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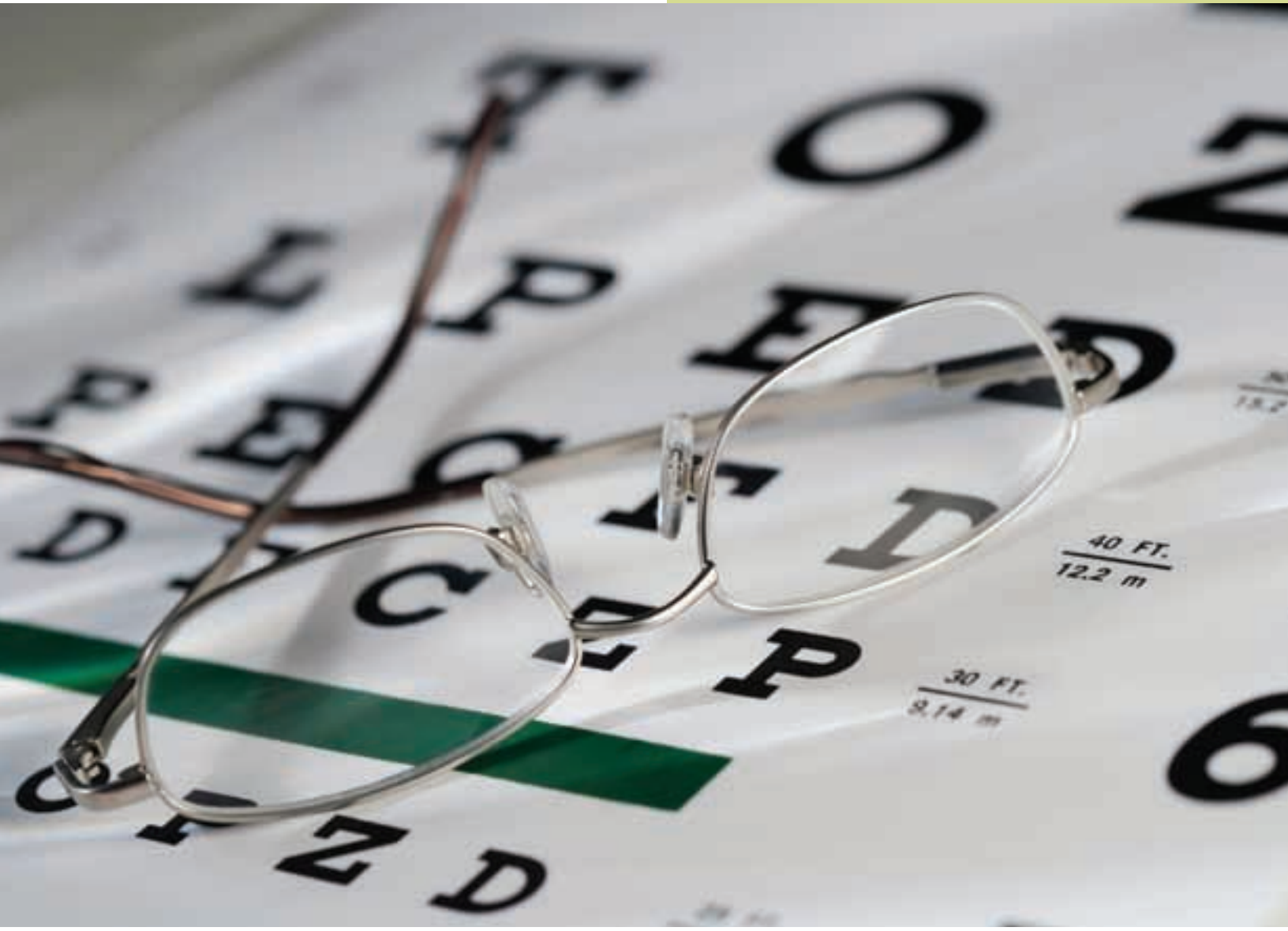

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CAO Communications Strategy

Stratégie de communication de l'ACO

BY / PAR KIRSTEN NORTH, OD, PRESIDENT CAO / PRÉSIDENTE DE L'ACO

For the past 10 years, the National Public Education Committee has coordinated national advertising with the support of provincial associations, CAO members and industry partners.

Dr. Lil Linton, President Elect, CAO, was the Chair, of NPEC since 1996. Dr. Marlene Reiss, NPEC representative from Manitoba served on the committee since 1997, and as co-chair since 2006. Both resigned from this role this year. Drs. Tanya Sitter (Alberta) and Rhea Anderson (Saskatchewan) were appointed as the new Chairs to NPEC.

Drs. Linton and Reiss leave a legacy of public education that has been effective and well-coordinated despite the challenges of this ambitious undertaking. It has helped increase public awareness, demand for optometric services and the profession's influence. It has provided provincial associations and CAO members with a national platform for their own public awareness efforts and offers economies of scale. Industry support provided the funding for research, public relations, production and more. Several of the companies are charter partners.

The national public education program has been the envy of other professions. Recently, Canadian opticians launched their own campaign, coordinated nationally.

We are entering an exciting new era with a recently approved Communications Strategy and a new communications firm, selected by way of a Request for Proposal (RFP) process. As incoming NPEC Chairs, Drs. Sitter and Anderson have an exciting opportunity to build upon the legacy of the last decade.

CAO members will soon learn more about the communications strategy as it is launched and enhanced over time. It is ambitious, but will be realized with the continued hard work of all for the common good.

Dr. Lil Linton and Dr. Marlene Reiss served on the National Public Education Committee for over thirteen years.

The optometry profession owes a huge debt of gratitude to Drs. Linton and Reiss. They would point to others repeating an adage often quoted, "When a team of individuals make a commitment to act as one, the sky is the limit".

Let's maintain this success story for another decade!

Depuis 10 ans, le Comité national d'éducation publique coordonne la publicité nationale avec l'aide des associations provinciales, des membres de l'ACO et des partenaires de l'industrie.

La Dre Lil Linton, présidente désignée de l'ACO a été présidente du CNEP depuis 1996. La Dre Marlene Reiss, représentante du Manitoba au

CNEP, siégeait à ce comité depuis 1997 et en était coprésidente depuis 2006. Les deux ont démissionné de leur poste cette année. Les Dres Tanya Sitter (Alberta) et Rhea Anderson (Saskatchewan) ont été nommées présidentes du CNEP.

Les Dres Linton et Reiss laissent derrière elles un héritage d'éducation publique qui a fait ses preuves et qui a été bien coordonné malgré les défis que représentait cette entreprise ambitieuse. La campagne a permis d'accroître la sensibilisation du public, la demande de services optométriques et l'influence de la profession. Elle a donné aux associations provinciales et aux membres de l'ACO une plateforme nationale pour présenter leurs propres efforts de sensibilisation du public, tout en offrant des économies d'échelle. L'industrie a financé la recherche, les relations publiques, la production et bien d'autres activités encore. Plusieurs des sociétés sont des partenaires fondatrices.

Le programme national d'éducation publique fait l'envie des autres professions. Récemment, les opticiens canadiens ont lancé leur propre campagne, qu'ils coordonnent à l'échelon national.

Nous entrons dans une nouvelle ère stimulante avec une stratégie de communication récemment approuvée et un nouveau cabinet responsable des communications, choisi au terme d'un processus de demande de propositions. À titre de nouvelles présidentes du CNEP, les Dres Sitter et Anderson ont une belle occasion de bâtir sur le patrimoine de la dernière décennie.

Les membres de l'ACO connaîtront bientôt les détails de la stratégie de communication lorsqu'elle sera lancée et améliorée avec le temps. Elle est ambitieuse, mais elle se concrétisera grâce au labeur continuel de tous pour le bien commun.

La profession optométrique est largement redevable aux Dres Linton et Reiss, mais celles-ci nous répéteraient une maxime souvent citée selon laquelle rien n'est impossible à une équipe dont les membres travaillent à l'unisson.

Poursuivons cette réussite encore une décennie!

Become an agent of change

BY ALPHONSE CAREW, OD

We tend to live as is life were static, each day similar to the next even though we know the old adage, "that the only thing constant in life is change" is true. Occasionally, we may plan on making things a little better just to get us by and for certain periods of time this may serve us well. However, anyone who is involved in a competitive business environment, like the eye care field, needs to learn the tools of anticipating change – being proactive and taking advantage of the opportunities that change always presents.

Whether in our personal or our professional life, both internal and external forces are always acting upon us and pushing us off of our comfortable path. Sometimes this is a simple nudge; and sometimes fate rears it's ugly head with a firm shove. If only a small number of variables change around us then the effect is somewhat linear and we can usually cope. But when many variables change at the same time and with great velocity then the change isn't linear anymore but resembles something like a hairball or steel wool. At this stage much effort will be needed to survive, let alone thrive, and unfortunately things can go from bad to worse in a hurried downward spiral.

We often feel uneasy about change because, for the most part, it is out of our control. The uncertainty of what may be coming added to the uncertainty of what to do when presented with the need to change can heighten our anxiety level. At some point the effort and time needed to face change can seem insurmountable and we fall further behind to the point where we give up. It's best to deal with changes early and often, and even better to predict them and act before they develop.

Eye care, like any business or professional activity, has seen dramatic changes over the last few decades and the pace of change will only accelerate in the near future. Technological advances, consolidation and intense competition to increase market share will continue at a much faster pace. Giants in the optical business, both inside and outside Canada, are poised to get closer to their intended consumer – your patient. Large investments are being made to bring about vertical integration from the lens manufacturer through optical outlets directly to the consumer (again our patients). What role we will play in this massive infusion of investment remains to be seen, but perhaps it's best for you to consider your options, and think about a plan before this shows up next door to your practice.

Although many events will have at least some impact on you, you need identify the changes you have control over. Some changes may be significant, and have a true effect on us, but we have little, to no power over them. Events like the plight of child labour in Asia can impact us greatly, and we have strong feeling about them but unfortunately our opinion matters very little yet we spend an amazing amount of energy on them. Recognize these as the energy sinks they are.

At the opposite end there are changes which directly affect your personal or professional life and we can equally affect the change itself, spin it to our advantage, or ignore it at our peril. This is where you should spend most of your time and energy. Identify the changes that will have the greatest impact on you and your practice, and note the ones that you can leverage to your advantage.

Identifying changes that are important to you and those that you can manipulate, is the first step to lessening their impact and exploiting their opportunities. You

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CONNECTING VISIONS

need to be constantly scanning the horizon for what's happening in the eye care industry. Who's buying who? What new technologies are being introduced? Who are the new players in the industry? Who is failing? Journals, TV, magazines, newspaper, the web, conversations with colleagues and suppliers are just a few of the channels open to us to scan for changes that may ultimately affect us.

Once you have identified an area that needs your attention you need to decide how you are going to deal with it. Sometimes the choice can be as simple as avoidance, to get out of the way. Be careful, however, because often this is not the prudent choice and this quick fix may come back to bite you in the end. Avoidance really only works for matters that are irrelevant. Because change is unpredictable, you may have to look at many "what if" scenarios with various outcomes and actions and decide which is the best course of action, while understanding that at some point later you may need to change paths. But don't get caught up in "analysis paralysis" either. Decide on a course of action and change it later if needed. As the saying goes, "a good plan today is better than a perfect plan tomorrow".

The next step is to put your plan into action. This is the part where most people fall down. You need to take those first steps and gain inertia over change before it buries you. Often it seems like a crisis will ruin us but that's just a perception you can change. It's an opportunity to take another path. Go slowly if that is all that is required but don't be afraid to take a big risk if one is needed, for you "can't cross a chasm in two small jumps".

You will often need the help of others, especially for changes in your practice. You will need a clear sense direction and purpose. Communicate urgency to gain acceptance of your ideas from your partners and staff as well as enlist them in the action plan to make your practice stronger, to resist, and react to the challenges that are coming.

Become you own agent of change in your personal and professional life. Scan for changes and analyze the impact and opportunities these may have for you. Accept change as normal and typical, and don't fear its uncertainty, but embrace and act upon the opportunities it may present.

Highlights from the 2010 AAO meeting

BY ETTY BITTON AND LUIGINA SORBARA

Record attendance at the AAO meeting in San Francisco (5,805 attendees)

This was another stellar year for Canadian presence at the American Academy of Optometry (AAO) annual meeting, held this year in San Francisco, California, in November. The meeting attracted a record attendance of over 5,800 attendees (the highest in AAO history). Optometrists, vision scientists, professors, residents and students all congregated for the four day event representing 39 countries, including 129 attendees from Canada. A record number of people (274) obtained their Fellow of the AAO (FAAO) at this year's meeting, eight of whom were Canadian, including Dr. Sally Chetrit (from Quebec and presently practicing in NYC), Dr. Meng Meng Xu (from Quebec and presently in Boston), Dr. Noumia Gill-Cloutier (from Quebec, and presently in Minnesota) and Dr. Nathalie Trottier (Quebec). Dr. Nancy Keir (CCLR-UWSO), Dr. Kristine Dalton (CCLR-UWSO and now at Aston University), Dr. Ashley Firby (Windsor, Ontario) and Dr. Tehseena Ullah (Edmonton, Alberta) also received their fellowships. Congratulations to all the new fellows!

A changing of the guard also occurred at this year's meeting, with a new board consisting of Dr. Karla Zadnik as the new president. Other board members include Dr. Bernard Dolan, president-elect; Dr. Brett Bence,

secretary-treasurer; Dr. Mark Eger, immediate past president; and Dr. Barbara Caffery, from Toronto; Dr. Michael Harris; Dr. Timothy McMahon, from University of Waterloo; and Dr. Joseph Shovlin as members-at-large.

Both Canadian optometry schools had great representation at the meeting including participation at the continuing education lectures, photography contest, committee members, resident day, and the scientific program.

Student Membership

The Student/Faculty Liaison representatives from each school, Dr. Etty Bitton, Montreal and Dr. Luigina Sorbara, Waterloo attended the Student/Faculty Liaison committee meeting. Several topics were on the agenda, including the adoption of a one-time membership fee of $30US for students, as opposed to an annual fee, as in the past. Student members receive the AAO's journal Optometry and Vision Science (OVS) as well as a reduced fee for attendance to the annual meeting. Student members are also eligible for travel grants, if they present during the annual meeting. Other strategies are being explored to further reduce student's expenses, related to the meeting and to boost attendance.

The École d'optométrie, Université de Montréal has just initiated an AAO student chapter as a way to increase student interest in the AAO and relay information more effectively. Claudine Courey, a third year student has accepted the challenge of being the first AAO Quebec student chapter president. Events will be planned during the year to raise awareness of the AAO and raise funds to help alleviate some of the travel costs for next year's meeting in Boston.

> "...I was thrilled to share my experience with my student colleagues when I got back home and look forward to many years of great continuing education and social networking thanks to the academy meeting..."
>
> *– Vanessa Bachir*

École d'optométrie, Université de Montréal

The faculty, clinical faculty, optometry and post-graduate students at the École d'optométrie also had a very successful participation at this year's conference, with several continuing education and scientific presentations (Table 1).

Dr. Langis Michaud participated in a grand rounds lecture on cornea and contact lenses during the continuing education portion of the meeting entitled, 'Ellerbrock Presents Grand Rounds II' while Dr. Etty Bitton teamed up with Dr. Lyndon Jones (Waterloo) for a lecture entitled, 'Technologies for the Assessment of the Ocular Tear Film'. Dr. Michaud also received second place for his anterior segment photograph which captured cells in the anterior chamber.

Attendance also hit a new record at this year's meeting, with 104 attendees from Quebec! Many were first time attendees and found the networking very invigorating as well as benefitting from a selection of lectures that they were able to choose depending on their individual interests. The students that attended also appreciated the variety of lectures and it exposed them to new speakers with a more clinical approach to each topic.

Vanessa Bachir (fourth year optometry student) summarized her experience, "I am thrilled to have decided to attend my first AAO meeting. I had heard many great comments about the meeting, but I have to say that my already high expectations were greatly surpassed. As a fourth year student, I really appreciated the chance to hear such great speakers share their varied clinical experiences from all facets of optometry. Each lecture that I attended allowed me to gain knowledge and introduced me to many clinical pearls that will be very useful in my future career. Not only was the academy a great learning experience, but also a way to reconnect with friends and meet interesting people. I was thrilled to share my experience with my student colleagues when I got back home and look forward to many years of great continuing education and social networking thanks to the academy meeting."

Claudine Courey (third year optometry student) received the

TABLE 1

École d'optométrie, Université de Montréal participation at the 2010 Annual AAO Meeting

Faculty	Author	Title of presentation
	Bitton E, Jones L	Technologies for the assessment of the ocular tear film (conference 1 hr)
	Bitton E, Sandroussy E, Theroux-Soucy M	Effect of tear lubricants on tear ferning patterns in dry eye patients (poster)
	Michaud Y, Néron-Gaudreault F, Frenette B	Resistance to heat of new generation anti-reflective coatings (poster)
	Lovasik JV, Kergoat H, Kergoat M-J, Racine N, Parent M	Changes in the retinal and optic nerve head perfusion with aging (poster)
	Kergoat H, Lovasik JV, Kergoat MJ, Racine N, Parent M	Retinal vessel pulsations in normals and runners (paper)
	Michaud L et al.	Ellerbrock presents Grand Rounds II (conference 2 hrs)
	Renaud J, Overbury O, Durand MJ	Depressive symptoms are linked to social participation in older adults with visual impairment (paper)
	Allard R, Renaud J, Faubert J	No cross-frequency facilitation for old observers (poster)
Students		
Master's Resident	Abbas Farishta R, Robert C, Vanni MP, Minville K, Bouchard JF, Casanova C	Functional organization of the primary visual cortex of mice lacking cannabinoid CB1 receptors (poster)
	Gaboury K, Simard M-E, Corbeil M-E, de Guise D	Comparison of three visual acuity charts in subjects with unilateral amblyopia (poster)
	Duponsel N, Wittich W, Dubuc S, Overbury O	Correlation of vision loss and mild cogniitive impairment as found on the Montreal Cognitive Assessment (MoCA) scale (paper)
PhD/ post-doc	Hanssens JM, Turpin-Lavallée P, Soowamber R, Faubert J	Older people are more vulnerable to visually induced postural instability during complex multitask cognitive conditions (poster)
	Wittich, W, Watanabe D, Faubert J, Kapusta M, Overbury O	Spatial Interval discrimination in paitients with retinitis pigmentosa (paper)

Essilor Student Travel Fellowship to attend the meeting for the first time. Joel Bainbridge-Bérubé (fourth year optometry student) and Dr. Jean-Marie Hanssens (PhD student) received the Carl Zeiss Vision Student Travel Fellowship. Dr. Katherine Gaboury (resident) and Nathalie Duponsel (master's student) received a travel fellowship from an educational grant from The Vision Care Institute, LLC. Dr. Judith Renaud (PhD student) was the recipient of the Brazelton Low Vision Student Travel Fellowship.

School of Optometry, University of Waterloo

The School of Optometry at the University of Waterloo (UW) also had a very successful participation at this year's conference, with honours going to Dr. Thomas Freddo, professor and Director at the school who was awarded the Carel C. Koch Memorial Award from the AAO for his pioneer work in fostering relationships between optometry and ophthalmology. Numerous presentations by faculty, undergrad and graduate

Dr. Thomas Freddo receives the Carel Koch Award from AAO President Mark Eger

Dr. Kathrine Gaboury (resident) and Dr. Marie-Eve Simard present a poster at the scientific section of the AAO.

Dr. Sally Chetrit completes the requirements for Fellowship of the AAO (as shown by the yellow ribbon)

students from UW contributed to the success of this year's AAO meeting (Table 2).

Dr. Thomas Freddo also delivered to full attendance rooms two continuing education talks. The first was titled, 'The Pathobiology of Aqueous Production, Drainage and Mechanisms of Drug Action in Primary Open Angle Glaucoma' and the second, 'Understanding the Clinical Significance of Common Retinal Lesions'. Dr. Luigina Sorbara lectured on 'Case Studies on Fitting Keratoconus Patients with the use of Videokeratoscope'. Several students were recipients of a variety of awards, including Vidhyapriya Sreenivasan and Kristine Dalton who are both B+L Ezell Fellows. Jenna Hildebrand, Doerte Luensmann, Jyotsna Maram, Subam Basuthkar Sundar Rao and Marc Schulze all received student travel fellowships to attend the meeting from the Vision Care Institute, LLC, Educational Grants. Aaron Chan was the recipient of the Essilor Education Grant. Graham Berg and Alex Hui were both recipients of the Carl Zeiss Vision Award and Lindsey Wegner was awarded the Allergan Educational Grant.

Dr. Alex Hui and David McCanna were awarded the Vistakon® Research Grant ($10,000) for their research entitled, 'Engineering of Novel Contact Lens Materials for Ciprofloxacin Drug Delivery'. Drs. William Bobier, Peter Shaw, Debbie Jones and Tim McMahon were awarded the American Optometric Foundation/Essilor Optical Technology Grant ($20,000) for a project entitled, 'Implementation of Novel Computerized Software to Enhance Lens Design During Ophthalmic Dispensing'.

Many friends, colleagues, educators, researchers and industry representatives gathered for a special celebration to highlight the exceptional work and contributions of Dr. Desmond Fonn, professor and Founding Director

of the Center for Contact Lens Research (CCLR) and to celebrate his upcoming retirement. Accolades from esteemed colleagues such as Dr. Brien Holden and many others were on hand to share some of his fundamental contributions in CL research. A graduate student endowment scholarship has been established in his honor and pledges can be made on-line (ecommunity.uwaterloo.ca/SSLPage.aspx?pid=199), however it is necessary to designate the pledge under "Other – Desmond Fonn Graduate Award".

Canadians at the heart of the AAO

Many Canadians are actively involved in the many committees of the AAO. To name a few, Dr. Barbara Caffery (Toronto) and Dr. Tim McMahon (UW) are both re-elected as Board members. Dr. Lyndon Jones (UW) is chair of the Research Committee and is a member of the Awards committee as well as on the editorial board of OVS. Dr. Kathryn Dumbleton (UW) is the president-elect of the American Optometric Foundation (AOF). Dr. John Flanagan (UW) chairs the Admittance committee for scientists and researchers and is the president of the Optometric Glaucoma Society. Dr. Etty Bitton (UM) and Dr. Luigina Sorbara (UW) both serve on the Student/Faculty Liaison committee. Dr. Catherine Chiarelli (Toronto) is the chair of the International Admittance Committee.

Next year's meeting is surely to break even more records for Canadians. So mark your calendar for October 12-15, 2011 in Boston at the John B. Hynes Veterans Memorial Convention Center. See you there!

TABLE 2

School of Optometry, University of Waterloo participation at the 2010 AAO Meeting

	Paper presentations	
	Authors	Title of presentation
Faculty	Wheat, Joe L.; Flanagan, John; Twa, Michael	Comparison of global measurements from the Heidelberg edge perimetry with standard automated perimetry in glaucoma patients
Faculty/CLAY	Kinoshita, Beth T.; Mitchell, G. Lynn; Lam, Dawn, Y.; Chalmers, Robin; Wagner, Heidi; Jansen, Meredith; Richdale, Kathryn; Sorbara, Luigina	Prescribing patterns of soft contact lens wear in North America
Faculty/CCLR	Sorbara, Luigina; Richter, Doris; McNally, John; Peterson, Rachael; Schneider, Simone; Woods, Craig; Jones, Lyndon; Fonn, Desmond	Comparison between live and digital slit lamp images of corneal staining
Faculty/CCLR	Keir, Nancy J.; Schneider, Simone; Woods, Craig; Fonn, Desmond	The assessment of *in vivo* wettability between silicone hydrogel materials and over time
Faculty/CCLR	Dumbleton, Kathryn A., Richter Doris; Woods, Craig; Jones, Lyndon; Fonn, Desmond	Relationship between compliance with lens replacement and contact lens-related problems in silicone hydrogel wearers
Faculty/CCLR	Woods, Craig A.; Dumbleton Kathy A.; Richter Doris; Jones Lyndon; Fonn Desmond	Compliance with lens care and contact lens case care and replacement
Faculty/CCLR	Fonn, Desmond; Moezzi, Amir; Richter, Doris; Woods, Craig, A.	Can overnight lens induced corneal swelling be minimised to equal no lens wear regardless of oxygen transmissibility?
PhD student	Basuthkar Sundar Rao, Subam; Simpson, Trefford	Does vision impact ratings of ocular comfort?
Faculty/CCLR	Keir, Nancy J.; Simpson, Trefford; Fonn, Desmond	Visual and optical performance of silicone hydrogel contact lenses for moderate myopia

Table 2 continued

Faculty/CLAY	Chalmers, Robin L.; Wagner, Heidi; Mitchell, G. Lynn; Kinoshita, Beth; Jansen, Meredith; Lam, Dawn, Y.; Richdale, Kathyrn; Sorbara, Luigina	The role of overnight wear in corneal inflammatory events from the Contact Lens Assessment in Youth (CLAY) study
	Poster presentations	
Faculty/CCLR	Jones, Lyndon; Jones, Rebecca	*In vitro* bulk dehydration rates of hydrogel and silicone hydrogel daily disposable and frequent replacement contact lens materials
Faculty	Dain, Stephen J.; Yuen, Gloria; Chou, B. Ralph; Ngo, Thao; Cheng, Brian	Prescription compliance in ophthalmic lenses
Faculty	Hrynchak, Patricia K.; Middlestaedt, Andrea; Machan, Carolyn M.; Irving, Elizabeth L.	Modifications to the subjective refraction when prescribing spectacles
Faculty/CCLR	Young, Graeme; Chalmers, Robin; Napier, Leslie; Kern, Jami; Dumbleton, Kathryn	Not all dryness symptoms in soft contact lens wearers relate to signs of dryness
PhD	Maram, Jyotsna; Sorbara, Luigina; Simpson, Trefford; Bizheva, Kostadinka	Anterior segment optical coherence tomography: non-contact ultra high resolution imaging of contact lens edge profiles
PhD	Sreenivasan, Vidhyapriya; Irving, Elizabeth; Bobier, William	Binocular versus monocular accommodation in myopic and emmetropic children with different near phorias
PhD	Sreenivasan, Vidhyapriya; Irving, Elizabeth; Bobier, William	Phoria adaptation to near work in myopic and emmetropic children with different phorias
	Robinson, Barbara E.	Canadian uncorrected refractive error study
Faculty/CCLR	Schulze, Marc M.; Simpson Trefford L.; Feng, Yunwei; Lucchetti, Ernest; Chou, B. Ralph; Hutchings, Natalie	Statistical approach for differentiating happy and unhappy progressive addition lens wearers
UG/Faculty	Hildebrand, Jenna M.; Cooper, Susan	International optometric bridging program: the correlation between prior learning assessment and Canadian standard assessment in optometry outcomes
Faculty	Steenbakkers, Michelle	Sturge-Weber syndrome and associated glaucoma: a case report
Faculty	Steenbakkers, Michelle; Prokopich, C. Lisa	W.A.G.R. syndrome: a case report
Faculty/CLAY	Wagner, Heidi; Mitchell, G. Lynn; Chalmers, Robin; Jansen, Meredith; Kinoshita, Beth; Lam, Dawn, Y.; Richdale, Kathryn; Sorbara, Luigina	Characteristics of and risk factors for multiple ocular events that interrupt soft contact lens (SCL) wear in youth
Faculty/CCLR	Luensmann, Doerte; Keir, Nancy; Woods, Craig; Fonn, Desmond	Performance of visual acuity and contrast sensitivity tests with multifocal contact lenses
Faculty	Leat, Susan J.; Briand, Karine; Hamaed, Nabiha	The impact of near additions on reading performance in pre-presbyopes with low vision
Faculty	Leat, Susan J.; Maharaj, Priya; Hrynchak, Patricia K.; Mittelstaedt, Andrea; Machan, Carolyn M; Irving, Elizabeth L.	The prevalence of binocular vision anomalies in the elderly
MSc	Almoqbel, Fahad M.; Irving, Elizabeth L. ; Leat, Susan J.	Development of visual acuity and contrast sensitivity in children: comparison of sweep VEP and psychophysics
	Press conference presentation	
Faculty	Leat, Susan J.; Maharaj, Priya; Hrynchak, Patricia K.; Mittelstaedt, Andrea; Machan, Carolyn M.; Irving, Elizabeth L.	The prevalence of binocular vision anomalies in the elderly

Eye Health Month 2010 -WRAP-UP REPORT

Seeing Smart – Make Your Child's First Test an Eye Exam was the theme of the October 2010, Eye Health Month (EHM) campaign. The Canadian Association of Optometrists (CAO) enlisted Fleishman-Hillard to conduct a PR campaign with the objective of making as many parents as possible, aware of how critical early eye exams are for their children. Recent research found that Canadian parents rank their children's nutrition and socialization as higher priorities than their vision and eye health. EHM focused on eye health issues including amblyopia and farsightedness, as well as the potential impact that undetected vision strain can have on academic performance, specifically learning and reading.

Matte stories, audio and video news releases, including interviews with Dr. Joseph Chan and a young patient diagnosed with retinoblastoma, were distributed nationally to traditional media outlets, as well as to popular websites, resulting in 137 different pieces of coverage. Dr. Carol Doman was interviewed for an article in the November editon of *Canadian Living*. While the results from the campaign did not provide the incredible media pick up that the *Canadians & Screen Time* theme did last year, it did increase almost three-fold, from 15 million media impressions in 2008 to over 40 million.

During October, a partnership with Urbanmoms.ca was established. "It hasn't occurred to me to take the girls yet... now I will. Thanks" and, "I should make appointments for myself and for my first-grader. It's so silly how this kind of care can get off track. Thanks for the reminder!" were examples of feedback from mothers, to the Jen Maier's story, *Mom's the Word,* about her daughter's amblyopia, on the Urbanmoms site. This site has over 100,000 readers monthly, and engaged a key audience.

CAO members and provincial associations played a crucial role in generating tremendous awareness and response across the country.

Eye Health Month advertisement featured on urbanmoms.ca homepage for the entire month of October

EYE DARE YOU
2010 WINNERS

Congratulations to this year's winner, **Dr. Sue Burbine**, from New Brunswick. She won an iPad.

NBAO won for the second year in a row, for promoting more activity in conjunction with Eye Health Month than any other province. Dr. Rachelle Savoie spearheaded a project whereby 34 members donated 10% of office revenue on October 14th to help two children with congential blindness.

THANK YOU TO THE MEDIA SPOKESPEOPLE

The following CAO members volunteered as spokespeople during EHM.

Alberta
Dr. Diana Monea
Dr. Riaz Ahmed
Dr. Neepun Sharma
Dr. Kim Bugera
Dr. Tanya Sitter

British Columbia
Dr. Antoinette Dumalo
Dr. Michael Kellam
Dr. Manbir Randhawa

Manitoba
Dr. Scott Mundle
Dr. Don Williamson

New Brunswick
Dr. Lillian Linton

Nova Scotia
Dr. Carol Doman
Dr. Allison Scott

Ontario
Dr. Mira Acs
Dr. Joseph Chan
Dr. Thomas Noël
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*Euromonitor, Global Dollar Sales, Eye Health Supplements, 2009.

Relative usefulness of the Bayer ratio as an indicator of the hardness of different coatings

BY BENOÎT FRENETTE, MSc, OD & VALENTINA LUCEA, MSc, PhD CANDIDATE

ABSTRACT

Purpose: To show that with better performance of scratch-resistant coatings on plastic lenses, the use of the Bayer ratio does not appropriately discriminate between recently introduced products.

Methods: Nine groups of 5 to 10 CR-39 lenses were ordered with various scratch-resistant treatments. All the lenses underwent the Bayer test on the same apparatus. Haze was measured using a Cary5000 spectrophotometer equipped with an integrating sphere.

Results: The lens groups with the latest generation of anti-scratch treatments show a significant decrease in diffusion. The variability of the Bayer ratio increases depending on whether the quotient is obtained by calculating the ratio using the minimal haze values or the maximum haze values. When the Bayer ratio is greater than 10, it no longer discriminates between the products satisfactorily.

Conclusions: This test, or others, will inevitably have to be refined to increase precision and give a better perspective of the quality of the next generation of scratch-resistant coatings.

Keywords: Bayer ratio; coatings; anti-scratch; antireflective; ophthalmic lenses

Introduction

In the early 70's, it was fairly common to think that the effectiveness of scratch-resistant treatments was a function of the material's hardness, defined by the resistance to local penetration of the material. When CR-39 entered the ophthalmic lens market, it suffered from comparison with highly scratch-resistant ophthalmic crown glass. A test developed by Essilor's international research laboratory evaluated scratch resistance by using a diamond tipped stylus which scratched the lens.[1,2] The modified lead pencil test, which consists of pushing pencils of different hardness into the sample and then identifying the trace generated, was also used by Essilor. These two tests ensured a reproducibility which could take into account various materials and different variables such as the geometry of the lens, and the pressure exerted on the material by the diamond tip of the stylus.

Other procedures were developed to compare and quantify scratch resistance. The Tumble Abrasion Test (TAT), introduced in 1974, placed the lens being tested in a barrel-shaped container to which an abrasive powder was added.[3] During rotation of the container, abrasions were produced on the surface of the lens. The steel wool test was frequently used to show customers the effectiveness of scratch-resistant treatments.[3] This test was unreliable, subjective and difficult to control. Wilkinson (1984) reported the use of an instrument by a group of scientists at Sheffield City Polytechnic, to test various surface coatings on CR-39 lenses.[4] At the same time, Honson et al. (1986) developed an apparatus based on the friction method.[5] Later, Obstfeld et al. (1991) revised the principle of Honson by using a modified record player.[6] Currently, a standard test used to measure the effectiveness of scratch-resistant treatments is the Bayer ratio.[7] The apparatus is designed so that a standard lens, not having any surface treatment and made of CR-39, undergoes the test at the same time as the lens being tested. Set side-by-side, the lenses with the same base curve are mounted in a pan with their convex surface in contact with an abrasive material. Abrasions are caused by the oscillation of the abrasive media. The quantification of the abrasion resistance is based on the measurement of the loss of transparency of the lenses, i.e. haze, using a spectrophotometer.

The Bayer ratio is the quotient of the gain in measured haze of the uncoated hard resin control lens to the gain in haze of the test lens after a number of cycles in an oscillating pan covered in abrasive material. The higher the Bayer ratio, the better is the abrasion resistance of the lens being tested.

Over the last several decades, advances in chemistry have allowed the use of hardening coatings, polysiloxanes or acrylic resins on organic lenses, all still widely used today. The combination of quartz and polymers in early scratch-resistant lenses generated cracks and was quickly replaced. The application of hard coatings is now done primarily by dip or spin processes.[8] The basic treatments, simpler and quicker, are done by spin; the higher performance treatments are done by dipping. This last technique takes longer and requires control of many environmental variables in order to obtain maximum durability.

The advent of anti-reflection treatments gives rise to new challenges in scratch resistance. In the late 1980's, hard coatings and nanocomposite coatings made possible the mechanical transition between the anti-reflection coat (hard and brittle) and the polymer (flexible and deformable). The silica nanoparticules are put in suspension in a liquid of structure similar to polysiloxane, which has the properties of a hard coating and is deposited on the lenses by either dip or spin. This remarkable coating has, on the one hand, a great resistance to depression, which will prevent the anti-reflection coat deposited on top to become deformed beyond the rupture limit, and on the other hand, a flexibility high enough to follow the polymer in its deformation without rupture. Also, having an extremely low coefficient of friction provides an increase in the abrasion resistance.[8] Today, antireflective (AR) treatment by vacuum deposit, is recognized as being the most reproducible technique to ensure high quality performance coatings.

The purpose of this study was to show the limits of the Bayer ratio method to evaluate lenses with the latest generation of highly effective scratch-resistant treatments using spectrophotometry equipment.

Methods

Lenses

Nine groups of five CR-39 lenses, apart from one group containing only three lenses, were ordered with various scratch-resistant treatments. Three groups (Hoya HV, Zeiss C, Essilor CF) represent top-of-the-range products from different suppliers, and the four other groups are products that have been on the market for several years, two of which do not have anti-reflection treatment.
Two other groups, composed of untreated CR-39 and untreated crown glass were also ordered (Table 1).

TABLE 1
Details of lenses used for comparison of Bayer Test

Groups	Manufacturers	Materials	Coatings	Antireflective
Ess CR39	Essilor	CR-39	none	none
EssTT	Essilor	CR-39	truetint	none
Ess TD2	Essilor	CR-39	TD2	none
Sola Tef	Sola	CR-39	yes	Teflon
Ess CA	Essilor	CR-39	yes	Crizal Alize
Hoya HV	Hoya	CR-39	yes	HiVision
Zeiss C	Zeiss	CR-39	yes	Carat
Ess CF	Essilor	CR-39	yes	Crizal Forte
Ess Glass	Essilor	Glass	none	none

Measurements

All the lenses underwent the Bayer test on the same apparatus, with a protocol derived from the document Bayer (AR Council; Method for the Modified Bayer Test, July 1999). Basically, the test lenses and the reference lens are placed in a Bayer pan matching the configuration of the protocol of the AR Council. The lenses perform 600 cycles of abrasion in presence of 500g of alumdum abrasive media.

The measurement of haze was done using the Cary5000 spectrophotometer (Varian, Mulgrove, Australia) equipped with an integrating sphere (internal diffuse reflectance accessory). Calculation is integrated into the Varian software designed for the apparatus. All measurements were done under the same conditions, by the same technician. More specifically, haze is the percentage of transmitted light passing through a sample that deviates from the incident beam by forward scattering. According to ASTM Method D1003, haze is calculated as follows:

$$\text{Haze, \%} = T_d/T_t * 100$$

where:

T_d = diffuse luminous transmittance = $[T_4 - T_3 (T_2/T_1)] / T_1$

T_t = total transmittance = T_2/T_1

The ASTM standard test method for measuring the haze and luminous transmittance of transparent plastics (D1003-61) requires 4 scans to be collected with varying configurations of the sample, light trap and the white reference plate. All scans are performed using an integrating sphere (Diffuse Reflectance Accessory).

T_1 = incident light: Scan with the white reference plate in position (equivalent to a baseline)

T_2 = total light transmitted by sample: Scan with the sample and the white reference plate in position.

T_3 = light scattered by the integrating sphere: Scan with the sample and the white reference plate removed. The light should pass straight through the sphere.

T_4 = light scattered by the integrating sphere and sample: Scan with the sample in position and the white reference plate removed. The light will pass through the sample and out of the sphere into the sample compartment.

Statistical Analysis

We used univariate ANOVA combined with the Tukey-Kramer test of comparison to determine which average haze values were significally different from the others. Then, we calculated the Bayer ratio taking into account the mean results of each group.

TABLE 2

Haze (in percentage) and Bayer ratio by lens group

		Haze (percentge)				Bayer ratio			
group	n	mean	std dev	min	max	mean	std dev	min	max
Ess CR39	5	15.96	0.58	15.44	16.87	1.01	0.05	0.92	1.09
Ess TT	5	6.27	0.23	6.08	6.79	2.55	0.16	2.28	2.78
Ess TD2	5	3.76	0.27	3.45	4.17	4.24	0.35	3.70	4.89
Sola Tef	5	4.70	0.45	3.91	4.99	3.40	0.39	3.09	4.31
Ess Ca	5	1.65	0.22	1.40	1.93	9.66	1.19	7.99	12.03
Hoya HV	3	2.46	0.66	1.70	2.92	6.50	2.56	5.30	9.95
Zeiss C	5	3.14	0.35	2.68	3.47	5.08	0.58	4.45	6.29
Ess CF	5	1.69	0.44	1.04	2.65	10.33	4.14	5.82	17.18
Ess Glass	5	1.75	0.81	0.93	3.57	13.84	3.90	4.32	18.24

Results

Table 2 shows the haze for each group of lenses. The mean and standard deviation is calculated for each group of five lenses. The minimal and maximal values in each group are also showed. We found that the quantity of haze for the untreated CR-39 is higher than that observed for treated lenses.

The analysis of variance showed a significant difference in the average haze between groups (ANOVA F=355,7; df=8; p<0,001). Moreover, the statistical comparison of the averages according to Tukey-Kramer, makes it possible to distinguish five levels of difference (Table 3). Obviously, the untreated CR-39 stands out, followed by the treatment by spin (Essilor true tint). The results of groups Ess TD2 and Sola Teflon reflect older treatments, whereas the last two levels show groups representing the latest generation of treated lenses. There is overlapping of levels for groups Essilor TD2 and Hoya HiVision.

By calculating the quotient of the average haze from Table 2, we obtain the results illustrated in Figure 1, which are in fact the Bayer ratio calculated from minimum and maximum measurements for each group.

Discussion

This study shows that all treatments produce an increase in scratch resistance, however light diffusion, as expressed by the percentage haze, shows much variation. In the most extreme cases, the absence of treatment on CR-39 lenses (untreated) leads to a high level of light diffusion, which interferes with the transparency, whereas crown glass (Ess glass) exhibits very low diffusion, which reflects its exceptional hardness.

The groups with the latest generation anti-scratch treatments show a significant decrease in haze; within this level of contemporary lenses (Hoya HV, Essilor Crizal Forte and Crizal Alizé), the statistical differences between the thresholds in haze are not significant. This is explained partly by very low haze measurements associated with respectively notable intra group variations. Moreover, from these results, the calculation of the Bayer ratio between the group of untreated CR-39 lenses and the same groups of treated lenses show that the variability of this ratio increases quite a bit, depending on whether the quotient is obtained by calculating the ratio using the minimal or the maximal haze values, as shown in Table 2. Figure 1 illustrates quite well that for a Bayer ratio of 10 and higher, the confidence intervals for the values of each group intersect so much that the results no longer allow one to satisfactorily discriminate the products.

TABLE 3

Comparisons of average haze with the Tukey-Kramer method

Groups	Levels					Average	
Ess CR39	A					15.96	
EssTT		B				6.27	
Sola Tef			C			4.70	
Ess TD2			C	D		3.76	
Zeiss C				D		3.14	
Hoya HV				D	E	2.46	
Ess Glass					E	1.77	
Ess CF					E	1.71	
Ess CA					E	1.65	

Since the haze in the products that have been scratched following the Bayer test protocol is decreasing, as the lens manufacturers develop new treatment technologies, the comparison with an untreated lens subjected to the same procedure becomes obsolete. The quotient of the haze values obtained is projected to very high values, but so is the variation. Consequently, the uncertainty zone increases and there is an overlaping of the Bayer ratio of the groups under comparison.

The companies that manufacture the latest generation of multi-layer treatments push the limits of the controls of treatment performance. This is good news because several studies have already shown the positive impact of unscratched lenses on visual performance. [9, 10] However, in terms of quantification of the scratches, the current tests (the Bayer, steel wool and Taber tests, to name a few) will inevitably have to be refined to increase their precision. This will allow a better resolution of the results and will guide eye care providers in choosing a quality treatment for the visual performance and comfort of the wearer. For example, it would be interesting to use a glass lens instead of a CR-39 untreated lens as the reference lens. Haze on glass would be closer to the haze on a latest generation multi-layer coated lens. Another modification of the test would be to increase the abrasion time, since new coatings are more resistant.

But finally, in parallel with new tests and procedures to adequately discriminate the latest generation treatments, we should pay special attention to the sources of errors resulting from the handling of the lens in scratch-resistant treatments and measurement techniques. These two crucial steps in the protocol can involve uncertainties, therefore there is a need to work out solid statistical protocols.

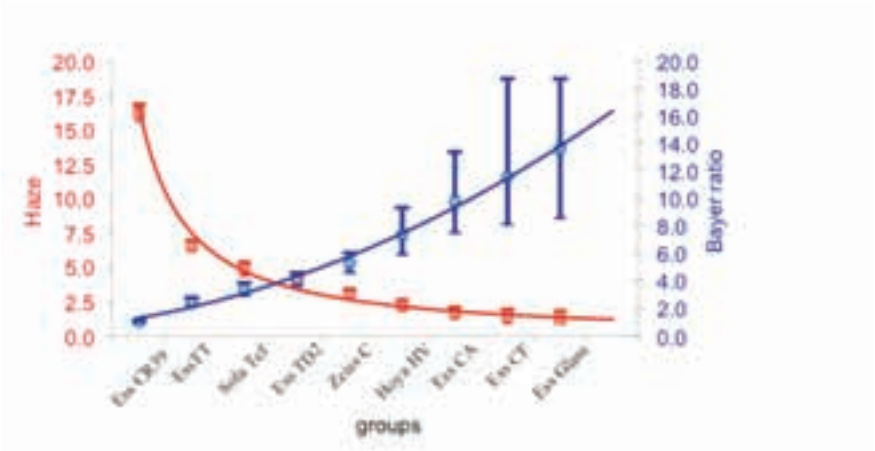

Figure 1: *Blue: means and standard deviation of the Bayer ratio for each group of lenses. Red: percent haze.*

Notes

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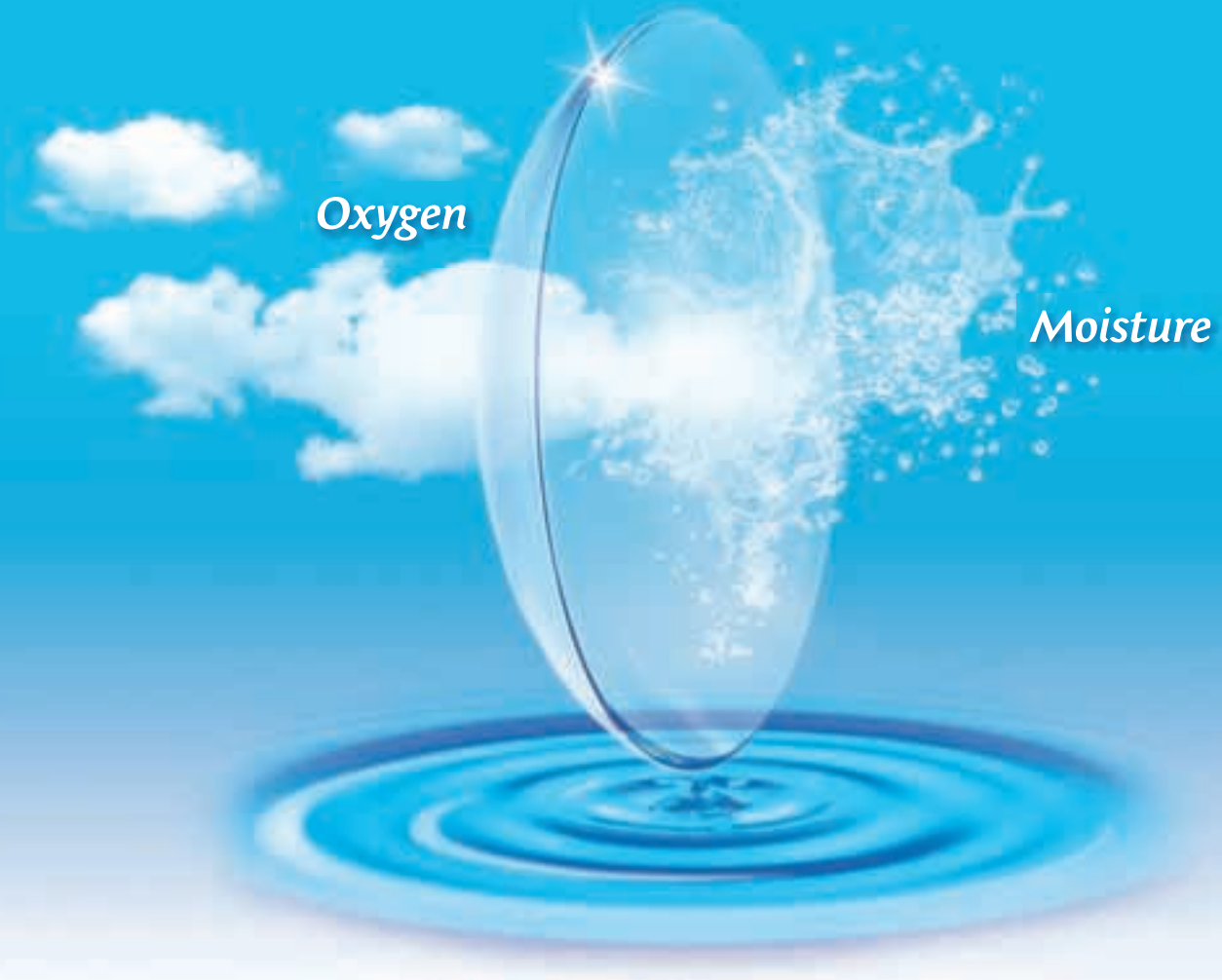

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[§] In vitro measurement compared with ACUVUE® OASYS™, ACUVUE® ADVANCE™, Biofinity®, and PureVision®.

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