CASE REPORT

Why inflammation key to filamentary keratitis

Dry eye consultation leads to long-term mucolytic agent therapy

By Jacob R. Lang, OD, FAAO, and Laura L. Capelle, OD

Fluorescein staining comes in many different patterns and presentations. Although corneal filaments tend to stand out when stained with fluorescein, they can be missed and mistaken for excessive tear debris, which is common in ocular surface disease.

Adherence of these mucus strands to the corneal basal epithelium or basement membrane can be a differentiating feature of filamentary keratitis that can help lead the clinician down the right path in the treatment and management of this condition.

Case

A 56-year-old female patient presented to our clinic for consultation. She was referred from an outside optometrist for severe dry eye disease. The patient presented with complaints of a sandy, gritty feeling in both eyes, especially at night and before bed. She also complained of fluctuating vision, worse in the morning and evening.

Her only medications were omega-3 supplements. The referring provider prescribed fluorometholone 0.1% (FML, Allergan) three times a day.

FIGURE 1. Initial presentation of filamentary keratitis. Note the corneal adhesion at the base of these long, wisp-like filaments.

FIGURE 2. Recurrence of corneal filaments at follow-up. Note the uptake of fluorescein by the filaments.

Photos courtesy Jacob Lang, OD, and Laura Capelle, OD

Technology helps to diagnose corneal ectasia

By Jim Owen, OD, MBA, FAAO

Almost two decades ago, “The Cornea is not a Piece of Plastic” was published, and it outlined how Munnerlyn’s formula is the appropriate starting point for evaluating how much tissue is removed from the cornea and how it responds. Unfortunately, it does not answer the most important question, what is the biomechanical stability of the cornea.1

The challenge is the cornea is not plastic but visco-elastic, having properties of both a viscous and elastic media.

One of the worst outcomes of laser refractive surgery is corneal ectasia, and the ability to diagnose this condition has changed over time. An ectatic cornea is often said to lack

See Corneal ectasia on page 12

How a study group can help you

Learn how to start a group in your area from a 40-year study group veteran

By Jerry Jacobs, OD, FAAO

A study group provides a forum for members who have a common interest in sharing information on numerous topics, such as office management, ocular pathology, new equipment and technology, networking, and more.

As our offices change with additions like electronic health records, optical coherence tomography (OCT), Medicare Access and CHIP Reauthorization Act (MACRA) and Merit-Based Incentive Payment System (MIPS), it is imperative that we stay organized.

See Study group on page 20
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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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See product instructions for complete wear, care and safety information.
Big pharma helps homeless patient

By Benjamin P. Casella, OD, FAAO

Chief Optometric Editor
Practices in Augusta, GA, with his father in his grandfather’s practice

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Our policy is not to turn anyone away because of the inability to pay for care.

Part of practicing in a somewhat urban environment is the street traffic outside of one’s front door. You just never know who will walk in (or with what malady or concern).

Occasionally, someone from the bank building next door will come in with a missing screw to a frame temple. Our office policy is to always do the neighborly thing and fix a frame if we can, even if the owner of said frame isn’t a patient of ours.

With that said, another policy of ours is not to turn anyone away because of the inability to pay for care. This policy brings along with it the occasional homeless person who wanders in looking for help. Unfortunately, we are all aware that the prevalence of disease increases as socioeconomic status decreases. That’s just a fact of life.

Patient in need

So, when a homeless man came in year or so ago with profound glaucoma, I treated him as best I could with samples of prostaglandin analogs whenever I saw him (which was relatively frequently). During a casual conversation with a pharmaceutical rep, I was reminded of the fact that pharmaceutical companies offer programs in which patients can attain medications they need even if they can’t pay. I was able to easily get this patient signed up for the company’s program.

He has since moved, and I hope he gets the health care he needs and deserves wherever he is. With no forwarding address, continuity of care is about as difficult as it can be in this case. However, the day I last saw him, he brought me an antique wooden chair to thank me for taking care of him. I have no idea where the chair came from, but I really appreciate having it in the office.

It takes a village

My thought process needs to be broken every now and then from the mantra that all corporations want to make nothing more than money. Most large pharmaceutical companies have patient assistant programs in place, and I need to do a better job of keeping this in mind the next time I see someone in need of care who cannot attain it.

Those who treat homeless patients or patients with very limited resources don’t necessarily have to bear the burden of care all by themselves.

6 HEALTHY HABITS that don’t cost a fortune. See page 17.

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Optometry Times | PRACTICAL CHAIRSIDE ADVICE

Chief Optometric Editor"
Like books and e-readers, old and new can live together in harmony

The evolution of e-reading had some once proclaiming books are dead. One OD tells how old and new technologies can flourish side by side like books and e-reading and how one book and author has influenced his life. OptometryTimes.com/OldAndNew
SOLUTIONS

Automated technology includes the OPD-Scan III Integrated Wavefront Aberrometer/Corneal Analyzer, the TRS-5100/3100 Digital Refractors, Autorefractors/Keratometers and EPIC Refraction Workstation. **NEW PRODUCTS INCLUDE:** TS-310 Tabletop Refractive Workstation, LM-7 Series Lensmeters—all with EMR integration. Also introducing the NEW Ultra M Series Slit Lamps with the integrated anterior segment ION IMAGING™ System.

The Difference is Marco.
By Gretchen M. Bailey, NCLC, FAAO
Content Channel Director, Editor in Chief

Optometrists have long recommended omega-3 fatty acid supplements to their patients with dry eye disease. Results from a recent study show that while omega-3s offer benefits, they did not offer significantly better outcomes than an olive oil placebo.

The Dry Eye Assessment and Management (DREAM) study was funded by the National Eye Institute, part of the National Institute of Health, and randomized more than 500 patients, following them for more than one year. This well-controlled trial calls into question current thinking that leads ODs to recommend omega-3 supplements to their dry eye patients.

“Every day ODs sit in the trenches, wondering how to deal with new treatments that bombard us,” says Optometry Times Editorial Advisory Board member Milton M. Hom, OD, FAAO. “For years, industry and experts have touted omega-3s for dry eye disease. But now, we have a well-designed, highly powered study showing the exact opposite results.”

Dr. Hom served as a principal investigator for the DREAM study; his comments are his own and do not represent the DREAM study.

Study summary
Study subjects at 27 clinical centers were randomized to the active supplementation group or placebo group; primary study analysis looked at 349 and 186 patients, respectively.

Eligibility criteria were age 18 years or older, presence of ocular symptoms for at least 6 months, use of or desire to use artificial tears an average of twice per day, and an Ocular Surface Disease Index (OSDI) score of 25 to 80.

Eligible patients also needed two out of four signs of dry eye in at least one eye: conjunctival lissamine green staining score of 1 or more, corneal fluorescein staining score of 4 or more, tear break-up time (TBUT) ≤7 seconds, and Schirmer with anesthesia result of 1 to 7 mm in 5 minutes.

Study subjects took five soft-gelatin capsules per day. Capsules in the active group contained omega-3s with 400 mg EPA and 200 mg DHA; capsules in the placebo group contained 100 mg refined olive oil (68 percent oleic acid, 13 percent palmitic acid, 11 percent linoleic acid). Both capsules also contained 3 mg vitamin E.

Patients in the study were permitted to continue their current dry eye regimens. Says Penny Asbell, MD, FACS, MBA, study chair for the trial: “One of the good things about DREAM is that there is a lot of consistency. Every symptom group improved, so there was no difference between them.

There were slight improvements in three or four of the signs groups, but there was no significant difference among those groups.”

Dr. Asbell is professor of ophthalmology, director of cornea and refractive services, and director of the department of ophthalmology cornea fellowship program at Icahn School of Medicine at Mount Sinai Medical Center in New York City.

Another strength of the study is that it’s a real-world study, says Dr. Asbell.

“We took patients who were symptomatic despite whatever treatments they might be doing, and they were allowed to continue those treatments,” she says. “It was typical of the kinds of patients I see and other clinicians see in the office every day. We didn’t say you couldn’t do this or you couldn’t do that.”

Olive oil effect
Olive oil’s positive effects surprised DREAM researchers and others in the industry.

“I think we were not expecting olive oil to have such a robust effect because patients improved enough in that group that the differences were not statistically significant,” says Optometry Times Editorial Advisory Board member Scott G. Hauswright, OD, FAAO, who served as a clinician at a Minnesota study site. “We did learn from this study that the healthy fats/constituents of olive oil (oleic acid, linoleic acid, palmitic acid) also seem to have benefits in dry eye, and a healthy diet can and should be considered as a baseline to help those suffering from dry eye.”

Zac Denning, product science specialist at ScienceBased Health, points out that other omega-3s studied in dry eye, such as gamma-linolenic acid (GLA), were not included in the study.

“Olive oil turned out to be a surprise performer,” he says. “Because both oils improved dry eye signs and symptoms over the course of the trial, DREAM ended up essentially comparing two treatments, which it wasn’t designed to assess. Olive oil was clearly not a suitable placebo, and the lack of clear difference vs. the active treatment has caused confusion.”

According to Dr. Asbell, olive oil is used as a placebo in omega-3 trials for other diseases, such as cardiovascular disease and rheumatoid arthritis.

“As best we could determine, olive oil is not considered a significant effect on dry eye disease,” she says.

Subjects in the active study group received about 1 teaspoon of olive oil per day, which is less than the amount associated with the Mediterranean diet.

DREAM investigators took blood samples from study subjects at baseline, 6 months, and 12 months. In examining red blood cells, researchers found that omega-3 components EPA and DHA increased significantly, according to Dr. Asbell; EPA increased about five times over baseline and the placebo group.

“When you look at the components of olive oil, such as oleic acid, which is about 68 percent of olive oil, both groups started the same with about the average amount

See Omega-3s and dry eye on page 8
Individualized Eye Care: The Benefits of Starting the Dialogue
From career to environmental concerns, each patient’s needs are unique

By Kerry Giedd, OD, MS, FAAO
Optometric Physician/Clinical Researcher
Eola Eyes, Orlando, FL

Every patient has different needs. No matter who walks into my office, I try to get a complete picture of each patient’s circumstances and help him or her discover the best possible solution. My partner and I opened our boutique practice because we wanted to establish more personal relationships with our patients. After 15 years in business, we attribute our growth and success to this core value: we truly care about the patients we serve. My primary goal is to ensure that all of our patients are fully satisfied with their experience in wearing contact lenses.

I take on this responsibility with every single patient, every single day. I ask each patient, “What can I do to make your contact lens wearing experience better?” No matter how long I’ve seen my patients, I talk to them at each exam about innovative technology and options that could benefit their vision needs. It doesn’t necessarily mean that we change their lenses each year, but we always have that conversation.

Helping patients overcome inertia
I frequently see patients who are my peers—people in their late 30s and 40s. In most cases, they started wearing biweekly or monthly replacement lenses before daily disposable lenses were an option. Many factors impact their vision needs. Their eyes may have become dryer due to hormonal changes, or due to a decrease in blink rate when looking at digital devices. And of course, there are the changes that come with presbyopia. Their circumstances have changed, but their lenses have not. Unfortunately, when people have done something the same way for more than 20 years, they tend to take the attitude that if it’s not broken, why fix it?

When these patients try on Bausch + Lomb Biotrue® ONEday lenses, they realize what a difference the lenses can make. The high-definition optics offer patients crisp, clear vision throughout the day, and the dehydration barrier maintains 98% of the moisture in the lens for up to 16 hours. And it’s not just the optics and the comfort that appeal to people. They enjoy the convenience that comes with less-frequent cleaning. They appreciate the fact that every day they get that fresh, new lens experience.

Once my patient learned about the ONE by ONE recycling program, she was eager to give Biotrue® ONEday lenses a try.”

And many of my patients enjoy the ease of handling with the Biotrue ONEday* contact lenses.

The daily grind takes many forms
Recently I saw an attorney in her late 30s who, like many of my patients, works on a computer all day. She came into my office expecting to continue with her monthly frequent replacement lenses. All she wanted was to get her annual checkup over with and get back to work. When I asked if she was experiencing any discomfort with her lenses, she mentioned that her lenses tended to become less comfortable in the second half of each month of wear. After talking a bit more, I could see that she was struggling more than she realized, and she was too busy to think about changing her routine. I mentioned the benefits of Biotrue® ONEday lenses and asked her if she’d like to try them for 2 weeks. She accepted, and to her surprise and delight, she loved the lenses. She realized that discomfort, dryness, and limited wearing time did not have to be the norm. A better experience with contact lenses was possible.

Compare that to the story of a patient in an entirely different situation—a 40-year-old woman who works with animals at a theme park here in Orlando. She spends her days outside in the heat, coming into contact with dirt and the dander of animals on a daily basis. When she first came to see me, it was apparent that switching to daily disposable lenses would help reduce the irritation in her eyes. However, she was reluctant to try the lenses because of environmental concerns. She didn’t want to contribute to the waste that daily disposable lenses can produce.

I was happy to tell her about Bausch + Lomb’s ONE by ONE recycling program. In collaboration with TerraCycle, the program offers contact lens wearers the opportunity to recycle the blister packs and foils from their lenses, as well as the lenses themselves. The program is free to Bausch + Lomb contact lens wearers, and it requires minimal effort. All my patients have to do is collect their lenses and packaging in a small box, then ship the prepaid box to TerraCycle.

Once my patient learned about the ONE by ONE recycling program, she was eager to give Biotrue® ONEday lenses a try. She has been wearing daily disposable lenses (and recycling them) for more than a year now, and she couldn’t be happier with the comfort they provide.

Recycling reaches across generations
My young patients have also embraced the ONE by ONE recycling program. I provide eye care to many kids and teens who are conscientious about recycling their daily disposable lens waste. They realize that their actions have an impact on the environment, and they want to do their part to make a difference. Participating in the ONE by ONE recycling program can contribute to their sense of independence, maturity, and responsibility.

Since I work with patients of all ages, each with different circumstances and unique needs, it’s important to individualize each person’s treatment. It helps that Bausch + Lomb offers a full line of Biotrue® ONEday lenses for single-vision spherical, multifocal, and toric wearers. Having a product family that can meet the vision needs of a wide variety of patients makes it easy to recommend Bausch + Lomb lenses and has made these lenses our first choice for all types of refractive corrections.

I firmly believe that offering innovative options is a win for patients and practices. A simple conversation only takes a few moments, and it can often open patients up to possibilities that they have not considered. Any time I introduce someone to a product that meets his or her needs, I build loyalty and trust. When I recommend a lens from Bausch + Lomb’s Biotrue® ONEday family, I can be confident that I’m helping my patients move toward a satisfying experience.

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Omega-3s and dry eye

Continued from page 6

found in the U.S. population,” Dr. Asbell says. “Neither group changed over the one year. I would think that if the olive oil components impacted systemically, we ought to see a change in those fatty acids in the red blood cells over the year.”

How results affect ODs

More data from the DREAM study will be forthcoming, says Dr. Asbell, including secondary endpoints not discussed in the main results. Additional exploratory endpoints include point-of-care testing such as MMP-9, tear osmolarity, and ocular surface imaging of non-invasive TBUT.

In the meantime, ODs must decide for themselves to continue recommending omega-3 supplements to their dry eye patients.

“This study completely changes everything,” says Dr. Hom. “Prescribing omega-3s was automatic for me, now I hesitate.”

Eating a Mediterranean diet may help, says Optometry Times Editorial Advisory Board member Stuart Richer, OD, PhD, FAAO.

“There was improvement in patient symptoms, as well as conjunctival and corneal staining and TBUT from baseline, meaning omega-3s and other healthy fats such as olive oil are helpful in treating dry eye,” Dr. Hauswirth says. “It underscores the value of implementing a healthy diet in patients with dry eye.”

Dr. Asbell suggests that clinicians look to other treatments for dry eye and ocular surface disease, such as new products coming to market soon. Another area to explore is meibomian gland dysfunction and its impact on the ocular surface.

“One of the clinical takeaways I would suggest is the money spent on omega-3s might be better spent on other dry eye treatments,” she says. “We need to look for things that are useful, but we need to look for those that have evidence to show that they’re useful and worth doing.”

Dr. Hom says that the change in clinical thinking about dry eye has yet to come.

“Until now, the preponderance of studies has shown omega-3s to be efficacious for dry eye,” he says. “This study stands alone on an island. History will decide the DREAM study’s place in our understanding and treatment of dry eye: alone on an island or significant turning point.”

REFERENCES


DO YOUR DRY EYE PATIENTS WEAR CONTACTS?

Dry eyes are one of the most common reasons patients discontinue wearing contact lenses. 

73% OF CONTACT LENS WEARERS WERE DISSATISFIED OR DISCONTINUED USE BECAUSE OF DRY EYE SYMPTOMS

Based on a survey of 730 contact lens wearers (n=730)

For patients who wear contact lenses, screening for Dry Eye Disease is considered optimal.

References:
**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).

**Dosage 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, dryness 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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### Setting goals

Continued from page 8

tuck the goals in with our tax receipts because sometime in the next year I’m going to open that folder and my goals will be there for me to assess.

For instance, over the years we have had financial goals related to the office or paying off debt. My husband is an avid skier and loves cross country ski marathons, so he has written down times he would like to place for one of his races. On the other hand, I finally have given up on my goal of “Run a 10K race” because I was honest with myself and have admitted I really hate running.

Two years ago, we made a goal to move one of our offices into a larger space. One year ago, it became a reality. Of course, we make goals each and every year in the office for marketing and financial reasons. We have managed to increase our presence on Facebook as a result.

### Defining success

Often when we think of attaining goals, we think of success. Success means different things to different people. It’s a difficult word to define, much less figure out if you have attained it or not.

It could be the accomplishment of one’s goals or something in which you achieved honors. It could be the attainment of wealth or position. It could be having a successful business, but then you’d have to define what a successful business looks like to you. It could be as simple as having that creative idea that worked out exactly as you planned. Success!

I love reading business and self-improvement books. John C. Maxwell’s book *How Successful People Think* discusses how we are what we create and believe and to change the way you think can change your life. Moreover, Simon Sinek, a motivational speaker and marketing consultant, reminds us in his book *Start With Why* that if we know why we do something or believe in something, others will follow and be inspired—ultimately leading to success.

### Goal achieved, now what?

What happens in that first month or two after you attained the success of keeping your goal?

First, stop and celebrate! Then, debrief. What was good about it? Why did it work? What would you change going forward? How could you have made it even better? Debriefing about any initiative makes you sit back and evaluate.

Don’t forget to pay attention to the people around you. Share your goals and success with your family and close friends or anyone who can provide you the encouragement you need to continue.

Next, and most importantly, set a new goal or continue to improve upon the current goal and write it down.

As I mentioned before, my goals are written down and tucked away in a safe place to find later in the year. I had to peek at them while writing this piece because I forgot one of them; however, it turns out I’ve been working on it so subliminally I must have remembered. Did you write yours down? It’s not too late.

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stiffness, but stiffness is not a biomechanical property. An ectatic cornea is a combination of bending, shear, tensile, and compressive properties of a material along with the geometry of that material.

In 2018, eyecare practitioners’ diagnostic abilities have improved from early placido disc topography and manual pachymetry to corneal tomography that allows us to examine the structure of the cornea.

The cornea does not have linear elastic properties and is best described as hyperelastic. In this bend-but-don’t-break model, the corneal collagen fibers remain loose during the initial stress—like an uncoiling spring—but tighten after significant stress.3,4

We have learned not all corneal collagen fibers have the same biomechanical properties. The peripheral cornea is stiffer than the central cornea and circumferentially running fibers because of a circular ligament of fibers.5

**Using tomography**

Tomography provides data about the relationship of the curvature along with the thickness throughout the cornea. From this, we have learned the importance of the cornea’s back curvature, thickness progression, and thinnest and steepest areas.5

Software such as the Belin/Ambrosio Enhanced Ectasia Display (BAD) on the Oculus Pentacam has been developed to evaluate data from tomography and to provide a more analytical approach.

This software analyzes anterior and posterior elevations, pachymetric progression, and a cornea-thickness special profile to come up with a big “D.” The big “D” is a compilation of nine separate parameters and their standard deviation from a normal population. These parameters include keratometric values, corneal thickness, and progression index. In a study comparing 46 keratoconic eyes to 214 normal eyes, researchers found a 99 percent sensitivity for keratoconus when the big “D” was greater than 2.0 standard deviations from normal.5

ODs believe the measurements we currently evaluate—corneal thickness, corneal elevation, back surface elevation—are effects of a change or altered biomechanical structure. In an effort to identify subclinical keratoconus, it is important to measure the biomechanical properties of the cornea.

Corneal crosslinking is a procedure that improves the strength of the cornea, but the only outcome measure we currently use is the lack of progression of corneal steepening—the proxy for biomechanical strength.

**Corneal hysteresis digs deeper**

Corneal hysteresis is a measurement of the visco-elastic properties of the cornea. It can be described as the energy loss of a visco-elastic material between the loading and unloading in a stress-strain analysis.

The theory behind hysteresis makes it seem useful for laser vision correction. Rather than measure the shape and thickness of the cornea, hysteresis is the measurement of the actual ability to respond to stress in a valuable data point.

Ocular Response Analyzer (Reichert, Inc.) uses bidirectional noncontact applanation pneumotonometry to measure hysteresis. This device has shown to be valuable in the diagnosis and monitoring of glaucoma patients. Hysteresis of the cornea can provide a corneal compensated intraocular pressure (IOP), which has been proven to be less influence by corneal properties and a better predictor of visual field loss.6,7

There is a statistically significant positive correlation among each of corneal hysteresis (CH) and corneal resistance factor (CRF)
A FLEXIBLE LENS-WEARING EXPERIENCE TO HELP PATIENTS SEE, LOOK AND FEEL THEIR BEST...

Scot Morris, OD, FAAO
Optometrist
Eye Consultants of Colorado, Conifer, Colorado
Dr. Scot Morris was compensated by Alcon for his participation in this advertorial.

In my 20 years of practicing optometry, I have come across various types of patients with a multitude of visual and lifestyle needs—busy professionals, frequent travelers, new mothers, doctors and nurses with unpredictable work schedules, and even those who live in low-humidity environments like right here in Conifer, Colorado (elev. 8,200 feet). It is only by listening to our patients and understanding their needs that we can recommend the contact lens option that will give them the best contact lens experience.

When patients express dissatisfaction with their contact lens-wearing experience, it may stem from their sleeping habits. Around 30% of contact lens patients express dissatisfaction with their contact lens-wearing experience, and many patients may not have been offered contact lens options approved for this use.¹ In addition, many patients may not have been informed about the risks and side effects associated with contact lens wear.

Relevant Precautions: Not everyone can wear for 30 nights. Approximately 80% of wearers can wear the lenses for extended wear. About two-thirds of wearers achieve the full 30 nights continuous wear with AIR OPTIX® NIGHT & DAY® AQUA contact lenses, which is the highest oxygen transmissibility in the market,² and an established safety profile.³

AIR OPTIX® NIGHT & DAY® AQUA contact lenses are the first to be introduced with these features and are designed to provide comfort for up to 30 nights of continuous wear. They are the #1 practitioner-recommended contact lens for people who sleep in their lenses, and ideal for people who lead busy lives. I also prescribe these to my patients who not only sleep in their lenses but also face lens dehydration and discomfort from living in our low-humidity environment, knowing that lenses from the AIR OPTIX® family maintain lens surface wettability and provide comfort throughout the wearing period.⁴

I am confident in recommending AIR OPTIX® NIGHT & DAY® AQUA contact lenses for extended periods and encourage you to give them a try. The benefits are quick and easy to communicate, and you can rest assured that they will give your patients the flexible lens-wearing experience they need to see, look and feel their best.

Our passion is to help your patients see, look and feel their best.

See product instructions for complete wear, care, and safety information. © 2017 Novartis 12/17 US-AND-166-2124(2)

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Our passion is to help your patients see, look and feel their best.

*Dk/t = 175 @ -3.00D. Other factors may impact eye health.

Important information for AIR OPTIX® NIGHT & DAY® AQUA (lotrafilcon A) contact lenses: Indicated for vision correction for daily wear (wear only while awake) or extended wear (worn while awake and asleep) for up to 30 nights. Relevant Precautions: Not everyone can wear for 30 nights. Approximately 80% of wearers can wear the lenses for extended wear. About two-thirds of wearers achieve the full 30 nights continuous wear with AIR OPTIX® NIGHT & DAY® AQUA contact lenses, which is the highest oxygen transmissibility in the market, and an established safety profile.

Contraindications: Contact lenses should not be worn if you have any infection or inflammation (redness and/or swelling) or a corneal ulcer. Contact lenses are not recommended for people who sleep in their lenses.

Additional Information: Lenses should be replaced every month. If removed before then, lenses should be cleaned and disinfected before wearing again. Always follow the eye care professional’s recommended lens wear, care, and replacement schedule. Consult package insert for complete information, available without charge by calling (800) 241-5999 or go to myalcon.com.

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and the central corneal thickness, but the correlation is less for CH (CH, r = 0.4655; CRE, r = 0.5760). Hysteresis is statistically significantly lower in keratoconic eyes as compared to normal eyes.2,4

Corvis ST (Oculus, Inc.) is a device used to measure the biomechanical properties of the cornea, but it is not yet ap-

proved for use in the U.S. by the Food and Drug Administration (FDA). Corvis ST uses an air puff to deform the cornea, and a high-speed camera (a Scheimpflug camera) captures the deformation and resulting deflecting. IOP is a confounding factor in determining corneal biomechanics because as IOP increases, it creates wall of tension, causing the cornea to appear to be stiffer. It is important to create normative data for all of the parameters as a function of age and IOP.

The Vinciguerra Screening Report is the result of a multicenter study of 705 healthy patients to establish normative values for Corvis ST.23 This study evaluated many biomechanical properties including deformation amplitude, maximum corneal inward velocity, maximum corneal outward velocity, and maximum deformation area.

From the Vinciguerra Screening Report, the Corvis Biomechanical Index (CBI) was developed. The CBI is based on a linear regression analysis that has been shown to be both sensitive (94.3 percent) and specific (97.5 percent) in detecting clinical keratoconus.23

Tomographic/Biomechanical Index assists

Having biomechanical normative data and thresholds to identify keratoconus is valuable when screening patients for laser vision correction, but how do these parameters interact with our existing knowledge of corneal curvature and thickness, and are we increasing the sensitivity and, we hope, making laser vision correction a safer procedure?

A software program, Tomographic/Biomechanical Index (TBI) that uses Scheimpflug-based corneal tomographic informa-

tion from Pentacam HR and biomechanical analysis from Corvis ST exams, was developed to address those questions. The TBI cut-off value of 0.79 provided 100 percent sensitivity for detecting clinical ectasia (keratoconus and VAE-E groups) with 100 percent specificity.26

The TBI was sensitive for detecting subclinical (fruste) ectasia among eyes with normal topography in very asymmetric patients. This information becomes valuable to ODs in identifying patients at risk and properly communicating that risk to patients considering laser vision correction.

In an unpublished retrospective analysis conducted at TLC Toronto, researchers evaluated 1056 patient records. The BAD was used to evaluate if a patient would be a candidate for Laser eye surgery (LASIK), photorefractive keratectomy (PRK), or no surgery by a trained experience clinician. That decision was compared to a decision that included TBI data.

In the vast majority of patients, the addition of the TBI data did not change the decision on what (Lasik or PRK) or if any procedure should be performed. In 13.2 percent of the cases, patients who had abnormal BAD but normal TBI were asked to change their current procedure. Finally, 3.4 percent of cases with normal BAD but abnormal TBI were converted from LASIK to PRK, or from PRK to no surgery.

Future bright

In 2018, the outcomes from the excimer laser are more precise than ever.27 The ability for surgeons to make a flap with a femtosecond laser has reduced many complications that existed with the microkeratome.28

Nevertheless, operating on a poor candidate can result in a poor outcome despite technology. As the ability to identify biomechanically stable corneas continues to improve, it should result in a safer, more efficacious procedure.

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Alzheimer’s disease and dementia impacted by diabetes

Cognitive function in diabetes may be affected by glycemic control

A new study shows that mean blood sugar levels as reflected by glycosylated hemoglobin (HbA1c) were strongly associated with cognitive decline and dementia. This was assessed by multiple validated cognitive assessments over a 10-year period and after controlling for other risk factors like age, body mass index (BMI), and blood pressure.

Previous work has suggested that higher mean blood glucose levels in people both with and without diabetes is associated with increased risk of dementia. Other reports show that glucose variability also increases the risk of cognitive dysfunction in patients with established diabetes.

Cognitive function

This new analysis uses multiple metrics of cognitive function and an extended follow-up period. The study showed a progressive, linear decline in cognition with each incremental increase in average HbA1c over the 10-year study.

This same “mean A1c” approach (referred to as “A1c years”) was recently associated with a significantly higher risk of diabetic retinopathy (DR) and its progression.

Acute and chronic hypoglycemia is also strongly associated with increased risk of Alzheimer’s and non-Alzheimer’s dementia. It appears that relatively subtle but chronic hyperglycemia and hypoglycemia both significantly increase the chances of developing mild cognitive impairment (MCI); a 50 percent increased risk of MCI was shown for mean glucose <85 mg/dl (MCI); a 50 percent increased risk of MCI was shown for mean glucose <85 mg/dl (MCI).

Previous work has shown that brain insulin resistance is a common feature of Alzheimer’s disease (AD). Type 2 diabetes is primarily a disorder of worsening peripheral insulin resistance that may ultimately affect central nervous system insulin sensitivity, leading some scientists to dub AD as “type 3 diabetes.”

New technologies in the works

Several technologies are emerging as potential biomarkers of both dementia and diabetes, as well as their progression. These technologies include thinning of the neural retina on optical coherence tomography (OCT), as well as reduced macular capillary density and blood flow using OCT angiography.

Dietary protocol promising

A protocol to reduce the progression of early Alzheimer’s-type dementia showed high success over a two-year period in a small study at UCLA Medical Center. This program included reduced intake of refined carbohydrates, elimination of gluten/processed foods, fasting at least 12 hours between dinner and breakfast, increased intake of omega-3 fatty acids, melatonin along with vitamins D and B12, regular physical activity, adequate sleep (seven to eight hours), and stress reduction via daily yoga and meditation.

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Diet change may affect glaucoma risk

Those who had higher EPA, DHA intake had lower likelihood of disease

Most ODs who treat glaucoma have been asked a version of this question: “Is there anything I can add or eliminate from my diet to prevent glaucoma from occurring or to help slow down progression?” When such a question is posed to me, my response is typically: “Never start smoking, get some exercise, eat your vegetables, and don’t treat your body like a garbage can.”

Relative to dry eye and age-related macular degeneration, we have little glaucoma risk or actuality information to offer our patients when they come to us with questions.

Nutrition and glaucoma
A recent study examining a possible relationship between nutrition and glaucoma was published in JAMA Ophthalmology.

Investigators of this study examined data from 3,865 people who participated in the National Health and Nutrition Examination Survey (NHANES) 2005-2008 database. Those included were age 40 or older and participated in the dietary intake and vision health questionnaire of this cross-sectional study.

Study inclusion was predicated upon the availability of laboratory test results, frequency-doubling technology (FDT) visual field loss detection tests, and optic disc photographs.

The study aimed to examine daily dietary polyunsaturated fatty acid (PUFA) intake to determine its potential relationship to the prevalence of glaucoma in study participants. Results showed participants who took in higher daily quantities of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) were determined to have a lower likelihood of having glaucoma. EPA and DHA are omega-3 fatty acids commonly found in supplements commercially available to our patients. Participants who took in higher quantities of “total” PUFAs were determined to have a higher likelihood of a glaucoma diagnosis. Researchers postulate that this finding may be due to the relative ratios of omega-6 and omega-3 fatty acid intake. Increased omega-6 intake has been related to promotion of inflammation, especially in the arena of cardiovascular disease. Researchers also postulate that this finding may be due to the presence of confounding comorbidities among study participants.

Participants who took in higher quantities of “total” polyunsaturated fatty acid’s had a higher likelihood of a glaucoma diagnosis

Age, family history, and race are not modifiable, but nutritional intake is a common risk factor for the development and progression of glaucoma, and IOP is modifiable.

If a risk factor for glaucoma related to dietary intake could be elicited, clinicians would have another modifiable risk factor to work with besides IOP. Age, family history, and race are not modifiable. Nutritional intake can be augmented, and good nutrition can augment one’s health.

As for this particular study, the investigators state that other longitudinal studies need to be undertaken in order to repeat and verify such a relationship. It would be premature to recommend omega-3 fatty acid supplements for all of our glaucoma patients.

What’s coming
In general, as glaucoma will likely become more prevalent as the U.S. population ages, be on the lookout for more and larger studies examining modifiable risk factors for glaucoma besides increased IOP.

With advances in science occurring at a rapid pace, there will likely be something we can do to take better care of our glaucoma patients besides lowering their IOP in the not-so-distant future. However, for now, there is no therapy which should come before this. As for my patients, I plan to continue—for now—what I hope is a commonsensical approach to answering their questions regarding glaucoma, diet, and nutrition.

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6 healthy habits that don’t cost a fortune

Ancient health practices continue to assist ODs in treating their patients’ disease

At this point in my life, I can now appreciate that the best ancient and rediscovered health practices do not cost money—much like the age-old adage, “The best things in life are free.” However, one must be aware that it is difficult to change a behavior, often taking at least 21 days of concerted effort.1

Here are six healthy habits that will not break the bank.

**HABIT 1** Movement and breathing

Andrew Weil, MD, and others have taught us the health we enjoy today and for the rest of our lives begins with our next breath.2 Breathing—all but ignored by western practitioners—is crucial to emotional and physical health. It allows our bodies to heal and sustain homeostasis in our frantic world.

One in 12 early deaths can be prevented with 30 minutes of physical activity, five days a week. According to the world’s largest study of physical activity, 150 minutes of activity per week reduces the risk of early death by 28 percent and rates of heart disease by 20 percent.3

**HABIT 2** Sleep

Sleep quality is the foundation of a myriad of health disturbances. It is the basis for alertness, good mood, high-quality performance, and preventing the deterioration of existing physical and mental disorders.

As optometrists, we are aware of the association of obstructive sleep apnea and eye diseases. Setting a consistent sleep time and pre-sleep relaxation ritual is important not only for our patients, but ourselves.

**HABIT 3** Sunlight

Neurosurgeon Jack Kruse, MD, has synthesized a body of esoteric biomodulation science. He suggests that the most important health habit modern Homo sapiens can achieve is to expose their eyes and bodies to nonvisible solar wavelengths in the near ultraviolet and near infrared spectrum. At the same time, Dr. Kruse argues for limiting late-day exposure to nonnative blue light and filtering blue light from cell phones and computers.

The benefits of limiting late-day exposure include activation of depressed mitochondria, which is related to obesity and 90 percent of all chronic disease, and reprogramming our central retinal pathway mediated neuroendocrine system.4

**HABIT 4** Fasting

Fasting is an ancient religious practice. When accomplished correctly and safely, it can result in weight loss, reverse type 2 diabetes, improve cognition, prevent cancer, prevent heart disease, and even slow aging.5

**HABIT 5** Hydration

Most ODs have encountered patients who do not eat plant food. These patients tend to develop a myriad of health challenges with age. I advise these patients to remove high-fructose corn syrup and artificial sweetener hydration and substitute healthful hydration.

Eight ounces of low-sodium vegetable juice, such as V8 Vegetable Juice, supplies the equivalent of two vegetable servings and a plethora of nutrients such as magnesium, potassium, polyphenols, lutein, and B carotene. This product may reduce the risk of high blood pressure and stroke. Note that because of high K+ in vegetable juice, patients with severe kidney disease and/or high serum K+ should consult their doctors.6

**HABIT 6** Show gratitude, rest, and help others

Regardless of one’s religious beliefs, the act of giving thanks for our blessings, taking weekly rest, and helping others has been shown to enhance health.7 Gratitude, like taking a walk in the sunlight, increases dopamine, our pleasure neurotransmitter. Scientific research increasingly shows that the reason Homo sapiens conquered our planet was because of our ability to nurture people other than ourselves. In fact, altruism likely has a genetic basis.8

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

Continued from page 1

times per day into her right eye; however, she reported no improvement in symptoms after using this medication for 10 days. Her medical history was unremarkable.

Entering visual acuity was 20/40 OD and 20/20 OS with a recent spectacle correction. Entrance tests and intraocular pressure (IOP) were normal, as was her dilated fundus exam.

Anterior segment exam revealed mild meibomian gland disease (MGD) in both eyes, a minimal tear meniscus in both eyes, and 2+ injection in both eyes. A significant amount of superficial punctate keratitis in both eyes (3+ and 2+, OD and OS, respectively) was also noted. In addition, several small filaments were seen attached to the inferior cornea OD.

After suspicion of an underlying systemic etiology, a rheumatology consult and a Sjögren's lab panel was ordered in coordination with the patient’s primary-care physician. This patient’s tentative diagnosis of Sjögren's syndrome and secondary dry eye was confirmed by rheumatology. The patient began systemic therapies, including oral pilocarpine (Sala-gen, Eisai) and hydroxychloroquine (Plaque-nil, Sanofi-Aventis).

The filaments can, and should be removed at the slit lamp with forceps; however, recurrence of strands to the epithelium.4

Histologically, filaments are comprised of an epithelial cell core, surrounded by mucus and an array of various inflammatory cells and mediators.2,3

There is debate about the exact pathophysiology of filament formation. One theory points to changes in the mucus-to-aqueous ratio of the tear film leading to increased mucus production, thereby altering the polarity of the epithelial surface and adherence of strands to the epithelium.4

A different hypothesis points to mechanical damage to the corneal epithelium secondary to ocular surface or systemic diseases. The combination of friction and an irregular surface provides attachment sites for filaments. The breakdown of the intact basal epithelium and persistent mucus plaque further prevents healing and re-epithelialization.5

Corneal filaments stain well with rose bengal and lissamine green, and these dyes may help the clinician better locate and treat mild, early, or subtle filaments.2

The filaments can, and should be removed at the slit lamp with forceps; however, recurrence is common.2 If the base of the filament is not completely removed, recurrence is highly likely.6

Patients with corneal filaments experience long-term relief and resolution only by identifying and treating the underlying inflammation and insult to the ocular surface and corneal epithelium.

Ongoing therapies for these patients include on- and off-label usage of anti-inflammatory topical drugs such as corticosteroids, Xiidra, or Restasis (cyclosporin, Allergan).2 More obstinate cases may require atypical therapies such as autologous serum, N-acetylcysteine drops, or amniotic membrane.2 Other therapies include bandage contact lenses, including scleral contact lenses.1

Mucomyst or N-acetylcysteine is a mucolytic agent designed to help patients with...
respiratory problems and excessive mucus production. Conversely, a 2013 Cochrane re-
view in cystic fibrosis found no benefit of
this therapy. An unusual use of this medi-
cation is in the treatment of paracetamol
(acetaminophen) overdose by enhancing
the metabolism of acetaminophen by the
liver. Interestingly, it is also being studied
for its psychiatric effects in conditions such
as autism, Alzheimer’s disease, and traum-
atic brain injury.

Conclusion
When treating a patient with filamentary
keratitis, control the inflammation completely
with both short-term and long-term thera-
pies. Include integrated care with other spe-
cialties such as rheumatology and primary
care help to treat the whole patient, not just
the ocular manifestations.

After the inflammation stabilizes, provide
an adequate environment for the corneal epi-
thelium to heal and restructure. This includes
maximizing tear film volume and reduc-
ing frictional forces and external stressors.
Additional treatment options are advancing
technologies such as amniotic membranes
and prosthetic environments (such as scleral
lenses). Therapeutic alternatives like autolo-
gous serum and mucolytic agents are also
useful tools in these chronic and sometimes
recalcitrant cases.

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How a study group can help you

Continued from page 1

provides topics for group discussion on how to implement them into the office. This discussion is generally not available at local, state and national meetings where you listen to lectures and perhaps take notes.

I belong to a study group in the Dallas area that has been meeting monthly for more than 40 years. Topics such as those mentioned above along with hundreds more have been discussed at our meetings throughout the years. We have 16 active members and six reserve members who like to attend when a member has a conflict. While some members have retired, at least half of the members have been in the group more than 30 years.

Members make or break it

Having the right members is the most important factor in forming a group. Keep these points in mind when putting a group together.

- Ensure members are knowledgeable and willing to share information.
- Members should be compatible and enjoy the time spent with each other. Although we’ve had differing opinions in our 40 years, we have not had an argument between members.

Meeting structure

Our group meets monthly, and meetings can occur as often as the group chooses. Some groups meet quarterly or less if members are not located in the same area. In lieu of our December meeting, we have a holiday party at a restaurant that includes members’ significant others.

Our group’s topics have changed significantly over the years. When we began the study group, optometrists were not able to use therapeutic pharmaceutical agents, so discussions focused on contact lenses and practice management. The meetings have evolved—just as the courses taught at all optometric meetings have—and reflect the more complex and detailed subject matter, especially in areas of diagnosis and treatment of ocular disease.

Meeting length is usually two hours—our meetings are nonstop. At a typical meeting for our group, two or three members will present PowerPoint discussion on topics such as interesting cases, lecture notes, a journal article, or a topic on which the member has special knowledge or has researched. Other members may ask questions or have comments during this 20- to 30-minute presentation. Often, speakers distribute a handout on the topic on which they are speaking.

The leader conducts the meetings, allowing time for members to share their thoughts or information while keeping the meeting moving at a comfortable pace. The leader as well as other members prepare brief topics for discussion, such as who has tried this new contact lens or new medication and what are the results, to ensure a full agenda for the meeting. Other discussion topics have ranged from scleral contact lenses, amniotic membranes, to employee annual bonuses. On some occasions, a member has asked the leader before the meeting begins if he could have the group’s opinion on a subject or share an interesting case for discussion.

The meetings may be held wherever the group agrees; most study group meetings are held at an office or home. If the group is located in a large metropolitan area, it is best to have the meetings at a central location.

Our meetings include dinner, allowing members to visit and eat for an hour. The dinner is often provided by a vendor who is given 20 minutes at the beginning of the meeting to update the group about its products and/or services. Sometimes the vendor chooses to host the group at a local upscale restaurant if a special guest speaker is invited to address the group. If no vendor sponsors dinner, then the group splits the cost of the meal.

Additionally, a few times a year we ask a specialist to speak to the group. Past speakers have included retina, glaucoma, and ocular plastic specialists. For example, the dean of University of Houston College of Optometry recently gave a talk on research in myopia causes and prevention. Because these presentations take place in the relaxed setting of a study group, the atmosphere allows for more open discussion and questions than a typical lecture.

Leadership drives the action

Having an effective leader is an important element of a study group so that there is a robust agenda and organization to the meeting. Failure to do so will likely result in a loss of interest and low attendance. A group can change leadership every year or two, or, if the current leadership is working well, the leadership can be kept indefinitely.

Besides the leader, other positions may be needed. For instance, we have a member who acts as the secretary and keeps notes of the discussion at the meeting. These notes are summarized and prepared in a newsletter that is emailed to members and reserve members before the next meeting. The newsletter can contain other information related to the group such as who missed the meeting, past and upcoming guest speakers, and next meeting date.
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Having an effective leader is an important element of a study group so there is a robust agenda and organization to the meeting

Closing thoughts
The group should be careful about discussing their specific fees to avoid antitrust violation.

A group can negotiate prices with vendors that may be better discounts than what individual members are currently receiving from a buying group. Although our group has not spent significant time exploring this, we have received better discounts than some of our buying groups.

Besides learning from each other, the group inspires members to keep up with the rapid pace of change that our profession experiences. In working day to day, it is difficult to stay abreast of what changes we need to make, but group discussion and sharing knowledge helps in making those adjustments.

Members of our group often say that they look forward to each meeting and that there would be large void without the group. In my opinion, if you form a study group in your community, you will have the same result.●

Dr. Jacobs has served as chair of the North Texas Study Group for more than 40 years. He is a past recipient of the Texas Optometrist of the Year Award and the Texas William Pittman Distinguished Service Award. Dr. Jacobs welcomes emails about developing or conducting study groups. jj02@airmail.net

IN BRIEF

** Coburn unveils new field analyzer, retinal camera **

**SOUTH WINDSOR, CT—** Coburn Technologies introduces two new products: SK-850A Visual Field Analyzer and SK-650A Retinal Camera.

Coburn’s SK-850A Visual Field Analyzer is an automatic pure optical projection perimeter designed with full compliance with the Goldmann standard. All features of SK-850A are designed according to international standard, and provide a quantitative evaluation of the retina macula function. The device comes in two different models, standard and expert, with the expert designed with enhanced features for more advanced testing.

**Key features of the SK-850A include:**

- **Auto gaze tracking.** Three-dimensional fixation monitoring with infrared light tracking of the pupil on the X, Y, and Z planes
- **Ease of use.** Easy to read printed report, without requiring any additional training or explanation
- **Auto-calibration.** Automatic calibration and brightness measurement immediately when the machine is powered on

Coburn’s SK-650A Retinal Camera is a non-mydriatic retinal camera and is DICOM compatible. Built to easily transition from eye surface to fundus examination, SK-650A proves to be a comprehensive tool for ophthalmology, physical examination and eye screening.

**Key features of the SK-650A include:**

- **Auto mosaic function.** Built with a 9-point fixation system allowing for auto mosaic photography over a large retinal area
- **Optical red-free.** Red-free visual testing for obvious comparison of nerve fiber layers to help diagnose glaucoma
- **Superior picture quality.** New optical design guarantees full 45° image capture to avoid losing fundus information, while producing premier quality imaging

Wayne Labrecque, vice president of sales for Coburn Technologies says: “Many of our customers have voiced interest in more affordable and high-quality retinal cameras and visual field analyzing equipment. We saw an opportunity, and we are excited to expand our product offering to better help our current and new customers.”

Both products are FDA approved and available now.●

** TAYE created 3.4M eye exams in 2017 **

**ALEXANDRIA, VA—** Think About Your Eyes, a national public awareness campaign about the importance of scheduling an annual eye exam with an optometrist, generated 3.4 million eye exams in 2017, according to data from The Vision Council.

The campaign’s success was measured using the marketing mix model, a methodology used by consumer brands to quantify effects of marketing activities on sales and revenue.

This method uses a statistical analysis of all factors contributing to the creation of eye exams, including

- Population growth
- Marketing efforts
- Vision care insurance coverage
- Health of the economy

This methodology isolates marketing effects from other base drivers to determine the impact the campaign’s specific marketing efforts had on the rate of eye exams, according to The Vision Council.

“Think About Your Eyes’ 2017 results demonstrate that this initiative, with its new creative, taps into the collective instinct that it is so important to take care of our eyes,” says Steven Loomis, OD, chairman of Think About Your Eyes.

“We couldn’t be more excited to build on this momentum and motivate even more Americans to go to their eye doctors and take care of their eye health and vision,” he says. In July 2017, Think About Your Eyes launched a new creative campaign, “Seeing is a Gift.” The campaign celebrates the gift of sight and focuses on inspirational messaging around everything vision allows people to experience.

Recent research conducted on this new messaging found that seven in 10 respondents said they were likely or very likely to schedule an annual eye exam after viewing the ads, according to The Vision Council. The ads are expected to reach 95 percent of the targeted audience throughout 2018.

The increase in exams and shortening of the exam cycle resulted in $752 million in additional industry revenue, says The Vision Council. This represents exam fees and add-on purchases, such as frames, contact lenses and other accessories.●
How staff can help differentiate your practice

Technology can’t provide outstanding customer service like your team

The many changes that online optical retailing and now online "eye exams" create for optometry practices can cause ODs to worry about their futures. Will the improvement in technology make us obsolete? How do we combat these changes and stay relevant in this ever-changing market?

Convenience and price

To answer this, we must first look at why patients want to buy glasses and contact lenses online. There are many reasons, but two of the most common are convenience and price.

As private practitioners, ODs may or may not be able to compete on price, but I don’t know that we want to try. In our offices, we refuse to provide cheap products and materials. We want our patients to have the best—just like we want for ourselves, our families, and our staff.

ODs are able to offer convenient ordering to compete against online sales. For example, the patient is already in your office—if we make the purchase process enjoyable and easy, then it is just as convenient for the patient to buy online a few days later.

Often patients cite cost as a barrier to purchase, but many times patients have vision care plans that contribute to their purchases. Yet they still go online to buy.

I believe it is ODs’ processes and presentations that hinder patients from buying from us. ODs and staff do not educate patients on the differences between what we sell and what is sold online.

Our relationships with patients and the customer service we provide can never be replaced with online technology

Customer service important

We have established that ODs are able to compete on convenience and sometimes price, but we prevail—as compared to online retailers—with customer service and relationships with our patients.

ODs must cultivate these relationships and improve customer service. Developing these areas of the practice will create the distinction ODs need to survive in this market, and staff is key to success.

We are able to create distinction within our offices so patients do not want to go online to get an “eye exam” or purchase glasses and contact lenses. We create distinction by being different, and this is achieved by creating an experience that shows patients how we are different.

Many times patients do not know the difference between an online “eye exam” and the comprehensive examinations ODs perform. This disconnect occurs because ODs rarely explain to them what we do or why and what critical information these tests provide. Many patients also do not know the difference in the frames and lenses available in the optical vs. the pair purchased online.

Patients have problems, and ODs offer solutions. However, frequently ODs simply fail to educate patients on how we can provide these solutions.

A service example

While pondering this problem of creating distinction, I visited my hometown of Tuscumbia, AL, and toured the office of good friend Barry Basden, OD. He has an amazing operation of five offices in northwest Alabama. In his offices, team members stay with the patient throughout the examination from check-in to check-out.

I was amazed at how efficient and productive his staff was in guiding the patient through the exam and office. I went back to our offices and realized this was what we were missing. No online retailer can compete with global customer service.

This model provides patients with an advocate in the office—when they rip a contact lens or break their glasses, they have someone to call. Patients also have a personal shopper, someone who knows their vision and health concerns and can utilize the doctor’s recommendations to solve these problems.

Consider this from a patient’s point of view. Who wouldn’t want such an advocate at her doctor’s office?

Taking the idea back

The idea was great, and I saw how it worked in Dr. Basden’s offices. However, I was not so sure it would work in ours. After discussing the challenges with my office managers, we decided to give it a try. Once we were committed to implementing this process, we came up with a plan.

One of the most important—if not the

See Staff differentiation on page 24
Staff differentiation
Continued from page 23

most important—aspect of this system is educating and training your team. You cannot educate your patients without an educated team. Your team needs to know why they perform certain tests on patients and what information this gives the doctor. As they are performing the tests, they should communicate this to the patient.

Your staff needs to know which questions are important to ask in order to elicit complaints that could help the doctor when prescribing multiple pairs of glasses and lenses. Along with this is understanding strategies for products in your office. Once staff take a history and identify a patient’s concerns, they are able to start recommendations.

For example, in our office we have a contact lens flowchart based on a patient’s needs and prescription. My team is trained on this flowchart, and once they uncover a patient’s complaint or identify how the patient wants to wear contact lenses, they can easily start educating the patient on what is new with contact lenses and what solves are available. Once they relay this information to me, I can prescribe the best contact lenses to solve the patient’s problem.

Making it work
To train your team correctly, you need a well-developed plan. Our team’s education and training took a few months, which can seem like a long time to someone who is impatient like me. However, this part was very critical to the process, so it was worth the wait.

We began by having an after-hours meeting to review why we were making the change and what processes we needed. We laid out the plan to the team and discussed challenges and answered any questions.

Over the next few weeks, we cross-trained one team member at a time to another position. For example, if a team member was a technician, we cross-trained him in the optical. When a technician or optical team member was not busy, she shadowed someone in another area of the office. This continued for several months.

We also conducted a few in-depth training sessions at night and even closed the office for an afternoon to train. I know what you are thinking: “If I close my office, I will lose money.” Consider it an investment; the amount you lose that afternoon will be repaid multiple times over once this process is implemented.

Patients come first
Overall, it took a few months to fully implement the entire process. We have had some challenges, but the gains far outweigh the challenges.

I knew this change was the best thing we had done when I received call from a long-time patient.

She called just to tell me she loved what we were doing. When I asked what she meant, she said she could not say what was different, but she knew something was better than it was before.

As for our sales, our capture rate has increased steadily since implementing this process. Our sales of premium lenses and other products have increased, too.

However, the best part is knowing the change we are making in our patients’ lives. Doctors and staff in our offices know why patients should purchase from us. We are our patients’ advocates. We sell them exactly what they need, and when there is a problem we will fix it. With this process, patients know this as well.

Our industry is changing, and technology is not going away—in fact, it will continue to increase and improve. Technology is great, and optometrists must utilize it in our practices to create a better patient experience.

However, the relationships ODs and staff have with patients and the customer service we provide can never be replaced with online technology.

Alcon unveils new Air Optix Colors options, two-count pack

FORT WORTH, TX—Alcon introduces its new Air Optix Colors Gemstone Collection of color contact lenses, with three new colors—amethyst, true sapphire and turquoise—to enhance any eye color.

Now offering a total of 12 colors, Air Optix Colors lenses appeal to a wide range of patients and offer incremental revenue potential for practices. According to the company, approximately one in two consumers are interested in color contact lenses, and greater than 50 percent would wear them in addition to their current contact lenses.

In related news, Alcon is launching a two-count pack for all Air Optix Colors, allowing eyecare professionals to introduce more patients to color contact lenses whether or not those patients require visual correction.

This smaller size pack gives patients a more flexible option to play with eye color for part-time wear and to try multiple colors, according to the company.

To support eyecare practices in rolling out the new Air Optix Colors Gemstone Collection to its patients, Alcon will provide updated social and online media assets on the Alcon Vision Care marketing portal: https://myalcon.intuition.com/ECPMarketingPortal. The new materials can be shared on practice websites and social media channels to drive patient awareness of and interest in Air Optix Colors lenses to help bring them into the office.

Eyecare practitioners can also speak to their Alcon sales representative for in-office Air Optix Colors materials to help spark patient interest.

The proprietary Alcon 3-in-1 color technology features color encapsulated within the silicone hydrogel material. According to the company, 82 percent of Air Optix Colors wearers agree the lenses look natural on their eyes.

The full Air Optix Colors contact lenses palette now offers a dozen color options including true sapphire, amethyst, turquoise, gray, blue, green, Pure hazel, brown, sterling gray, brilliant blue, gemstone green and honey.

Patients can virtually try on the colors before coming to the office through the Air Optix Colors Color Studio: https://wwwairoptix.com/colors/color-studio.shtml.
DAILIES TOTAL1® MULTIFOCAL CONTACT LENSES

DESIGNED FOR SUCCESS

Katie Gilbert-Spear, OD, MPH
Sight and Sun Eyeworks, Pensacola, FL
Dr. Gilbert-Spear was compensated by Alcon for her participation in this testimonial

Helping patients experience the benefits of contact lenses throughout their lives can be an important building block for practice success.1,2 Unfortunately, for patients in their 40s and beyond, their growing near vision correction needs combined with the challenges of monovision or early-generation multifocal contact lenses can lead to a greater dependence on glasses, and—eventually—to contact lens dropout.3 Today’s presbyopes are active, image-conscious, and have demanding lives.4,5 Many of them have grown to love wearing contact lenses, and so want excellent vision without depending on glasses—but they may not be aware of their options. The good news is that DAILIES TOTAL1® Multifocal contact lenses make it easier than ever to meet presbyopic patients’ unique needs.

DAILIES TOTAL1® Multifocal contact lenses offer the flexibility and convenience of a daily disposable wear schedule,6 an innovative multifocal design for seamless vision,7,8 and Alcon’s unique Water Gradient and SmartTears® Technologies for truly remarkable comfort.9 Also, Alcon’s simple 2-step fitting process makes fitting DAILIES TOTAL1® Multifocal lenses (and all Alcon multifocal lenses) easy,10 so I can get patients the right fit without taking up a large amount of chair time, helping the efficiency of my practice. Data show 80% fit success with a single lens per eye, and 95% success with two lenses or fewer per eye, when the Alcon multifocal contact lens fitting guide is followed.11,12 In addition, my contact lens-wearing patients return for exams more frequently than those who wear only glasses, meaning more opportunities to educate them and provide comprehensive care.

Embracing DAILIES TOTAL1® Multifocal contact lenses has been key to differentiating my practice.

Beyond offering technologically advanced multifocal lenses, there are several ways that my staff and I can help position patients for success with DAILIES TOTAL1® Multifocal contact lenses. First, we start the conversation early. I begin discussing presbyopia with my patients while they are in their 30s, letting them know that—when the time comes—we can meet their vision and lifestyle needs with multifocal contact lenses. Then, when presbyopia does emerge, I am quick to share the benefits of DAILIES TOTAL1® Multifocal contact lenses. It is also imperative that I explain to patients beginning their trial with DAILIES TOTAL1® Multifocal contact lenses that a short adaptation period will be needed. My office staff also have an important role in setting patients up for success, by collecting information about presbyopic patients’ visual expectations and lifestyle demands. For example, my staff ask patients what, if anything, they would change about their current vision correction. This open-ended questioning helps identify patients’ needs, and provides an opening for my staff to introduce the exciting opportunity that DAILIES TOTAL1® Multifocal contact lenses represent. Active engagement between staff and patients helps make my discussions with them more efficient. In many cases, patients have decided that they want to try DAILIES TOTAL1® before even walking into the exam room! Once they are properly positioned for success, even my more skeptical patients are amazed by their experience with DAILIES TOTAL1® Multifocal contact lenses.

Embracing DAILIES TOTAL1® Multifocal lenses has been key to differentiating my practice, and one of my priorities is to give as many presbyopic patients as possible an opportunity to enjoy them. In my experience, a focus on active engagement and patient education—in addition to a commitment to offering DAILIES TOTAL1® Multifocal contact lenses—can be an important driver of success for today’s practitioners.

References

Important information for AIR OPTIX® AQUA Multifocal (lotrafilcon B) contact lenses: For daily wear or extended wear up to 6 nights for near/far-sightedness and/or presbyopia. Risk of serious eye problems (i.e., corneal ulcer) is greater for extended wear. In rare cases, loss of vision may result. Side effects like discomfort, mild burning or stinging may occur.

See product instructions for complete wear, care and safety information.

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Blackfin unveils new designs for men’s and women’s sunglass collection

TAHON AGODINO, ITALY—Blackfin presents a range of models that give the brand a contemporary slant for spring/summer 2018. The variety of shapes and urban connotations are traced in the construction features of the frames.

Silverton BF827 and Silverdale BF828 focus on bridge design. Beta-titanium, a material traditionally used for the temples, is now used for the bridge. This solution softens and lightens the frame. The design has rivets fitted to the two titanium eye-rims. Available colors for the Silverton model are dark graphite blue/sanded titanium with blue mirrored graduated-tint lenses, brushed titanium/polished silver with silver mirrored lenses, and opaque black/polished silver with grey mirrored graduated-tint lenses. Available colors for the Silverdale model include opaque/polished black frame with grey mirrored graduated-tint lenses or cloud white/polished silver frame with gold mirrored graduated-tint lenses.

Sunset Reef BF829 is a rounded model for women. The material creates a two-dimensional, bas-relief effect for the front. The result is a frame in which the titanium produces a double-frame effect emphasized by the dual color scheme. The frame is available in cloud white/metalllic light brown frame with pale gold mirrored lenses and a polished silver/opaque black frame with super silver mirrored lenses.
DAYTONA BEACH, FL—Costa debuts multiple new optical frame styles, color palettes, and performance features within its Spring 2018 Collection. Costa’s newest optical frame line, Forest Reef, blends real wood accents on premium acetate material. The Forest Reef line features six different styles with the topographical pattern on the temple tips for added grip.

Forest Reef 100 is a round eye shape. It combines an acetate frame with laser-cut real wood panels on the outer temples. Colors include cypress horn acetate with walnut/oak wood; dark havana acetate with wenge/makore wood; crystal clear acetate with oak/ash wood; and seafoam tortoise acetate with black apricot/oak wood.

Forest Reef 110 is a rectangular eye shape. The style retains the design of the Forest Reef 100 style with an acetate frame and laser-cut real wood detailing. The colors include black acetate with black apricot/walnut wood; dark tokyo acetate with mahogany/oak wood; cypress horn acetate with walnut/oak wood; and crystal gray acetate with black apricot/mahogany wood.

Forest Reef 200 combines a rectangular eyewire and bridge with an acetate browline. Colors include matte black acetate, satin black materials and black apricot/walnut wood; gray horn acetate, brushed palladium metal and black apricot/oak wood; dark havana acetate with brushed gold metal and wenge/makore wood; and crystal dark olive acetate, shiny dark gunmetal and walnut/oak wood.

Forest Reef 210 style incorporates a soft rectangular eyewire with a classic acetate cateye brow. Colors include: black acetate, brushed gold metal and black apricot/oak wood; dark havana acetate, brushed palladium metal and walnut/cherry wood; sea foam tortoise acetate, brushed rose gold metal and black apricot/oak wood; and pomegranate acetate, brushed gunmetal and wenge/makore wood.

Forest Reef 300 style is a rectangular rim with acetate temples and tubular wood detailing, while Forest Reef 310 style features these accents with a rounded eye shape. Colors for both styles include satin black metal, oxhair sandalwood/cypress horn acetate; brushed gunmetal, black goldwood/dark tokyo tortoise acetate; and brushed gold metal, sucupira wood/black horn acetate.
**Zyloware unveils new frames for multiple brands**


**Sophia Loren M286** is a full-rim metal frame. It is available in two colors, natural and black. A designed, open metal endpiece leads to three mother-of-pearl accents with a crystal décor. The temple features a marbleized pattern. M286 features luxury-fit sizing with longer temples and extended endpieces. Comfort fit features include spring hinges for easy adjustments, snap-in nosepads, and the ability to accommodate progressives.

**Sophia Loren M289** is a full-rim metal frame that comes in a rectangle shape. It features a wrapping metal endpiece with braided design and crystal detailing. M289 is available in blush and mocha. Petite fit sizing is available for women who have smaller facial features. Comfort fit features include spring hinges, snap-in nosepads, and the ability to accommodate progressives.

**Randy Jackson 1084** mixes a zyl browline with square lenses wrapped in metal. The black/gold frame features a black brow bar on top of a gold frame, a gold temple paired with tortoise temple tips, and an exposed metal eyewire and bridge. The black/gunmetal frame features a matte black brow bar with gunmetal underneath, a gunmetal temple, and grey horn zyl temple tips. Both colors have the RJ logo inside the right temple tip, spring hinges, and snap-in nosepads, and both can accommodate progressives.

**Randy Jackson 1090** is a full-rim metal frame in a rectangle shape. Black has a matte black front with black temple exterior layered on top of white and grey zyl. Gunmetal has a satin finish on the front with grey horn over grey pearl on the zyl temples. Both colors have a diagonal metal stripe on the temple. Comfort fit features include spring hinges, snap-in nosepads, and the ability to accommodate progressives.

**Randy Jackson 3043** comes in a rectangle shape. Black is a black frame over clear throughout, while grey stripe fade shows black stripes on the top with a fade-down to grey crystal and black temples. Two nail heads with a gunmetal finish accent each temple. RJ 3043 features extended-fit sizing to accommodate larger heads by providing longer temple lengths and endpieces. Comfort fit features include spring hinges for easy adjustments and the ability to accommodate progressives.

**Randy Jackson Limited Edition X132** is a full-rim metal frame that features a teardrop shape. RJ X132 is offered in black gold and black gunmetal. Both options are paired with a black eyewire, wrapping metal endpiece, and zyl temple tips. Comfort fit features include spring hinges, snap-in nosepads, and the ability to accommodate progressive lenses.

**Randy Jackson Limited Edition X136** is a rounded full-rim zyl frame with a double brow-bar and keyhole bridge. It is available in red, brown, crystal, and navy. All four colors feature a metal temple with linear cut-out and the ability to accommodate progressive lenses. See Zyloware frames on page 28.
Zyloware frames

Randy Jackson Limited Edition X137 is a full-rim zyl square shape frame featuring an angular dip in its browline. It is available in two colors—grey fade features a gradient that fades from a grey stripe to clear, while slate blue fade offers a navy stripe to brown stripe gradient. Both colors feature three gunmetal rivets on each side of the front. Comfort fit features include spring hinges for easy adjustments and the ability to accommodate progressives.

Gloria by Gloria Vanderbilt 4059 is a semi-rimless metal frame. The frame features a geometric shape that widens at the top of the lens and narrows toward the bottom. This frame comes in two colors, mauve and navy, and has a brushed finish on the front and floral pattern on the metal temples. GG 4059 has spring hinges and snap-in nosepads and can accommodate progressives.

Gloria by Gloria Vanderbilt 4060 is a full-rim plastic frame in a rectangle shape. Black has a black over crystal purple front and purple temples. Brown has dark brown over light beige crystal on the front and brown temples. Both colors feature a swirl design etched into the metal temples. The frame features spring hinges and has the ability to accommodate progressives.

Leon Max 6026 features a thick zyl front ends on the side of the rectangle-shaped lenses to reveal a rimless bottom. This frame is available in two colors—black has a solid front with black over cream tortoise temples. Blue tortoise has a blue tortoise front and temples. Both colors feature two metal rivets on each side of the front and again on the zyl temple. LM 6026 offers petite fit sizing to accommodate women with smaller facial features and can accommodate progressives.

Leon Max 6028 is a full-rim zyl frame with square lenses and sloping brow bar. The frame is available in black and auburn. Black has a solid front with black and grey horn sparkle temples. Auburn has a cognac horn front and cognac horn temples. Both colors feature the Leon Max logo inside the right temple tip. LM 6028 has petite fit sizing and can accommodate progressives.

Leon Max 6029 is a combination of metal and zyl. Rounded LM 6029 features a double-layer zyl brow bar and raised open butterfly top bar on the front. Black has a black over cream tortoise zyl brow bar with a shiny dark gunmetal top bar, eyewire, and bridge. Tortoise has a blonde tortoise zyl brow bar and temple with a black metal top bar, eyewire, and bridge. It can also accommodate progressive lenses.

Shaquille O’Neal 133Z is a lightweight zyl frame available in two colors. Black white has a matte black finish over white and opaque zyl. Navy has a matte navy finish on top of red and blue crystal zyl. It features spring hinges and can accommodate progressives.

Shaquille O’Neal 134M is a full-rim metal frame that comes in two colors—black and gunmetal. Black has a metal front with black and blue zyl temples in a matte finish. Gunmetal has a gunmetal matte finish on the metal front with a tri-color temple in matte red, black, and grey. It comes in extended-fit sizing for additional headspace and longer temples. The frame includes spring hinges and the ability to accommodate progressive lenses.

Shaquille O’Neal 138M is a full-rim metal frame available in black and gunmetal and features a matte front with a two-toned metal temple. The frame offers additional headspace with a longer end-piece and temple. Features include spring hinges, snap-in nosepads, and the ability to accommodate progressives.
Optometry Jobs

ALLDocs (The Association of LensCrafters Leaseholding Doctors) has dozens of OD job opportunities.

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Visit https://www.alldocsod.com/jobs/ for the job listings.

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Jeffrey J. Walline, OD, PhD  
Associate dean for research, The Ohio State University College of Optometry

Working with kids, myopia, In-N-Out Burger

Why pediatric vision and myopia? I am interested in pediatric myopia because I am a myope, but mostly because I get to work with kids, and I find that really rewarding. I don’t have kids of my own, so this is how I interact with kids and have a lot of fun while doing work. Every child is completely different, and you don’t know when they might melt down at any given time. My trick is make them think they’re having fun. I’m always joking with them, I’m always keeping them engaged. I don’t necessarily tell them what’s coming—I just do it and try to keep them from becoming anxious. A lot of people like to use more empathy or offer more education with the children. I like to let them have fun and get as much information from them as we can while they think they’re having fun.

What’s the worst thing that happened while a child was in the chair? I was trying to get a child’s attention on a target. But he wouldn’t focus. Soon, he said, “I don’t feel very well,” and I said “Oh, you’re okay! This will just take a few minutes. You can get through this.” Within the next five seconds, he threw up all over me. [Laughs] It was so gross off what you can and keep on working.

What is the future of myopia control? I don’t know what the future of myopia control is, but the good news is there are lots of options available to us today. We’re using soft multifocal contact lenses, corneal reshaping contact lenses, and low-concentration atropine. So far, these are beneficial. I hope at some point we can prevent the onset of myopia. That would help keep the side effects of myopia from happening and make people much happier. I realize that will put optometry out of business by and large, but it’s a great goal for us to shoot for. Do I ever think we’ll get there? Probably not, but it’s something we ought to attain if we want to treat our patients the best way that we can.

What excites you about research? Finding out the answers before we know what the answers are is very exciting. My research is something I hope people can read one day and put into practice the next. I like traveling around the world talking to people about the different aspects of research that we do, and I like being able to improve the care of children, helping people realize that children are capable of independent contact lens wear. To me it’s about finding the answers and educating optometrists.

What’s something your colleagues don’t know about you? Most colleagues who look at me would never guess that I teach spin classes a couple of times a week. I don’t look like a fit athlete, but I enjoy teaching classes. I teach classes because I want to be able to play my own music. People can tell when I graduated high school based on my music alone. Most spin teachers play a lot of electronica, dance, and hip hop; I am geared toward ’80s and alternative.

What the craziest thing you’ve ever done? Jumping out of an airplane that was functioning completely. I did it solely for the Christmas card. And I’m terrified of heights. Not only did they have a still camera, but they had a video camera, so of course I purchased the video and the still afterward. I’m afraid of heights, but I like looking over the edge. I’m terrified to do so—my heart races, but it’s that feeling that I really enjoy. I’m glad I skydived once, but I’ll probably never do it again. I got the picture! [Laughs]

—Vernon Trollinger
Are dry, itchy eyes caused by contact lenses?

It’s not complicated.

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