tomography or topography can still monitor for progression because there are a number of warning signs to be on alert for:
- Frequent prescription changes
- Changes in cylinder
- Inability to refract the patient to 20/20 visual acuity
- Unexpected decrease in visual acuity
- Difficult retinoscopy (scissor reflex)
- Additionally, have a higher degree of suspicion for keratoconus in patients with

TAKE-HOME MESSAGE
- History of eye-rubbing
- Ethnic background with higher rates of the disease (such as Middle Eastern descent)
- Down syndrome
- Atopic disease

One or more of these factors can serve as a diagnostic clue that keratoconus may be an underlying factor.

There is no national standard yet for what constitutes “progression” of keratoconus. Many cross-linking and keratoconus research guidelines require a change in refractive cylinder of 1.00 D, steepening of Kmax of 1.00 D, or change in manifest refraction spherical equivalent (MRSE) of at least 0.30 D over a 24-month period.

When progression has not yet been documented, younger patients should be followed more frequently than annually because there is a possibility they can progress rapidly.

Successful referral
Before referring a patient for CXL, set expectations with the patient about the level of care and expertise that each doctor will provide. It’s a good idea to tell patients that they will come back to you for glasses or contact lenses after the procedure and that you may conduct some follow-up exams.

Be aware of what procedures the CXL surgeons in your area are performing. Currently, the only FDA-approved procedure (and therefore the only procedure a patient’s insurance plan will consider covering) is epi-off CXL for patients with progressive keratoconus (or post-refractive surgery ectasia) using the KXL System (Avedro). An ongoing Phase 3 clinical trial is evaluating epi-on CXL (Avedro), but this procedure is still considered investigational.

When initiating a referral for a CXL evaluation, provide a succinct referral letter that briefly summarizes key findings and the reason for referral. Share what was discussed with the patient so if
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Indication
Xiidra® (lifitegrast ophthalmic solution) 5% is indicated for the treatment of signs and symptoms of dry eye disease (DED).

Important Safety Information
Xiidra is contraindicated in patients with known hypersensitivity to lifitegrast or to any of the other ingredients.

In clinical trials, the most common adverse reactions reported in 5-25% of patients were instillation site irritation, dysgeusia and reduced visual acuity. Other adverse reactions reported in 1% to 5% of the patients were blurred vision, conjunctival hyperemia, eye irritation, headache, increased lacrimation, eye discharge, eye discomfort, eye pruritus and sinusitis.

To avoid the potential for eye injury or contamination of the solution, patients should not touch the tip of the single-use container to their eye or to any surface.

Contact lenses should be removed prior to the administration of Xiidra and may be reinserted 15 minutes following administration.

Safety and efficacy in pediatric patients below the age of 17 years have not been established.

References:
1. Xiidra (Prescribing Information). Lexington, MA: Shire US.

For additional safety information, see accompanying Brief Summary of Safety Information on the adjacent page and Full Prescribing Information on Xiidra-ECP.com.

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BRIEF SUMMARY:
Consult the Full Prescribing Information for complete product information.

INDICATIONS AND USAGE
Xiidra® (lifitegrast ophthalmic solution) 5% is indicated for the treatment of the signs and symptoms of dry eye disease (DED).

DOSE AND ADMINISTRATION
Instill one drop of Xiidra twice daily (approximately 12 hours apart) into each eye using a single-use container. Discard the single-use container immediately after using in each eye. Contact lenses should be removed prior to the administration of Xiidra and may be reinserted 15 minutes following administration.

CONTRAINDICATIONS
Xiidra is contraindicated in patients with known hypersensitivity to lifitegrast or to any of the other ingredients in the formulation.

ADVERSE REACTIONS
Clinical Trials Experience
Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in clinical studies of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. In five clinical studies of dry eye disease conducted with lifitegrast ophthalmic solution, 1401 patients received at least 1 dose of lifitegrast (1287 of which received lifitegrast 5%). The majority of patients (84%) had ≤3 months of treatment exposure. 170 patients were exposed to lifitegrast for approximately 12 months. The majority of the treated patients were female (77%). The most common adverse reactions reported in 5-25% of patients were instillation site irritation, dysgeusia and reduced visual acuity. Other adverse reactions reported in 1% to 5% of the patients were blurred vision, conjunctival hyperemia, eye irritation, headache, increased lacrimation, eye discharge, eye discomfort, eye pruritus and sinusitis.

Postmarketing Experience
The following adverse reactions have been identified during postapproval use of Xiidra. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Rare cases of hypersensitivity, including anaphylactic reaction, bronchospasm, respiratory distress, pharyngeal edema, swollen tongue, and urticaria have been reported. Eye swelling and rash have been reported.

USE IN SPECIFIC POPULATIONS
Pregnancy
There are no available data on Xiidra use in pregnant women to inform any drug associated risks. Intravenous (IV) administration of lifitegrast to pregnant rats, from pre-mating through gestation day 17, did not produce teratogenicity at clinically relevant systemic exposures. Intravenous administration of lifitegrast to pregnant rabbits during organogenesis produced an increased incidence of omphalocele at the lowest dose tested, 3 mg/kg/day (400-fold the human plasma exposure at the recommended human ophthalmic dose [RHOD], based on the area under the curve [AUC] level). Since human systemic exposure to lifitegrast following ocular administration of Xiidra at the RHOD is low, the applicability of animal findings to the risk of Xiidra use in humans during pregnancy is unclear.

Animal Data
Lifitegrast administered daily by intravenous (IV) injection to rats, from pre-mating through gestation day 17, caused an increase in mean preimplantation loss and an increased incidence of several minor skeletal anomalies at 30 mg/kg/day, representing 5,400-fold the human plasma exposure at the RHOD of Xiidra, based on AUC. No teratogenicity was observed in the rat at 10 mg/kg/day (460-fold the human plasma exposure at the RHOD, based on AUC). In the rabbit, an increased incidence of omphalocele was observed at the lowest dose tested, 3 mg/kg/day (400-fold the human plasma exposure at the RHOD, based on AUC), when administered by IV injection daily from gestation days 7 through 19. A fetal No Observed Adverse Effect Level (NOAEL) was not identified in the rabbit.

Lactation
There are no data on the presence of lifitegrast in human milk, the effects on the breastfed infant, or the effects on milk production. However, systemic exposure to lifitegrast from ocular administration is low. The developmental and health benefits of breastfeeding should be considered, along with the mother’s clinical need for Xiidra and any potential adverse effects on the breastfed child from Xiidra.

Pediatric Use
Safety and efficacy in pediatric patients below the age of 17 years have not been established.

Geriatric Use
No overall differences in safety or effectiveness have been observed between elderly and younger adult patients.

NONCLINICAL TOXICOLOGY
Carcinogenesis, Mutagenesis, Impairment of Fertility
Carcinogenesis: Animal studies have not been conducted to determine the carcinogenic potential of lifitegrast. Mutagenesis: Lifitegrast was not mutagenic in the in vitro Ames assay. Lifitegrast was not clastogenic in the in vivo mouse micronucleus assay. In an in vitro chromosomal aberration assay using mammalian cells (Chinese hamster ovary cells), lifitegrast was positive at the highest concentration tested, without metabolic activation.
Impairment of fertility: Lifitegrast administered at intravenous (IV) doses of up to 30 mg/kg/day (5400-fold the human plasma exposure at the recommended human ophthalmic dose [RHOD] of lifitegrast ophthalmic solution, 5%) had no effect on fertility and reproductive performance in male and female treated rats.

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the surgeon makes a different recommendation, it can be made in a way that is supportive of your relationship. Ideally, include the last two or three refractions (including cylinder) and topography Kmax readings, if available, to substantiate your findings. This is important for several reasons.

First, evidence of recent progression establishes that the patient will likely benefit from the procedure. Secondly, it may be necessary for insurance coverage, as discussed above. For the surgical practice, having a year or two of data makes it much easier to advocate for insurance coverage on your patient’s behalf.

Without historical data, even when there is high confidence that the patient has a progressive condition that should be treated, it may sometimes be necessary to wait another six months or more to sufficiently document progression. When historical information is relayed to the surgical provider at the outset, it can expedite the process.

Collaborative care
In most cases, surgical practices are happy to return the patient to his trusted primary eye care provider for ongoing follow-up appointments and contact lens management. Typically, patients will return to the referring doctor at or even before the one-month mark, although this may vary according to the preferences of the referring doctor, surgeon, and/or the patient’s travel distance.

Follow-up care for patients who have undergone CXL is straightforward and can be managed readily by optometrists who are comfortable managing postoperative PRK patients because the healing process is remarkably similar, especially in the early phases.

Patients undergoing epi-off CXL are typically seen at Day 1, Days 5 through 7, one month, and then at three or six months. Post-treatment visits are not part of a global period, so they can be billed as office visits.

Patients will be in a bandage contact lens (BCL) for approximately one week. After removal of the BCL, there may be mild superficial punctate keratitis and minimal discomfort. Vision at this stage is usually about the same as preop vision, but it may be a few Snellen lines worse due to epithelial reorganization and mild edema, which are common postoperative findings.

Patients are encouraged to frequently use artificial tears throughout the day and follow the surgeon’s postoperative medication drop regimen, which includes a topical steroid, antibiotic, and sometimes a non-steroidal anti-inflammatory drug (NSAID).

Most patients are able to return to soft contact lens wear in two to four weeks and GP lenses around four weeks.

Most studies show a slight flattening of the cornea following the procedure, especially in eyes with steeper corneas.2-4 There may be a small shift in the average keratometry readings within the first six months after CXL.

Any changes in refraction after the procedure are likely to be subtle rather than dramatic. It is advisable to wait at least three months before prescribing new contact lenses. Treated patients should continue to be monitored at least annually.

Conclusion
It is important to diagnose keratoconus early and, as soon as there is evidence of progression, to consider treating with corneal collagen epi-off cross-linking. Currently it is the only FDA-approved procedure to stop the progression of the disease. By intervening early, we allow the patient to continue to have multiple options for vision correction.

REFERENCES

Dr. Hauswirth is director of the Dry Eye Center of Colorado and a consultant to Avedro. He enjoys his time outside clinic watching his son play hockey and spending time with his family hiking and exploring the outdoors. C. scott.hauswirth@udenver.edu

Dr. Messer received her doctor of optometry degree from Southern California College of Optometry and completed a residency in cornea and specialty contact lenses. She is a member of the Contact Lens Society of America. She has no relevant financial relationships to disclose. Outside the office, Dr. Messer loves to golf, hike, and visit family back in her hometown of Dickinson, ND. C. drbmesser@gmail.com

CASE EXAMPLE:

YOUNG TEEN

By Brooke Messer, OD, FAAO, FSLS

A 15-YEAR-OLD FEMALE came in for an exam. She wore a soft spherical contact lens in her right eye and soft toric lens in her left eye. She had not been able to see well out of her left eye for some time, and her parents were concerned.

Visual acuity in the left eye was 20/50. Retinoscopy over the contact lenses was difficult, with a “scissory” appearance. I repeated refraction without the lenses and had my technician perform topography.

Based on her reported history of refractive changes, classic topographical pattern, and Kmax of 60.00 D, I diagnosed keratoconus in both eyes, OS worse than OD.

Given her refractive error changes and young age, I discussed with her parents that it is likely progressive. I recommended cross-linking OU.

After surgery, she was able to continue wearing a soft lens in the right eye and was fit with a gas permeable lens in the left eye, achieving visual acuity of 20/25.

Figure 1. Topography of this young patient’s right and left eyes prior to cross-linking. She was diagnosed with progressive keratoconus.
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- Illuminance, the human perception of the brightness of visible light received at the eye (lux).
- Chromaticity, the color of light based on the wavelengths and intensity that combine to make a color.
- Correlated Color Temperature, the temperature of a black body light source that would produce similar shade of white to the measurement - how blue or red and white light appears.
- Color Rendering, how truthfully a color is shown by the light measured compared to if the color was lit by bright sunlight.
- Flicker, the speed and characteristics of repeated changes in light intensity particularly noticeable with LED lighting.
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Offer more comfort to contact lens wearers

Address the ocular surface with these treatment strategies backed by research

By Mile Brujic, OD, FAAO

Contact lens wear is a tremendous portion of many optometry practices. Many patients come to ODs because of their ability to provide comfortable vision with contact lenses.

Unfortunately, without successfully providing patients with a comfortable wearing experience, they may not be able to appreciate the full impact of the vision-correcting opportunities that contact lenses can offer. Many manufacturers have invested significantly in attempts to improve comfort through new materials, lens designs, care solutions, and surface treatments.

Discomfort leads to dropout
ODs have seen the positive outcomes these new modalities have had on patients’ lens-wearing experience. Even with the availability of new contact lens technologies, some patients will still discontinue contact lens wear. There are several reasons for this, including ocular redness, decreased visual acuity, and even cost of the contact lenses. Interestingly, the most commonly-cited reason that someone will discontinue contact lens wear is discomfort.

From a clinical perspective, ODs know who is wearing lenses, but determining those who have discontinued lens wear is a more difficult exercise. Some patients will tell their ODs about their comfort challenges and seek help, but most are silent sufferers because they attribute discomfort as a necessary evil of wearing contact lenses. These patients may seek other professional opinions, or they could come in to their next exam wearing their glasses, uninterested in continuing lens wear.

I went through a self-realization several years ago when I asked patients in my practice to grade their contact lens comfort on a scale from 0 to 10 (10 being the most comfortable wearing experience and 0 being the least) at the beginning and the end of the day.

I found that even my seemingly comfortable lens-wearing patients were experiencing a significant drop in comfort toward the end of the day. This is when ODs typically consider intervening with new lens technologies to positively influence patients’ end-of-day comfort.

I think all practitioners should embrace new contact lens technologies, including material science and optical designs. Innovation provides our patients with improvement in wearing experience. I believe ODs have the opportunity to reduce the number of contact lens dropouts, but we need to be proactive in how we ask questions in the exam room and offer patients the highest-quality contact lens designs and optical properties that manufacturers have to offer.

Ocular surface and comfort
Unfortunately, only a certain level of comfort can be obtained by optimizing lens designs. ODs need to understand and appreciate the effects of the ocular surface and how it can influence contact lens wear. A healthy ocular surface will not guarantee a successful wearing experience but will maximize the chances of it occurring.

With the ocular surface, critical clinical consideration should be made to the health of the lid margins, conjunctiva, cornea, tear film, and all glands involved in producing the tear film.

Lid margins that become serrated over time can be a sign of chronic lid margin disease, resulting in poor lid dynamics. Excessive bacterial overpopulation can lead to signs of cobalatite at the base of the lashes. Other signs include folliculitis, meibomian gland capping, and lid margin hyperemia. This can ultimately alter the quality of the meibum, affecting the tear film dynamics. Blepharitis has been shown to be a risk factor for comfortable lens wear, too.

The lid wiper area is the small region just posterior to the line of Marx on the superior lid margin that provides much of the wiping capacity of the upper lid over the ocular surface. The lid wiper area can become inflamed and will absorb vital dyes, including fluorescein and lissamine green. This is called lid wiper epitheliopathy (LWE) and has been associated with contact lens discomfort.

Inflammation has also been associated with contact lens discomfort. With advancing technologies, the ability to measure ocular surface inflammatory markers has improved. It has been recently demonstrated that elevated levels of leukotriene B4 are associated with symptomatic contact lens wear.

Nutrition can influence ocular surface health and contact lens discomfort. Patients randomized to receive oral omega-3 supplementation showed improvements in contact lens comfort and a reduction in ocular surface inflammatory markers.

A number of strategies may improve contact lens comfort through improving ocular surface health. Fortunately, there is significant information on ocular surface treatment strategies that have been found to help contact lens wearers have a more comfortable wearing experience.

Here, I will review strategies that have shown positive responses in studies to treat the ocular surface in order to improve contact lens comfort.

Thermal pulsation
Appropriate meibomian gland health is critical for a healthy ocular surface. The meibomian glands produce meibum that form the outer layer of the tear film, preventing premature evaporation of the tear film’s aqueous layer. Research has shown that meibomian gland dysfunction (MGD) can cause a reduction in contact lens comfort.

A single 12-minute thermal pulsation treatment has demonstrated significant improvements in meibomian secretion, tear film parameters (including MMP-9 levels), and patient symptoms measured by the Standardized Patient Evaluation of Eye Dryness (SPEED) questionnaire.

Recently, researchers looked into the influence of MGD and contact lens discomfort in contact lens wearers with MGD and dry eye symptoms. Participants were randomized to a single thermal pulsation treatment and compared to a control group that received no treatment.

The treated group significantly improved both signs and symptoms associated with contact lens discomfort and increased comfortable contact lens wear time by four hours. The study followed these patients for three months, and the treatment effect was sustained for that time frame.

Moist heat compress
A clinical study at the University of Alabama at Birmingham School of Optometry found that subjects using Bruder moist heat compress had significantly improved meibomian gland scores and experienced steeper declines in their overall eye discomfort assessment scores.

This was a four-week, single-center, three-arm, randomized, open-label clinical trial in subjects diagnosed with contact lens-induced dry eye (CLIDE) using the Contact Lens Dry Eye Questionnaire long form (CLDEQ). Fifty-one subjects were randomized to one of three treatment groups:

- Application of the compress once a day
- Application of the compress twice a day
- Warm washcloth application twice a day

A statistically significant increase in mean hours of comfortable wear time was found in subjects who used the compress compared to those using
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1 Data on File.
Comfort

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a washcloth. No statistically significant improve- ment in comfortable wear time was found between subjects using the compress twice daily versus once daily.

Dry eye blepharitis syndrome

James Rynerston, MD, and Henry Perry, MD, pub- lished a theory on the underlying cause of dry eye termed “dry eye blepharitis syndrome” (DEBS). In their paper, they discuss bacteria-producing biofilms over the lid margin surface as the major contributor to inflammation and dry eye. As these bacterial populations within a biofilm increase above certain threshold populations, they undergo quorum-sensing gene activation and begin to produce toxins known as virulence factor. These virulence factors, such as lipases, cytotoxic toxins, and super-antigens, directly cause the inflammation that leads to blepharitis and the long-term sequelae of dry eye disease.

This inflammation affects the ocular surface in phases based on the anatomical relationship of the structures within the lid. Initially, the signs are so mild that they may be overlooked. Folliculitis at the lash follicles show a mild volcano sign at the base of the lashes. Then, meibomian glands and the glands of Krause and Wolfring are affected, followed by eyelid architectural changes. These changes are chronic, long-term changes that occur over decades and manifest into the signs and symp- toms of dry eye disease.

Microblepharoexfoliation (MBE) can be utilized to counter act these changes. MBE is an in-office procedure, and the results showed no statistically sig- nificant differences in comfort. As an example, my practice usually utilizes positive InflammaDry (Quidel) may experience better results with punc- tual occlusion. More research needs to occur to help guide treatment patterns and punctual occlusion in contact lens wearers with comfort challenges.

Cyclosporine

Cyclosporine 0.05% has been used for over a decade in dry eye treatment. A study looked at contact lens wearers experiencing discomfort and randomized them to a placebo or treatment with cyclosporine 0.05%, which was used twice a day. There was a significant improvement in contact lens comfort with the treatment group.

Another study with a similar design looked at the same endpoints. The big difference in this study is that patients were followed for three months, whereas patients were followed for five weeks in the first study. In this second study, there was no difference noted between groups. Interestingly, it may be appropriate selection of patients that dictates appropriate cyclosporine use. As an example, my practice usually utilizes positive InflammaDry tests to determine appropriate candidates for inflammation reduction. It is worth considering this treatment option for your patients with contact lens discomfort.

Conclusion

It is incumbent upon ODs to identify individuals with contact lens discomfort. When identified, it is critical to appropriately manage the ocular surface to provide an environment conducive to com- fortable long-term contact lens wear. Additionally, appropriate follow-up protocols should be set in place to monitor these individu- als for improvement of symptoms. Only when ODs start thinking more globally about contact lens wearers and providing them solutions to optimize their tear film and ocular surface will they help to support the new technology lenses we are fitting.

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used to better educate patients and allow ODs to make sound clinical decisions.

**Patient education**

Health literacy is a problem in the U.S. and around the world,³ and recent data likewise suggests that a patient’s understanding of myopia is no different.⁴

A study of 330 clinical subjects found that while 89 percent of subjects could correctly define “nearsightedness” when given a three-item multiple choice question, only 64 percent of subjects who were given the same three answers stems were able to correctly define “myopia,” a synonymous term. This limited ability to correctly define myopia was not associated with sex, income, or education.⁶

These data overall suggest that when treating a myopic patient, one should clearly define the condition to all patients.

This lack of understanding was also observed in our clinic. This deficiency caused us to create multiple patient education tools, such as a consent form, and a simplified brochure that was based on the consent form, and a user-friendly website (uab.edu/eyecare/myopiacontrol), so patients could more easily comprehend their condition. This knowledge would also more likely make patients more compliant with their treatment.¹⁻³

The below sections highlight key topics that should be covered in patient education materials along with additional information to help the OD with patient questions.

**Myopia**

Myopia affects about 33 percent of the United States,⁴ and the prevalence of myopia may be as high as 84 percent in some Asian countries, such as Taiwan.⁷

The literature suggests that one’s chances of becoming myopic is tied to a blend of genetic and environmental factors.² The heritability of myopia is commonly analyzed via determining the risk of one’s offspring developing it. An example of this is Jones et al who found that a child with one and two myopic parents had a 2.08 and a 5.07, respectively, times greater chance of becoming myopic compared to a child who had no myopic parents.⁹

Twin studies likewise suggest that up to 90 percent of myopia is explained by genetics, which also suggests that about 10 percent of myopia is linked to environmental factors.¹₀⁻¹²

The recent increase in the prevalence of myopia is likely linked to environmental factors because genetic changes would be expected to take multiple generations to influence the prevalence of myopia.

The relatively recent increase in myopia prevalence is highlighted by a study of Alaskan Inuits.¹³⁻¹⁵ In this 1969 study, investigators found that the subjects who were 41 years or older had a myopia prevalence of 1.5 percent; however, those subjects who were 40 years old or younger (grew up with Western education) had a myopia prevalence that jumped to 44.7 percent.¹⁵

Related work suggests that this increase in myopia prevalence is likely associated with spending less time in outdoors (not near work).⁰,¹⁶⁻²⁰

Early work from Pärssinen and Lyrya found that spending more time outside may protect against myopia,²¹ and recent work from Jones and Rose who implemented better controlled studies found more time outdoors to be protective.³,¹¹

While there has been some debate about whether time outdoors can protect against myopia progression, a 2017 meta-analysis from Xiong determined that spending more time outdoors before developing myopia reduces one’s chances of becoming myopic, yet spending time outside after becoming myopic had no influence on myopia progression.¹⁹

**Comorbidities**

Myopia is considered a disease by many because it is a predisposing risk factor for conditions such as myopic retinopathy, cataract, primary open-angle glaucoma, and retinal detachment.¹²⁻²³ Low amounts of myopia are associated with an increased risk of developing posterior subcapsular cataracts.²²

Myopia also proportionally increases one’s chances of developing primary open-angle glaucoma and retinal detachments by 2.0 to 2.5 and 2.4 to 24.0 times, respectively.²₅⁻²₆

Thus, reducing one’s overall amount of myopia may also decrease one’s chances of developing one of these conditions.

**Myopia control options**

The literature suggests that 0.01 percent atropine,
center-distance multifocal contact lenses, and orthokeratology all have a clinically meaningful effect on reducing myopia progression.\textsuperscript{1,34,35}

In fact, a 2015 review indicates that atropine, soft bifocal contact lenses, and orthokeratology reduce myopia progression by on average 77 percent, 48 percent, and 77 percent, respectively.\textsuperscript{1,34}

A more recent soft bifocal contact lens study found that over 81 percent of subjects had complete halting of their myopic progression.\textsuperscript{74}

Given this data, UAB Eye Care educates patients that all three options are about equally effective at reducing myopia progression.

Orthokeratology and soft bifocal contact lenses are thought to optically reduce myopia progression by decreasing peripheral hyperopic defocus (considered a growth stop signal from animal studies) while also correcting foveal myopic defocus to allow for clear distance vision.\textsuperscript{73}

The community currently believes that soft bifocal contact lenses (~four cases/10,000 wearers/years) and orthokeratology (~20 cases/10,000 wearers/years) are no more likely to induce microbial keratitis when used for myopia control compared to using them for myopia correction.\textsuperscript{35}

Data from the Contact Lens Assessment in Youth (CLAY) study group also suggest that children who are 8 to 14 years old (prime population of interest for myopia control) are less likely to develop adverse events compared to 15- to 25-year-old subjects who are commonly fit with contact lenses.\textsuperscript{37}

Data from the Bifocal Lenses In Nearsighted Kids (BLINK) study group also suggests that children who wear multifocal contact lenses have visual acuity comparable to their spectacles.\textsuperscript{76}

The underlying mechanism by which 0.1% atropine reduces myopia progression is unknown, though 0.01% atropine is thought to have minimal side effects—the Atropine in the Treatment of Myopia (ATOM) study group found that accommodative amplitudes were reduced to 11.30 D with only a 1 mm increase in pupil size.\textsuperscript{31}

The mechanism is likely to be different than the optically-based options because a 2018 study found that atropine in combination with orthokeratology results in additive myopia control effects.\textsuperscript{28}

The full safety profile of long-term use of 0.01% atropine is unknown; however, data from the amblyopia literature suggest that 1.0% atropine (100 time stronger) is safe to use in children.\textsuperscript{40}

**Patient selection**

The ideal myopia control patient is one who was recently diagnosed with myopia (e.g., first pair of glasses). Younger patients are more likely to benefit from myopia control than older patients because younger patients have the potential to progress more than older patients.\textsuperscript{75} With that said, a patient of any age who is progressing may benefit from myopia control. Because all three myopia control methods are about equally efficacious,\textsuperscript{1,44} it may be best to select a correction method that best suits the patient’s lifestyle.

Atropine can be used on the youngest patients because the patient simply needs to apply one drop of atropine in each eye before bed. These drops can be administered by the child’s caregiver. Some patients may not elect atropine because they dislike that atropine’s mechanism for controlling myopia is unknown. They may also dislike that they will still be dependent on spectacles.

The most commonly used contact lens-based myopia control options are spherical daily disposable or daily wear lenses, which have the ability to correct minimal amounts of astigmatism.\textsuperscript{34,35} Although not part of controlled studies, other contact lens options, such as multifocal bitoric gas permeable and custom soft multifocal toric contact lenses have the potential to control myopia progression in astigmatic patients. If one of these latter methods are selected, the patients should be made aware that they have not been clinically tested.

Patients considering contact lenses need to be mature enough to wear them—a characteristic that most care providers can judge by evaluating the patient’s in-office behavior.\textsuperscript{32}

Combination therapy is a possibility (atropine plus a contact lens option), though it may be best to try one method and add a second method if clinically meaningful progression is detected.\textsuperscript{39} Patients fit in contact lenses should be monitored as typical of the modality, and all myopia control patients should be monitored at least every six months to evaluate myopic progression.

**Exam flow**

Begin the exam by reviewing the informed consent with the patient. The patient should be given ample time to consider his options because myopia control is a long-term treatment.

If the patient is interested, his visual needs and demands should be investigated to determine the best option for his lifestyle. Visual acuity at distance and near, cover test at distance and near, accommodative amplitudes, pupils, and anterior segment exam should be performed to monitor safety. Obtain topography for contact lens fitting purposes, and perform autorefration and non-contact axial length measurements to track progression.

**Marketing**

Marketing a myopia control practice may be more or less difficult based upon your community’s general understanding of myopia and myopia control. Start with internal marketing by introducing it to patients in your practice. Then, start marketing via methods that have worked for your practice, such as newsletters, lectures, and networking within your community. Radio or television advertising might also work to spread awareness.

Be sure to update digital materials such as practice website and email newsletter with myopia control practice offerings.

**Conclusion**

The scientific community generally believes that myopia control is safe and efficacious.\textsuperscript{7} Myopia control is gaining acceptance; if you have not already started offering myopia control, it is time for you to develop your own plan—or at least develop a relationship with a practitioner who does offer it. By offering myopia control, your patients can have the opportunity to reduce their visual burden and their risk of developing an associated vision-threatening conditions.\textsuperscript{34,35,36}
**MYOPIA FACTS**

- **33%** Myopia affects about 33 percent of the United States

- **84%** The prevalence of myopia may be as high as 84 percent in some Asian countries, such as Taiwan

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**TWIN STUDIES SUGGEST**

- **10%** of myopia is environment
- **90%** of myopia is genetics

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**ON AVERAGE, THESE OPTIONS REDUCE MYOPIA BY:**

- **77%** Atropine
- **48%** Soft bifocal contact lenses
- **77%** Orthokeratology

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Myopia control

Continued from page 21


Dr. Pucker earned his OD, MS, and PhD degrees from The Ohio State University. He is the principal investigator of a National Eye Institute–funded project related to myopia development, and he manages other projects related to refractive error, dry eye, and contact lenses. Dr. Pucker has received research funding from National Eye Institute, Alcon, Bausch & Lomb, Euclid, and Centurum, and he has consulted for the Optical Care Inc. over the past three years. In his free time, he enjoys homebrewing, traveling, and spending time with his family.

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he felt more comfortable physically with soft lenses and would wear the soft toric lenses full time. He reported glare with the right eye, the eye with the bigger cone; nevertheless, ZJ ultimately had better success with the XR toric lenses and has been wearing them full time.

This case demonstrates that soft toric lenses may be an option when best-corrected spectacle VA is acceptable to the patient.

CASE

Soft toric lenses may be an option when best-corrected spectacle VA is acceptable to the irregular cornea patient

We discussed monthly Proclear Toric Multifocals (CooperVision) as well as a custom-designed toric multifocal by SpecialEyes. Because she preferred daily disposable lenses, we pushed +0.50 D sphere over her non-dominant eye, and she was able to see 20/20 comfortably at both distance and near.

We look forward to the future when daily disposable torics are available in presbyopic designs, but for now, often a mild monovision adjustment solves the problem.

CASE

Coming into focus

A 17-year-old Asian male, ZL, came to the office after experiencing bitemporal headaches and asthenopia. He had been experiencing stress with the college admission process.

In his contact lenses that were just about a year old, he was seeing OD 20/40\(^2\), OS 20/40\(^2\). We measured a full diopter myopic shift with a normal retinal evaluation. At near, he was seeing 20/25\(^1\) OU but exerting effort, resulting in strain and requiring an add of +1.00 D.

We diagnosed accommodative insufficiency. He displayed the common symptoms of blurred vision, headaches, and loss of concentration.

We discussed vision therapy as the most effective treatment for accommodative dysfunction to increase accommodative amplitudes, but he was already overloaded with exams and extracurriculars. ZL simply requested an updated glasses prescription and was open to considering contact lenses.

We elected to fit NaturalVue Multifocal daily disposable lenses (Visioneer Technologies), which have a universal extended depth of focus add with a center distance design.

ZL made a follow-up appointment two weeks later. At that visit, he was seeing 20/25\(^1\) OU at both distance and near, and his headaches had resolved.

This case illustrates how multifocal contact lenses may be beneficial for children and young adults experiencing symptoms related to accommodative dysfunction.

CASE

Double the fun

A 70-year-old Caucasian female, ES, presents with a history of numerous strabismus surgeries, complaining of diplopia in all gazes. ES is a daily disposable contact lens wearer considering another revision surgery for her residual 6\(^{\circ}\) esotropia and 4\(^{\circ}\) right hypertropia.

She is currently a vision therapy patient with good horizontal control, but she is frustrated with diplopia resulting from the hyper deviation. Her most up-to-date manifest refraction is OD: -6.50-1.75 x 025, 20/20; OS: -6.25-1.25 x 170, 20/20.

She has two options:

- Continue with her current daily disposable toric contact lenses in both eyes with vertical prism glasses
- Consider a customized soft toric lens with vertical prism correction by SpecialEyes

Specialty contact lenses can include customizations including incorporating base down prism (SpecialEyes allows a maximum of 4\(^{\circ}\) base down optical prism in a lens\(^3\)). The empirical order of the right lens is 8.0 mm base curve, 14.4 mm diameter, -6.00-1.75 x 020, 4.0\(^{\circ}\) base down in the SpecialEyes Toric 54 percent material.

Along with good control of her horizontal deviation, ES needs 4\(^{\circ}\) needs base down vertical prism over her right eye to alleviate her diplopia.

Upon dispensing the empirically ordered lens for the right eye, ES corrected to 20/20 OU with no residual vertical misalignment. Additionally, she is able to function without the need for glasses over her contact lenses. ES is elated with the results.

CASE

More clean, less protein

A 65-year-old Caucasian female, RM, is loyal to her GP lenses, but she is frustrated with the “film” appearing on them throughout the day (Figure 3).

Initially, she removed her lenses midday to clean with Boston Simplus (Bausch + Lomb) before reinsertion and subsequently moved on to using alcohol-based Lens Fresh cleaner (Orion Vision Group) multiple times a day. Frustrated with the frequency of cleaning her lenses, she arrived seeking a better solution.

RM wears the same parameter aspheric GP multifocal lenses in both eyes: 7.64 mm base curve, 9.49 mm diameter, +7.50 D sphere, +2.50 D add, 3.00 mm center-distance optic zone.

After a thorough fit assessment and ruling out a significant contribution from dry eye disease or meibomian gland dysfunction, the next pair of lenses were ordered with Tangible Hydra-PEG (Tangible Science). Tangible Hydra-PEG is a 90 percent water PEG-based polymer mixture that is covalently (permanently) bonded to the surface of the contact lens, creating a wetting surface on the underlying lens material, separating it from the ocular surface and tear film\(^2\).

RM continues to wear the new lenses without filming concerns and rarely finds herself taking out the lenses midday to clean.

TAKE-HOME MESSAGE

Optometrists at a specialty contact lens practice explore creative solutions to potentially complex patient problems. Sometimes contact lens fitters jump to “problem-solving” contact lenses with customized designs considering another—usually more simple—strategy can solve the challenge.
**CASE 7**  
**A balancing act**  
A 61-year-old Caucasian female, SG, is a long-time two-week disposable contact lens wearer complaining of dryness worsening throughout the day. After discussing the health benefits and added convenience of upgrading to a daily disposable lens, she agreed to the update.  
Her most current refraction is OD -1.50-1.25 x 160, 20/15; and OS -1.50-0.50 x 015, 20/15.  
We refit SG from Johnson & Johnson Vision Acuvue Oasys for Astigmatism/Acuvue Oasys to the same prescription and material (senofilcon A) in a Acuvue Oasys 1-Day/Acuvue Oasys 1-Day for Astigmatism. Lens parameters are OD -1.50-0.75 x 160, base curve 8.6 mm, Acuvue Oasys for Astigmatism; and OS -1.50 D sphere, base curve 8.4 mm, Acuvue Oasys.  
At the follow-up visit, she reported the vision and comfort of the lens in the left eye was unequal to the right eye and inferior to her two-week lenses. On a positive note, her dryness symptoms were considerably improved.  
We tried multiple other daily disposable designs without success; SG felt the same physical discomfort in her left eye.  
As a last resort, we tried Acuvue Oasys 1-Day for Astigmatism, base curve 8.6 mm, -1.00-0.75 x 020. She reported an immediate improvement in comfort. We hypothesize that lid interaction with the prism ballast system in the toric lens OS created a different sensation compared to OD. Her vision still corrected to 20/20 OU, and feelings of discomfort remain resolved.

**CASE 8**  
**When sclerals are not the solution**  
A 44-year-old Caucasian male, ED, presented with an unknown scleral design in both eyes fit by another provider. He is frustrated with variable vision, discomfort, and redness after a few hours of wear.  
ED had strabismus surgery in the left eye to correct an esotropia as a child, but he still manifests a residual 10° intermittent left esotropia. His entering acuities with his scleral lenses were 20/30 OD and 20/40 OS.  
Upon initial examination, the cornea exhibited epithelial bogging likely from interaction with non-preserved saline and excessive vault underneath the lens (greater than 300 nm). The fit was tight; we noted significant conjunctival impression post lens removal.  
After a week long wash-out period of no lens wear, the initial refraction post lens wear revealed OD -14.00 D sphere, 20/30; and OS -14.25-0.50 x 90, 20/50.  
At the one-week follow-up visit, we trialed Alcon Dailies AquaComfort Plus OD -12.50 D sphere; and OS -11.50 D sphere OS. With these lenses, ED achieved visual acuity of 20/25 OD and 20/40 OS. The symptoms of fluctuating vision, discomfort, and redness subsided, and he is remains happy with the convenience of daily disposable lenses.

**CASE 9**  
**Sclerals to the rescue**  
A 62-year-old Caucasian male, JG, is post cataract surgery in both eyes with multifocal intraocular lens implants. Evaluation without contact lenses reveals residual refractive error, higher order aberrations, and symptomatic glare in his left eye.  
Uncorrected acuity is 20/25 OD and 20/40 OS. He notes best visual acuity in bright light. With his habitual daily disposable contact lenses, toric OD and sphere OS, VA is OD 20/20 and OS 20/50.  
Shortly after his cataract surgery in the left eye, JG developed posterior capsule opacification (PCO). JG’s surgeon removed the PCO via YAG capsulotomy, then recommended PRK in an attempt to alleviate his symptoms.  
In his search for a second opinion, the likely next step was lens exchange surgery, but the YAG procedure rendered any subsequent lens exchange surgeries too risky. The resulting corneal surface is irregular, and his aberrations are still present.  
We initially elected to fit a hybrid design at the referring surgeon’s request, but after experiencing decentration challenges we moved on to a scleral design.  
We fit a Bausch + Lomb Zen RC scleral
Complex cases
Continued from page 25

lens with parameters of 7.71 mm base curve, 4400 sagittal depth, 15.4 mm diameter, +0.25-0.75 x 080. This lens improved his vision from a slow 20/40 to 20/25 in his left eye.

JG wears the lens for a full day with good tolerance with nearly full elimination of higher order aberrations and glare.

Multifocal contact lenses may be beneficial for children and young adults experiencing symptoms related to accommodative dysfunction

Wrapping up
Keeping patient goals in mind, innovative solutions often enable simple solutions to seemingly complex problems. This creates a loyal patient base and solidifies the doctor as an expert problem solver. The advancements in contact lens technology afford ODs the opportunity to optimize both vision and comfort even for out-of-the-ordinary patients.

REFERENCES

IN BRIEF

B+L debuts first multifocal toric contact lens as part of standard fitting set

BRODENKATER, K- Bausch + Lomb announced the U.S. launch of Bausch + Lomb Ultra Multifocal for Astigmatism contact lenses, the first and only multifocal toric lens available as a standard offering in the eye care professional’s fit set. The new monthly silicone hydrogel lens was specifically designed to address the lifestyle and vision needs of patients with both astigmatism and presbyopia.

Ultra Multifocal for Astigmatism combines the company’s 3-Zone Progressive multilateral design with the stability of its OpticAlign toric design, according to the company.

Ultra Multifocal for Astigmatism provides eyecare professionals and their patients an advanced contact lens technology that offers the convenience of same-day fitting during the initial lens exam, according to the company.

“Bausch + Lomb Ultra Multifocal for Astigmatism contact lenses are the culmination of our innovative multifocal and toric contact lens designs and a direct result of the feedback from providers who have been wanting a new contact lens option for their patients with astigmatism and presbyopia—patients who have been previously challenged due to a lack of convenient lens options,” says John Ferris, vice president and general manager of U.S. Vision Care at Bausch + Lomb.

“We are proud to be the first contact lens company to create a solution to this significant unmet need with the first soft multifocal toric lens available in a broad range of parameters with a straightforward fitting guide, that can be readily fit in the eye care professional’s office,” he says.

According to Bausch + Lomb, an estimated 32 million people in the United States living with both astigmatism and presbyopia could wear contact lenses. However, historically, there have been few readily available soft contact lens options without compromise, making it challenging for eyecare professionals to fit these patients.

The limited options that did exist, such as monovision with toric soft contact lenses, single-vision lenses combined with readers, and custom-ordered contact lenses, did not meet all patient needs for visual acuity and convenience, according to the company.

With the availability of Bausch + Lomb Ultra Multifocal for Astigmatism contact lenses as a standard offering, eyecare professionals can offer patients a broad range of parameters with sphere powers of +4.00 to -6.00 D.

Add powers are:
• Low (+0.75 D to +1.50 D spectacle add)
• High (+1.75 D to +2.50 D spectacle add)

Cylinders powers are: -0.75 D, -1.25 D, and -1.75 D or around-the-clock astigmatism correction.

Base curve is 8.6 mm, and diameter is 14.5 mm.

Alcon launches daily disposable cosmetic lens

FORT WORTH, TX—Alcon debuts Dailies Colors contact lenses that combine eye color enhancement with daily disposable convenience.

The new line features four colors:
• Mystic glue
• Mystic gray
• Mystic hazel
• Mystic green

Dailies Colors contact lenses are designed to make eyes look bigger and brighter, according to the company.

The new Dailies Colors contact lenses deliver natural-looking color enhancement by combining a unique, eye-defining outer ring, providing an extra boost to make eyes appear bigger and brighter, with the company’s 3-in-1 Color Technology.

According to Alcon, the 3-in-1 Color Technology includes:
• Inner ring to brighten and add depth
• Primary color to enhance eye color
• Outer ring to define and emphasize the iris

In celebration of the launch, Alcon partnered with celebrity makeup artist Patrick Ta to create a collection of “Eye Styles”—signature looks inspired by the new Dailies Colors and existing Air Optix Colors shades.

The exclusive looks will appear on the brands’ social media platforms throughout the year to coincide with key moments in time including festival season, back-to-school, Halloween, and more.

Dr. Patel likes her time for marathons and endurance bike rides. She has no disclosures.

Dr. Nearnberg likes to scope out the up-and-coming hotspots in the NYC restaurant scene. She has no disclosures.

Dr. Resnick is a Diplomat in the Cornea, Contact Lens and Refractive Technology Section of the American Academy of Ophthalmology, a Diplomate of the American Board of Optometry, and a Vision Source Administrator. She is a consultant or speaker for Alcon, Bausch+Lomb, and Visioneering Technologies, Inc. She likes to spend time with her newborn grandson and work on her golf game.

REFERENCES

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Come see us during the FOA Annual Convention Booth #37 and ask how you can receive a FREE anatomical eyelid model.
Scleral contact lenses help manage ocular surface disease

Patients with ocular surface conditions will experience good vision, comfort, and ocular health

By Steven L. Sorkin, OD, FSLS

In the past few years, scleral gas permeable (GP) contact lenses have become an integral part of the specialty contact lens practice. Uses of scleral lenses have expanded from the irregular cornea patient to many other uses, including patients with dry eye and other ocular surface conditions.

Scleral lenses provide a liquid reservoir that functions to help correct corneal irregularities and also to provide relief and healing of the ocular surface. In addition, scleral lenses prevent desiccation due to exposure and protect the cornea from trauma due to blinking.

According to the original Dry Eye Workshop (DEWS) study in 2007, approximately 5 million Americans over the age of 50 suffer from dry eyes.1

Looking at dry eye

Many patients experience contact lenses intolerance. In addition, moderate to severe dry eye, such as those patients with systemic health conditions, can be helped by scleral contact lenses. The Scleral Lenses in Current Ophthalmic Practice Evaluation (SCOPE) study group reported that ocular surface indications comprised 16 percent of scleral lens fits.2

Advancements in lens manufacturing technology, lens materials, corneoscleral imaging, knowledge, experience, and fitting techniques have expanded the capabilities of treating those patients with compromised corneas.

According to the Tear Film and Ocular Surface Society (TFOS) Dry Eye Workshop DEWS II report, those who are symptomatic with signs of ocular surface disease may benefit from scleral lenses and show improvement in corneal punctate staining and filamentary keratitis. In addition, the DEWS II report stated that those with neurotrophic keratitis and neuropathic pain may benefit from scleral lenses.3

Figure 1. Notched scleral lens with symblepharon on a patient with Stevens-Johnson Syndrome.

Figure 2. Whorl keratopathy in a patient with limbal stem cell disease.

Figure 3. Lissamine green conjunctival staining in a patient with Sjögren syndrome.

Take-home message

Patients with dry eye and severe ocular surface conditions can benefit from being fit with scleral contact lenses. The liquid reservoir can help to correct corneal irregularities and to heal the ocular surface. Sclerals also help to prevent desiccation due to exposure and protect the cornea from trauma due to blinking.
Ocular surface conditions
Severe ocular surface conditions—such as graft vs. host disease (GVHD), Sjögren syndrome, limbal stem cell disease (LSCD), filamentary keratitis, and exposure keratopathy—are challenging to treat, and scleral contact lenses may provide an effective option in the management of these refractory conditions.

Many patients with keratoconus and other forms of corneal ectasia and post-surgery patients also present with concomitant dry eye.

It is important to relay to patients that scleral lenses will not “cure” their ocular surface disease, and they will need to continue their current therapies and close follow-up care with their prescribing doctors and other medical specialists.

Typically, scleral lenses are utilized after more traditional therapies such as lubricants, cyclosporine (Restasis, Allergan), lifitegrast (Xiidra, Shire), topical steroids, bandage contact lenses, and punctal plugs have been employed. Additional therapies for severe dry eye include autologous serum and amniotic membranes.

Patients also need to be aware that the use of scleral lenses with dry eye conditions may require additional or extra care compared to other conditions. Those with dry eye typically produce more mucus, and this may deposit on the anterior surface of the lens and/or in the post-lens tear layer reservoir. This may affect the patient’s vision.

Rinsing and refilling the lens may be necessary with tear film reservoir fogging; however, it may induce more clouding over time with insult to the goblet cells, causing more mucus production (a vicious cycle scenario).

In addition, the scleral lens surface is drier in ocular surface disease patients.

Anterior surface film can be addressed by adding Tangible HydraPEG (Tangible Science) lens treatment. It is currently available on Contamac lens materials and was recently approved on Boston lens materials.

Proper care of HydraPEG–coated lenses is critical to preserve the effectiveness of the coating. Patients must be educated on the approved solutions to be used with Tangible HydraPEG—tap water is contraindicated.

Anecdotally, the HydraPEG coating lasts for a shorter time on those patients with ocular surface disease. Tangible Science is planning to launch new care products for HydraPEG–coated lenses which may extend the effectiveness and performance of the coating.

Many patients with keratoconus and other forms of corneal ectasia and post-surgery patients present with concomitant dry eye.

Frequent artificial tear use may be necessary to properly lubricate the lens surface, lids, and conjunctiva because scleral lenses do not cover the entirety of the conjunctival surface. Lubrication drops may also reduce friction of the lid rubbing up against the lens.

Dry eye patients may require more frequent replacement of scleral lenses. Many dry eye patients also may not be able to sustain full-time lens wear due to the severity of their condition.

In addition, treat meibomian gland dysfunction (MGD) aggressively. Chronic MGD and anterior blepharitis must be addressed because these conditions can adversely affect the performance of the contact lens and treatment of the underlying ocular surface conditions.

I recommend performing lid hygiene along with use of oral and topical medical treatment of eyelid disease.

There are also many adjunct therapies available to treat MGD, such as LipiFlow (Johnson & Johnson Vision), MiBo Thermolof (MiBo Medical Group), iLUX (Alcon), and TearCare (Sight Sciences), with more options coming in the future.

Proper patient instruction and monitoring of eyelid disease is critical in successful scleral contact lens wear. Using hypochlorous acid products and devices to debulk the eyelids is also an important step.

Addressing the proper types of makeup and soaps are also critical in managing patients with ocular surface disease.

Lens care
Especially important in ocular surface disease patients is the use of proper scleral lens preservative-free saline. This saline will be bathing the cornea throughout the wear of the lens. Using inappropriate lens-filling solutions can adversely affect the cornea.

Currently available saline solutions include ScleralFil (Bausch + Lomb), Lacrilip (Menicon), PurilensPlus (The Lifestyle Company), and off-label sodium chloride 0.9% inhalation vials.

Due to the fragile ocular surface in dry eye and ocular surface disease patients, non-preserved, non-buffered saline solution is recommended to reduce toxic reactions of the cornea.

Ordering lenses
In 2019, there is a plethora of scleral contact lens manufacturers, lens designs, and lens materials available.

Information that is critical in determining an initial lens includes horizontal visible iris diameter (HVID), corneal shape and profile, lid aperture size, and conjunctival or lid obstacles.

It is essential that the scleral lens be large enough to completely clear the limbus and vault the cornea. Typically, the more severe the ocular surface condition, the larger the lens diameter required.

Lens setting must also be taken into account when evaluating the lens. Proper clearance of the limbus is critical in keeping the fragile limbal stem cells intact. This is especially vital in those patients with pre-existing ocular surface disease.

In some cases proper haptic alignment utilizing toric peripheral landing zones is important in the performance of the lens. A larger diameter lens may require toric haptics because the sclera has more toxicity farther out from the limbus. Proper lens alignment with the sclera will prevent post-lens tear layer fogging in the case of edge lift or scleral blanching and impingement in tight haptics.

Many contact lens laboratories are able to manufacture lenses that allow the lens to avoid corneal or conjunctival obstacles such as pingenecula, elevated corneal scars, or glaucoma shunts. This is important because many glaucoma patients have both surgical tubes and concurrent ocular surface conditions that would be helped by scleral lens technology.

In addition, patients with Stevens-Johnson syndrome may have obstacles such as symblepharon which need haptic customization.

Conclusion
Scleral contact lenses have emerged as a go-to treatment modality in specialty contact lens practice in vision correction. Likewise, the use of large-diameter GP scleral lenses have become indispensable in the management of patients with multiple types of ocular surface disease. They provide excellent vision, comfort, and ocular health for those patients faced with challenging corneal and anterior segment conditions.

REFERENCES

Dr. Sarkin is president of the Essex County Optometric Society, a member of the medical advisory board for the International Keratoconus Academy, and New Jersey State OD of the Year in 2018. He discusses relationships with Bausch + Lomb, Blanchard Laboratories, BostonSight, Shire, and Visuaweening Technologies, Inc.

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5 million
AMERICANS OVER AGE 50 SUFFER FROM DRY EYES

The scleral lens surface is drier in ocular surface disease patients

Many contact lens laboratories are able to manufacture lenses that allow the lens to avoid corneal or conjunctival obstacles such as pingenecula, elevated corneal scars, or glaucoma shunts. This is important because many glaucoma patients have both surgical tubes and concurrent ocular surface conditions that would be helped by scleral lens technology.

In addition, patients with Stevens-Johnson syndrome may have obstacles such as symblepharon which need haptic customization.
Gant unveils 70th anniversary collection

THE LATEST 2019 EYEWEAR COLLECTION from Gant offers a selection of casual and refined styles celebrating the brand’s 70th anniversary. Premium materials and rich colors are displayed with this collection in an assortment of styles. Design elements of customized blue tips, a diamond logo, and metal torchon décor details are featured. Classical and seasonal shapes with a retro/modern look are displayed on these frames. Gant has also introduced Mazzucchelli bio-acetate eyewear styles made from wood and fiber.

GA4093 exhibits a rounded silhouette and streamlined temple. Crafted in bio-acetate, the frames feature the brand logo laser-etched on the temples with an epoxy color fill.

GA4092 showcases acetate and metal. The frame’s round front is designed in acetate with a stainless-steel bridge. Both temples feature the brand’s foil logo.

The unisex design of GA3183 features a modified rectangle front in acetate with a laminated bridge in contrasting color detail. The frame’s temples are also crafted in acetate and completed by the brand’s foil logo.

GA3183
InDispensable

GA4090 features a round silhouette and shiny metallic, stainless-style temples. The brand logo is laser etched with an epoxy fill on the temples. A pop of color is displayed on the acetate temple tips.

GA3191 displays a modified square shape in bio-acetate. The brand’s logo is laser etched with an epoxy fill on the temples.

GA3192 features a thin profile with a modified round front in stainless steel. The frame’s bio-acetate temples display the brand logo laser etched with an epoxy color fill.

GA3193 displays a modified square shape in bio-acetate. The brand’s logo is laser etched with an epoxy fill on the temples.

GA4090 features a round silhouette and shiny metallic, stainless-style temples. The brand logo is laser etched on the outside of the temple with an epoxy fill, and the inside showcases a laser engraved weave pattern. A pop of color is displayed on the acetate temple tips.

GA3196 exhibits a modified rectangle front with a stainless-steel lower rim. The top of the frame front is crafted in TR90—a lightweight and durable material. These frames are available in black, grey, and dark Havana.
FYSH summer releases combine patterns & color

FYSH combines two new styles with unique patterns and contemporary color combinations for this summer’s releases.

FYSH combines two new styles with unique patterns and contemporary color combinations for this summer’s releases. E-9192 features a semi-rimless style with a titanium round frame and stylized hinge in contrasting color. Ultra-thin and ultra-lightweight, this style is available in black silver, brown silver, and charcoal silver.

E-9193 exhibits a large-fit, stainless-steel frame with a cut-down design at the bridge. The temples include a chain-link detail in contrasting colors. Featuring a matte finish, this style is available in black grey, slate red, and khaki camel.

Evatik releases summer line of men’s styles

Premium materials and architectural design elements are combined in the new Evatik summer releases. Fine detailing and subtle pops of color create a minimalistic polished and refined style for men’s frames.

E-9192 features a semi-rimless style with a titanium round frame and stylized hinge in contrasting color. Ultra-thin and ultra-lightweight, this style is available in black silver, brown silver, and charcoal silver.

E-9193 exhibits a large-fit, stainless-steel frame with a cut-down design at the bridge. The temples include a chain-link detail in contrasting colors. Featuring a matte finish, this style is available in black grey, slate red, and khaki camel.
One recent afternoon, I met with a college student who enjoys wearing monthly replacement contact lenses, but who was also having a common problem: her lenses felt great at the beginning of the month, but by week three, her days were being disrupted by ocular itchiness and discomfort. She often found herself replacing her lenses before the end of the month, and as someone looking to get the most out of her vision correction, this was not ideal. When the topic of her lens care routine came up, another issue was apparent: she was not consistently following the directions for use of her multipurpose lens care solution (MPS), only occasionally taking the time to rub her lenses before soaking them. Despite the best efforts of practitioners, this remains a problem that many of us encounter all too often.

To help raise patient awareness about CLEAR CARE® PLUS, I have Alcon’s Easy of Use video playing in my office’s waiting room. The video is a fun way to show how simple CLEAR CARE® PLUS is to use and get patients excited about using it.

View this video at https://youtu.be/Xhok87l0E7Q

Good lens care habits are key to a successful lens-wearing experience, so the recommendation I gave my patient was simple: switch to CLEAR CARE® PLUS for your daily lens care. CLEAR CARE® PLUS is a 3% hydrogen peroxide solution that, in addition to providing excellent disinfection and comfort (thanks to Alcon’s HydraGlyde® Moisture Matrix), simplifies lens care by eliminating the rubbing step. For these reasons, CLEAR CARE® PLUS is a lot more than a ‘problem-solver.’

The same features that benefit the not-always-compliant college student also make CLEAR CARE® PLUS my first choice for any new lens wearer looking to start off on the right foot.

When introducing CLEAR CARE® PLUS to my patients, I take the solution and case out of the box and show it to them. They are always impressed when I walk them through how easy CLEAR CARE® PLUS is to use, and are excited to make it part of their routine. There is no rubbing with CLEAR CARE® PLUS, which is the step that my patient, like many others, often forgot when using MPS. Five simple steps are all it takes to effectively clean and disinfect lenses with CLEAR CARE® PLUS, and patients love the solution’s bubbling action, which lets them see it working, while also helping to reinforce good lens care habits. After demonstrating how to use CLEAR CARE® PLUS, I make sure that they take the CLEAR CARE® PLUS Patient Tip Card home with them to help ensure compliance. Making CLEAR CARE® PLUS my first-line lens care recommendation has had an undeniably positive impact on my patients’ lens care compliance, and study data agree with my experience — surveys show that 93% of habitual MPS users who try CLEAR CARE® PLUS agree that it is easy to use, and CLEAR CARE® PLUS’ design promotes significantly greater compliance with directions for use than MPS.

I want all of my reusable contact lens wearers to have an excellent lens-wearing experience. I recommend CLEAR CARE® PLUS because it makes lens care easy for patients, and when compliant lens care is easy, patients can enjoy their lenses. For all of my patients in reusable lenses, using CLEAR CARE® PLUS means a simple daily lens care routine and outstanding disinfection and comfort — all month long.

*Sponsored by Alcon

References
Komono launches ‘dawn till dusk’ summer campaign

FOR ITS NEW summer campaign, Komono explores the theme of “dawn till dusk.”

Cool and warmer tones define the gradient and oily lenses of the new Luminous collection. Frames such as Ona and Conrad showcase a combination of iridescent textures and geometric shapes.

The Solid collection features frames stylized in rectangular and cat-eye shapes. Styled in new temple designs and colors, Jessie is available in pacific, nude, and black tortoise.

Brooklyn Flush is a featured frame of the new Solid Flush collection. Available colors include pacific and tortoise.

Komono’s latest Optical collection exhibits modern silhouettes and construction. The Gravity collection features light and flexible laser-cut metal frames such as Eddie and Morgan. Vibrant color such as electric blue and neon pink add brightness to these slender frames.
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Sample Images

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KLiiK Denmark’s summer style showcases custom designs, color combos

KLiiK DENMARK LAUNCHES THREE new styles for summer that blend custom design elements and rich color combinations. Each style offers a minimalistic look for those requiring smaller eye sizes.

K-649 features a modified square shape and stainless-steel frame with an argyle pattern on the front and temples. A stylized cut down on the browline and temples adds depth, and a high gloss epoxy finishes the look. These frames are available in black argyle, brown argyle, plum argyle, and emerald argyle.

K-650 showcases a handmade gradient acetate that changes from solid to translucent. This style features a carved wave design along the frame edges and the temple tips. Finished with spring hinges, the frame is designed in a modified rectangular shape. Available colors include coffee, teal, cranberry, and purple.

K-652 exhibits an ultra-thin and lightweight stainless-steel design. The browline is elevated by a matte finish and is available in color combinations of black charcoal, grey gun, and black gold.
Williams Eye Institute is seeking a full-time Medical Optometrist. Our mission is to provide patients with high quality, efficient and cost effective eye care in a kind, professional and ethical manner. Our ideal candidate is a compassionate, team-oriented individual with a special interest and experience in ocular disease. We are looking for someone who can provide pre and post-operative care and work closely with the physicians in taking care of the medical and surgical needs of our patients. We have locations in Hammond and Merrillville, Indiana.

**Responsibilities:**
- Ocular disease management including glaucoma
- Comprehensive eye exams
- Pre and post-operative care
- Establish a working relationship with referral sources to ensure continuity of patient care.

**Requirements:**
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- Fellowship training preferred or 5 years experience with pre and post-operative care.
- Strong interpersonal skills with the ability to effectively communicate with other providers and staff members.

**What we offer:**
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Donald R. Korb, OD, FAAO

OD research, the future of dry eye, being a wild man

Q How did you get involved in optometry research? Ever since I was a child, I was interested in the “why” of everything, which made me very annoying. I came across a book by Spinoza when I was 9 or 10. That had a great influence on me. It made me understand that you had to make a living. And no matter what you do, do it well, and so that you enjoy it. When I became an OD, I had ideas on how to solve patient problems; one was to better map the cornea. I discovered we could take maps of the cornea with infrared film. So I went to the Polaroid Corporation and attempted to make a position for myself. Shortly thereafter I was head of OD research, the future of dry eye, being a wild man.

Q Why don’t more ODs conduct research? Our society today is geared toward immediate gratification. It’s easy to ask questions of a colleague on the internet or via text. The question you ask may require hours of research on the part of the person who is attempting to respond. But we don’t think about that because that’s not our culture.

Q When should researchers take their work into the commercial sector? They may not have a choice. Many are forced to take in investors and venture capitalists, and they make those decisions. Philosophically, any invention that can help people should be brought into the commercial field after adequate testing to be certain that it will do no harm and that it’s efficacious. But it takes a long time for someone to observe there is a problem and have the intellectual curiosity to proceed. No one is going to spend millions of dollars today on projects which have no return.

Q How do you balance time for patients and research? There are two pillars you have to accept. The first is the probability that you won’t have the income you would have if you didn’t do research. The second is that you will be working more than the standard 40-hour week. You’re going to be working 60, 70, 80, 90 hours. For years, I averaged 80+ hours a week. The days of doing significant research and seeing patients, even half time, are pretty well over—everything is more complex, it takes much longer. And we have to go much faster. But it’s still all wonderful.

Q What keeps you in private practice? If a person comes in and says, “My eyes tear so badly. I can’t go outside. If I have air conditioning on or the defroster blowing in my face, it’s terrible. I can barely drive.” When you hear it from the patient, it brings an entirely different dimension than having someone else do the work, writing up a beautiful paper, and presenting it to you. You have no idea of the magnitude. So that’s why I do it. I enjoy it, and I enjoy helping people.

Q What’s something that your colleagues don’t know about you? As a youth, I was a wild man. I don’t think many colleagues would believe that I was attempting to become a water ski jumper at which I was not successful. For a period of 10 or 15 years, I mentored African-American children. I love the water, and I sail.

Q What’s your guilty pleasure food? Greek yogurt. I can go extended periods of time without eating—a day or two. It doesn’t bother me. Once I eat anything, I find it difficult to stop eating. According to anthropologists, that means I come from a certain part of Europe where nine or 10 months a year there would be nothing to eat from the ground. They were hunters—you wait until someone killed an animal, then you would gorge yourself because you didn’t know when the next meal was coming.

Q Do you have any regrets? If I had one regret, it would be that I was brought up in a house that did not place financial success as something that should be even be considered. In retrospect, I don’t think that’s correct. When you look at the opportunities that money will allow, the people who work with you are entitled to far more than they can ever be paid. If you had unlimited money, you could fund your own research and not look for money all the time. So, having resources, you can do so much.

Q What would you like your legacy to optometry to be? I don’t think that way. Legacies are mainly ego, and I learned a long time ago that that’s a bad question. So, you have to ask, What do you really want? The only thing you should really want is that whatever you did provided some help for society when you did it and hopefully a basis for others to obsole What’s the craziest thing you’ve ever done? Have the audacity that I could solve problems that have never been solved. A crazy act is something which has a low probability of success and could be catastrophic to the individual. When did I recognize that this was crazy? I never did. [Laughs] The worst thing about research for me is when you’re successful, the excitement is gone. I border on depression because it’s all over.

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—Vernon Trollinger

What is on the horizon for dry eye?

There will be a lot of products which will be ineffective. They are based on a model which doesn’t pay tribute to the root causes of dry eye. If individuals design the best possible formulations to suppress inflammation, you’d think that would do it. But inflammation is a sequela, not a root cause. There will be multiple failures and financial successes, but they will not provide long-term relief to the majority of people because they don’t address the root cause. There are a limited number of root causes: immune, special, locational, and the big cause today for the majority of dry eye is the electronic device world we’re living in which inhibits blinking. This electronic age coming about has wreaked havoc on maintaining the appropriate tear film on the eye.

To hear the full interview with Dr. Korb listen online: optometrytimes.com/DonaldKorb
The American Optometric Association (AOA) named Ben Casella, OD, Optometrist of the Year. The award recognizes an outstanding individual doctor of optometry for services on behalf of the profession and to the visual welfare of the public. The award was presented at Optometry’s Meeting 2019.

“I am thrilled and humbled by this award,” said Dr. Casella. “I never expected such an honor, and I’m very grateful to my optometry families at the AOA, the GOA, and Optometry Times*, as well as my own family for affording me the opportunities to play a small role in the advancement of our profession.”
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