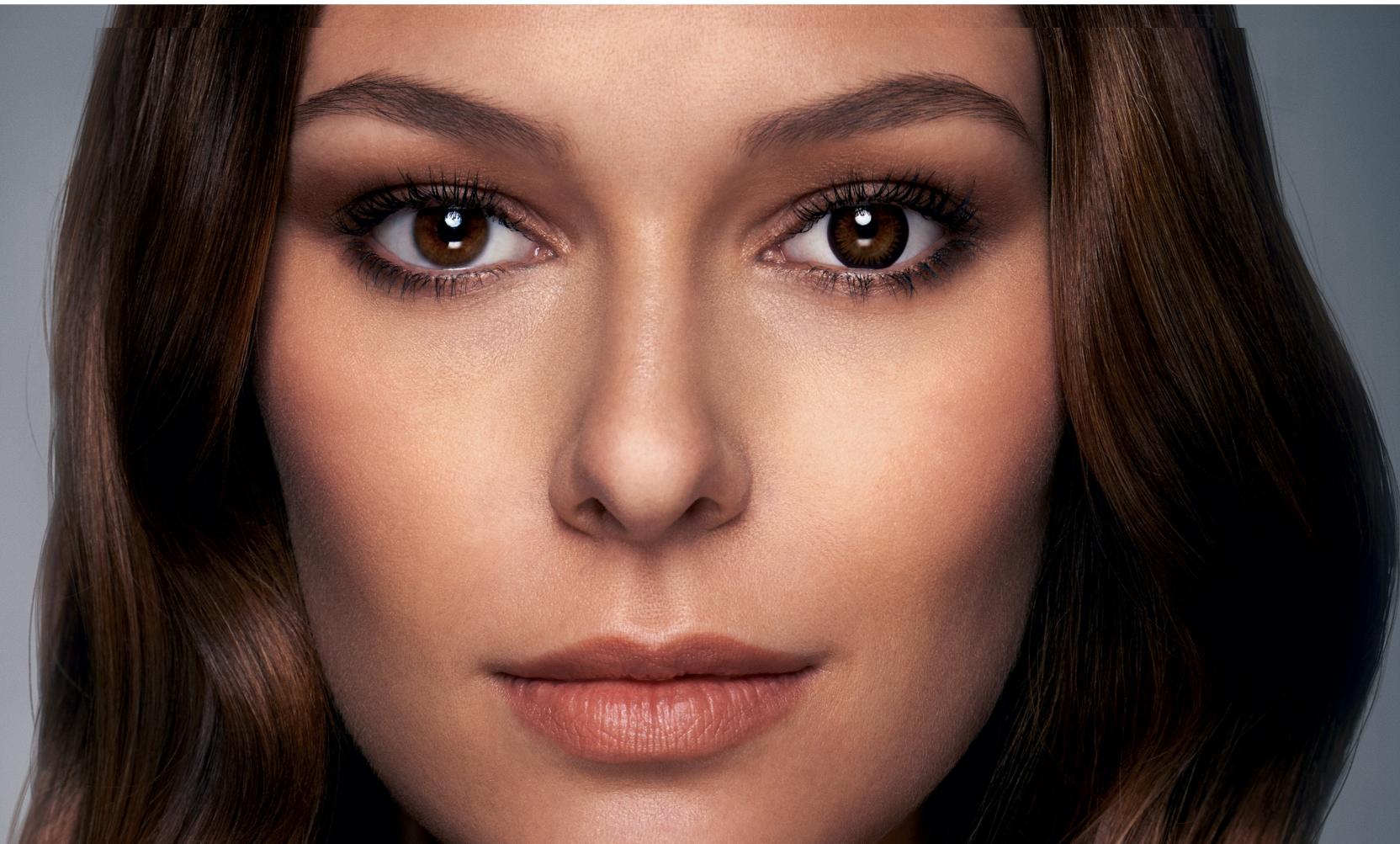


APRIL 2015

REDEFINE EXPECTATIONS

Differentiate your practice with an innovative, eye-enhancing contact lens.



INSIDE

- Learn about the development of this new lens, which was more than 10 years in the making.
- Four practitioners tell you how they're growing their practice with this new lens.

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Natalia is wearing NATURAL SHINE™

Combining eye enhancement and comfortable vision in a daily disposable contact lens

Made possible through years of research, and based on the widely prescribed daily disposable contact lens 1-DAY ACUVUE® MOIST Johnson & Johnson Vision Care Companies have recently introduced a daily disposable contact lens that helps support ocular health and provides excellent comfort and visual acuity, while also enhancing the natural beauty of the eye without changing its colour.

This feat wasn't accomplished overnight. It required years of research - both in the laboratory and out among consumers - and inspiration from Asia. The result: 1-DAY ACUVUE® DEFINE®. In this article, members of the Johnson & Johnson Vision Care Research & Development (R&D) team responsible for this new technology discuss how it was developed, and what makes it different from traditional cosmetic contact lenses.

Insights from Asia

The first generation of 1-DAY ACUVUE® DEFINE® lenses resulted from insights from Johnson & Johnson Vision Care's partners in Korea, who alerted the company to a popular new contact lens - a "circle" lens imprinted with a prominent limbal ring to make the eyes look bigger - which was being produced locally.

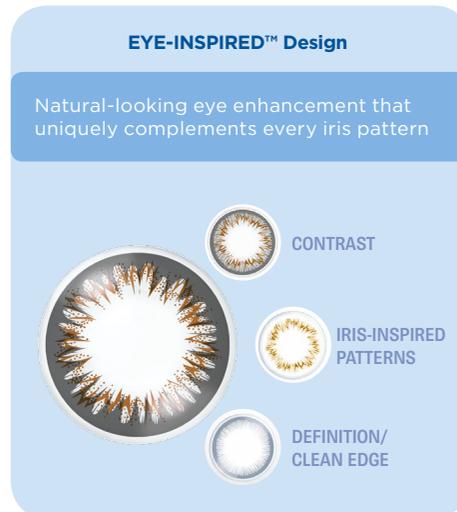
"Women were falling in love with what this lens was doing for their eyes," says Lenora Copper, Director of R&D Global Beauty Platform. "Our Korean partners identified the opportunity and the unmet need, and we designed it in a daily disposable lens to further delight patients." These conversations led to the development of the first 1-DAY ACUVUE® DEFINE® lenses, an entirely new product line, which was launched in Asia in 2004 and now includes three distinct effects for the Asian market.

Based on the success of 1-DAY ACUVUE® DEFINE® in Asia, Johnson & Johnson Vision Care began to explore other opportunities in the beauty category. "Over the last few years, we gathered insights from western consumers to understand what they like about their eyes and what they would like to enhance," Ms Copper says. "We learned the majority of women would like to enhance their eyes naturally without changing the colour." With this understanding, designers, engineers and research optometrists went to work to create a lens to meet those needs.

Design Elements

The new designs started with the basic circle lens concept: a dark limbal ring to enlarge and define the iris border and emphasize the white of the sclera. That was only the beginning however, as the design team worked to replicate the subtle patterns of the natural irises in non-Asian eyes and incorporate them - actually enclose them - into a contact lens with the high quality standards of ACUVUE® Brand Contact Lenses.

"As our consumers became more sophisticated, our patterns needed to become more sophisticated, as well," says Senior Product Designer Angie Bowers (Figure 1). "Our philosophy has been shaped from a combination of design and art principles. We use colour and contrast, definition and a clean edge, and iris-inspired patterns."



For example, Ms. Bowers notes, defining the edge of the limbus with a dark colour creates the illusion of a brighter, whiter sclera. What's more, researchers have found that people who have dark limbal rings are considered more attractive than people with no limbal ring.¹ They also noted that limbal ring thickness decreases with age and could serve as a signal of youth. "1-DAY ACUVUE® DEFINE® is really about that insight and creating a young, healthy, bright look," Ms. Bowers says.

When developing patterns for 1-DAY ACUVUE® DEFINE®, the design team needed to be mindful of the countless pattern variations present in the iris, as well as a somewhat intangible emotional component - how people feel about their eyes. "The natural iris is beautiful," Ms. Bowers says, "and everyone's

iris is unique. Women treasure that about their irises; it's what makes them individuals. So we wanted to highlight the wonderful shapes and geometries of the iris, without masking its natural beauty."

As a result of this intensive research, Johnson & Johnson Vision Care recently introduced two designs: VIVID STYLE and NATURAL SHINE™ (Figure 2). NATURAL SHINE™ to be available in the Middle East Market from March 2016. "It's really not about eye colour,"



Ms. Bowers emphasises. "The different levels of translucency and negative space of the two designs allow the iris to show through to varying degrees, so that each design performs differently on individual eyes. A wearer's preference and desire for impact will dictate which lens someone prefers."

These unique, eye-enhancing patterns are entirely enclosed in the 1-DAY ACUVUE® DEFINE® lens with the Beauty-Wrapped-in-Comfort™ Technology, so the pigment doesn't come in contact with the eyelid or cornea (Figure 3).



Engineered for Comfort

1-DAY ACUVUE® DEFINE® is based on the 1-DAY ACUVUE® MOIST lens with LACREON® Technology, and despite having pigments enclosed in the etafilcon A material, the eye enhancement lens has the same key characteristics as proven, clear lens, including water content, centre thickness, edge design, oxygen performance and UV blocking.²

“Our lens manufacturing process enables us to completely enclose the pigment within the lens material, while keeping the same lens profile,” says Principal Engineer Jaclyn Hernandez. “In-vitro examination using a scanning electron microscope shows the depth of the pigment, and an atomic force microscope (AFM) shows that the surface of 1-DAY ACUVUE® DEFINE® is unchanged in the pigmented area compared with the non-pigmented area.³ This finding is in contrast to cosmetic lenses that have the pigment printed on the surface, which can affect surface roughness and comfort.”

Also contributing to a comfortable lens-wearing experience is the use of Johnson & Johnson Vision Care’s proprietary LACREON® technology, which permanently embeds a moisture-rich wetting agent within the lens, creating a highly lubricious surface.

Clinical Performance

Principal research optometrist Meredith Jansen, OD, MS, FAAO, knows how important proven performance is to eye care practitioners. “When we added the eye enhancement benefits to 1-DAY ACUVUE® MOIST, we wanted to make sure the resulting lens fulfilled all of the core values of ACUVUE® Brand Contact lenses that eye care practitioners know and trust: that it was comfortable, provided good vision performance and provided a healthy lens wear option,” Dr Jansen says. “We found 1-DAY ACUVUE® DEFINE® behaves in a similar way to the clear 1-DAY ACUVUE® MOIST lens, including lens fit, ocular physiology, subjective comfort and handling, and provides good vision performance in a healthy lens wear option.” The lenses are also simple to fit and take little chair time.

Researchers found the pigments enclosed within 1-DAY ACUVUE® DEFINE® do not affect lens fit, corneal staining or visual acuity.⁴ “That’s really important for practitioners to know, because comfort and vision performance associated with some cosmetic contact lenses on the market can be different,” Dr Jansen says. “For example, if the pigment is too close to the optic zone, patients may see the print on the lens, especially in dark settings when the pupil is larger. In addition, the printing on the lens surface may degrade comfort.”

Although 1-DAY ACUVUE® DEFINE® and 1-DAY ACUVUE® MOIST are clinically equivalent, Dr Jansen notes some patients may notice a slight subjective visual awareness when they begin to wear 1-DAY ACUVUE® DEFINE®. “As with fitting any new contact lens, or even new spectacles, there’s can be an adaptation period for the wearer,” she says. “Although many patients don’t notice anything, we feel it’s important that practitioners educate patients that it may take a couple of days to adapt to the lens.”

Oxygen performance is a key contributor to healthy contact lens wear, and again 1-DAY ACUVUE® DEFINE® performs similarly to 1-DAY ACUVUE® MOIST with the same proven etafilcon A material for oxygen permeability, and the same thickness profile as the clear lens. “We wanted to make sure that having the pigment completely enclosed in the lens did not change the oxygen permeability in any way, and we found that it did not,” Dr Jansen says. “The oxygen particles are small enough to diffuse around the pigment particles and enter the eye.”

Another important benefit that carries over from 1-DAY ACUVUE® MOIST is UV protection from the transmission of UV-radiation. “We’ve all learned the importance of wearing sun-screen on our skin, and we know our eyes can benefit from UV protection too” Dr Jansen says.⁵ “All ACUVUE® Brand Contact Lenses offer UV blocking, and 1-DAY ACUVUE® DEFINE® provides Class 2 UV blocking, which blocks 99% of UVB and 85% of UVA light.* So eye care practitioners can highlight the importance of sun protection, and educate patients about a comprehensive UV-blocking strategy.”

A-ha! Is Just the Beginning

Will these contact lenses become a daily beauty essential for your patients? Anecdotally, maybe. Some members of the Johnson & Johnson Vision Care team put 1-DAY ACUVUE® DEFINE® in that category, based on their own experiences. According to Dr Jansen - again, anecdotally - patients are likely to experience three “moments” when they try 1-DAY ACUVUE® DEFINE®. The first is that “A-ha!” moment in the eye care practitioner’s consulting room when the patient sees how awake and beautiful their eyes look. The second is when friends start telling them how great they look, without really knowing why (is it new eye makeup – or a different hairstyle?). The third “moment” is the sadness felt when removing their lenses and losing the effect.

“Having worked in the contact lens industry for 18 years, I’ve helped develop many great products,” Ms Copper says. “1-DAY ACUVUE® DEFINE® is by far my favourite, because it’s so unique. It helps make eyes look more defined, striking and attractive.”

1-DAY ACUVUE® DEFINE® not only enhances the natural beauty of the eyes and adds definition with a new design philosophy and novel lens technologies, it also delivers excellent clinical performance along with the benefits of a daily disposable modality. By addressing the unmet needs of patients and eye care practitioners, the new lens has the potential to open up new opportunities for your practice, with appearance that your patients will appreciate and performance that you can trust.

References

- Peshek D, Semmaknejad N, Hoffman D, Foley P. Preliminary evidence that the limbal ring influences facial attractiveness. *Evol Psychol.* 2011;9:137-46.
- Mayers M, Jansen M & Osborn Lorenz K. Defining eye enhancement: Part 2 – the technology. *Optician* (2014) 248; 6481: 17-24.
- Osborn-Lorenz K, Kakkassery J, Boree D, Pinto D. Atomic force microscopy and scanning electron microscopy analysis of daily disposable limbal ring contact lenses. *Clin Exp Optom.* 2014;97:411-17.
- Mayers M, Routhier J, Boree D. Corneal staining and lens performance of 1-Day Acuvue Define with Lacreon versus 1-Day Acuvue Moist. Poster at American Academy of Optometry Conference 2013.
- Yam JC, Kwok AK. Ultraviolet light and ocular diseases. *Int Ophthalmol.* 2014;34:383-400.

* All ACUVUE® Brand Contact Lenses have Class 1 or Class 2 UV Blocking to help provide protection against transmission of harmful UV radiation to the cornea and into the eye. UV absorbing contact lenses are NOT substitutes for protective UV absorbing eyewear such as UV absorbing goggles or sunglasses because they do not completely cover the eye and surrounding area. UV transmission measured with -1.00D lens.

1-DAY ACUVUE® DEFINE®, 1-DAY ACUVUE® MOIST, LACREON®, NATURAL SHINE™ and Beauty-Wrapped-in-Comfort™ are all trademarks of Johnson & Johnson Vision Care.

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About the author

Optometrist Anna Sulley is Associate Director of Global Strategic Medical Affairs for Europe, Middle East and Africa for Johnson & Johnson Vision Care.