MEGATREND: Screen Time

Digital Eye Strain Abounds, But Awareness Lags Despite Treatment Options

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As recently as a decade ago, a mention of digital eye strain (DES) would have most people scratching their heads. Today it's ubiquitous, a condition of modern life. From toddlers to millennials to seniors, from city dwellers to shepherds in remote mountain villages, no one is immune from DES and its effects, which include dry, irritated eyes, blurred vision and assorted aches and pains. More than half of American adults suffer adverse effects from overexposure to screens, according to The Vision Council, which coined the term digital eye strain.

The sharp rise in DES is directly correlated to the proliferation of smartphones, computers, e-readers and other digital devices and the increasing amounts of time we spend looking at our screens. Just how much time do we spend on screens? Two recent studies measured respondents' screen time, and the statistics are sobering.

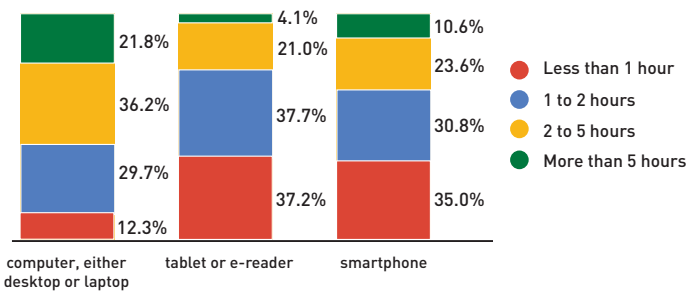
More than 80 percent of adults report using digital devices for over two hours per day, and nearly 67 percent say they use two or more devices simultaneously, according to the July, 2018 VisionWatch survey, a 17-year running study of the U.S. ophthalmic market conducted by The Vision Council. Moreover, close to 55 percent of respondents said they look at some type of screen in the first hour they're awake; and nearly 80 percent said they use digital devices in the hour just before going to sleep.

A new survey conducted by Jobson Research and WebMD reveals how much time we spend using a particular device. Among desktop or laptop computer users, 36.2 percent of respon-

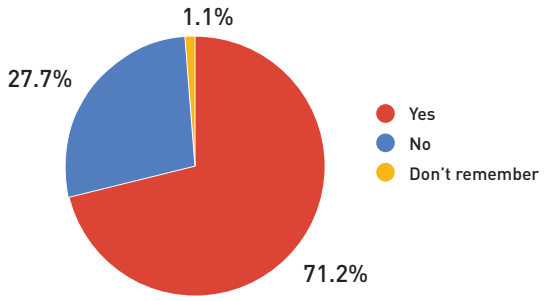
Jobson/WebMD Consumer Survey on Digital Eye Strain

Consumers surveyed by Jobson/WebMD have a higher income level, a higher engagement with their health and more frequent eye health/eyewear purchases than the national average of all Americans. The survey sample also skews older and more female than the U.S. population.

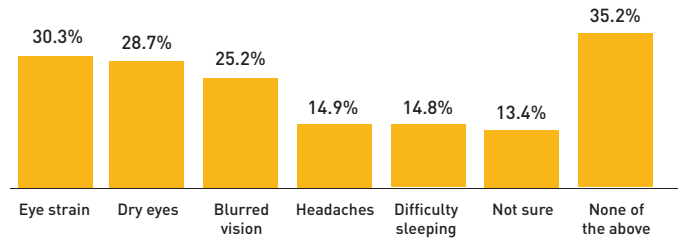
About how many hours a day in total do you use a _____ ?



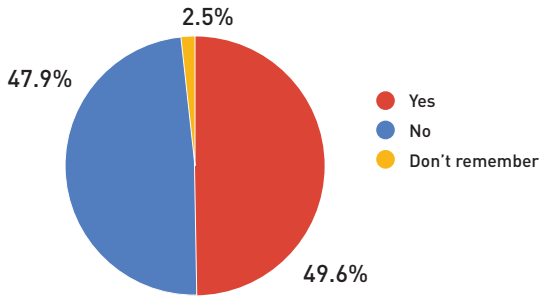
Have you had an eye examination within the past year?



Have you experienced any of the following issues while using or because of using digital devices?



Were the eye/vision issues you indicated earlier when using digital devices discussed during that eye exam?



dents said they use it for two to five hours a day; 21.8 percent said they use it for more than five hours a day.

Among smartphone users, 23.6 percent said they spend between two to five hours a day on the device, and 10.6 percent said they use it for more than five hours a day.

Among tablet and e-reader users, 37.7 percent said they use the device for one to two hours a day, and 21 percent use it for two to five hours a day.

Such prolonged screen use invariably comes at a cost. According to the VisionWatch survey, nearly six out of 10 American adults report digital eye strain symptoms, including:

1. Neck/shoulder pain (35 percent)
2. Eye strain (32.4 percent)
3. Blurred vision (27.9 percent)
4. Headaches (27.7 percent)
5. Dry eyes (27.2 percent)

Although the Jobson/WebMD survey sample skewed older and more female than the actual U.S. population, respondents also reported significant effects from prolonged screen use.

Large numbers of children are also suffering from DES, although it impacts them differently than adults. Parents surveyed by VisionWatch reported that parents indicated their children's favorite activities, besides playing outside, are playing on a digital device (23.1 percent) and watching TV (20.1 percent).

Those parents reporting symptoms related to digital eye strain said their children experi-

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ence the following after two or more hours of screen time:

- Reduced attention span (15.2 percent)
- Irritability (13.5 percent)
- Poor behavior (13.3 percent)
- Eye strain, dry or irritated eyes (9.1 percent)
- Headaches (8.8 percent)
- Neck/shoulder pain (5 percent)

As DES has become better understood, and its symptoms have become more widely recognized, many eyecare professionals now regard it as an ocular health issue. They are advising patients on how to safely use their digital devices and are prescribing a wide range of products and treatments that are now available, including spectacle and contact lenses designed for mid-distance use and long screen sessions.

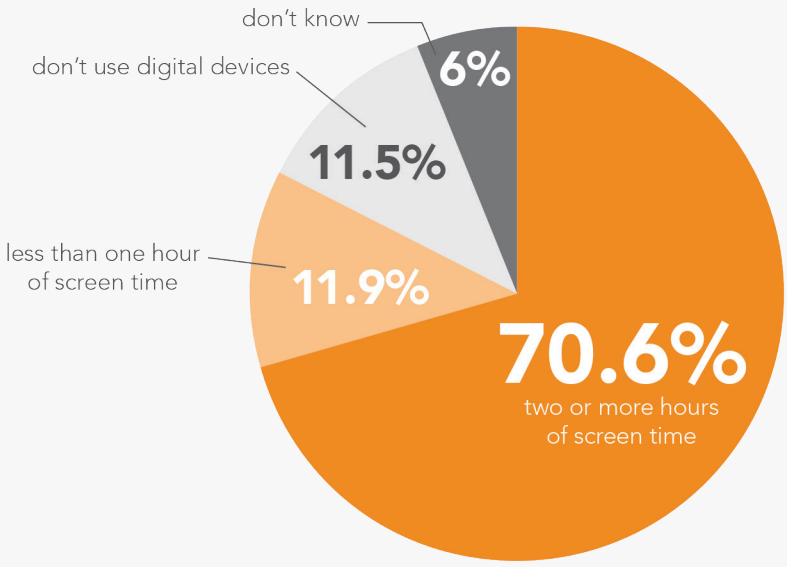
Some digital device manufacturers have also come up with their own solutions for DES. For example, Apple recently introduced a feature for its iOS 12 operating system called Screen Time that lets users of iPhones and iPads know how much time they and their children spend on apps and websites. The Screen Time data allows them to make more informed decisions about how the devices are being used, and set limits if they'd like to, according to Apple.

However, consumer awareness of DES and how to combat it remains low. The VisionWatch survey revealed that nearly 49 percent of American adults say they don't know what digital eye strain is, and nearly 35 percent aren't concerned about the impact of digital device usage on their eyes.

Moreover, one in four American adults told VisionWatch they are "not concerned" about the impact of digital devices on their children's developing eyes, despite the fact that 70 percent of them said their children are exposed to two or more hours of screen time per day.

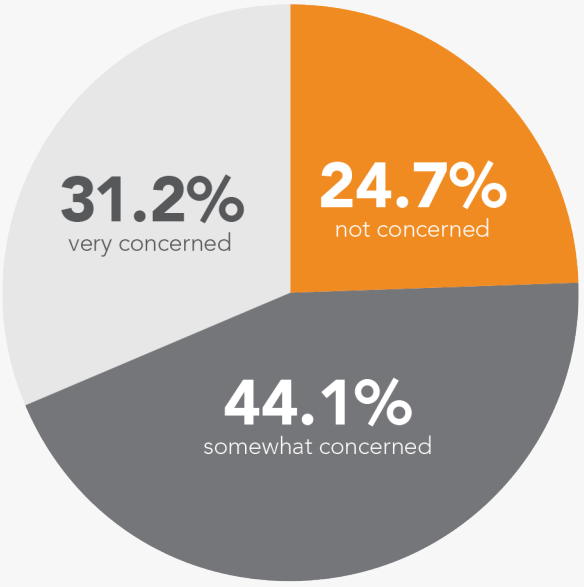
The Vision Council has devoted consider-

Time Spent on Screens by Children in U.S.



Source: The Vision Council's 2018 VisionWatch survey

Attitudes of Parents in U.S. About Impact of Digital Devices on Their Children's Eyes



Source: The Vision Council's 2018 VisionWatch survey

able resources to a campaign to raise consumer awareness of digital eye strain. In 2018, the organization sponsored the official health lounge at South by Southwest (SXSW) titled The T-Eye-me Out Lounge: Give Your Eyes a Break with The Vision Council. The lounge focused on educating conference-goers and attending media about digital eye strain, its reported symptoms and the lens solutions available. The Vision Council also capitalized on Healthy Vision Month executing various media-centered initiatives throughout May. (See related story, page 30)

Professional groups such as the American Optometric Association also draw attention to DES, and offer resources to help their members learn about the condition and educate patients. Despite these efforts, some eyecare professionals don't talk with patients about DES. The Jobson/WebMD survey found that of the 71.2 percent of respondents who had an eye examination within the past year, roughly half said that eye/vision issues related to digital device use were not discussed during the eye exam.

Justin Bazan, OD, who serves as medical adviser to The Vision Council, has emerged as a leading voice for DES awareness and for teaching consumers how to combat its effects. "Based on my experience and research, the light emitted from screens may be linked to issues with sleep, not to mention recurrent headaches, issues seeing content on a screen, and red, itchy and dry eyes," said Dr. Bazan.

"Regardless of whether my patients are experiencing these problems associated with prolonged digital device usage, it's important for individuals to make their eye health—especially as it relates to digital eye strain—a priority," said Dr. Bazan. "Our eyes weren't designed to look at digital devices, let alone as much as we all do in this era. So, it's key to be proactive about mitigating the effects of digital devices on our eyes." ■

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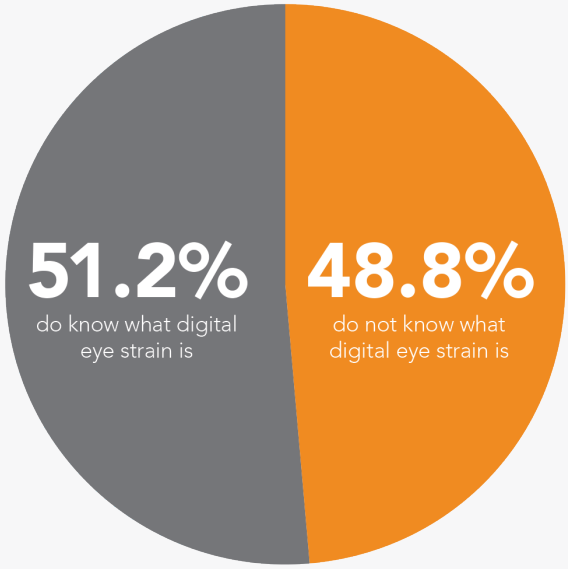
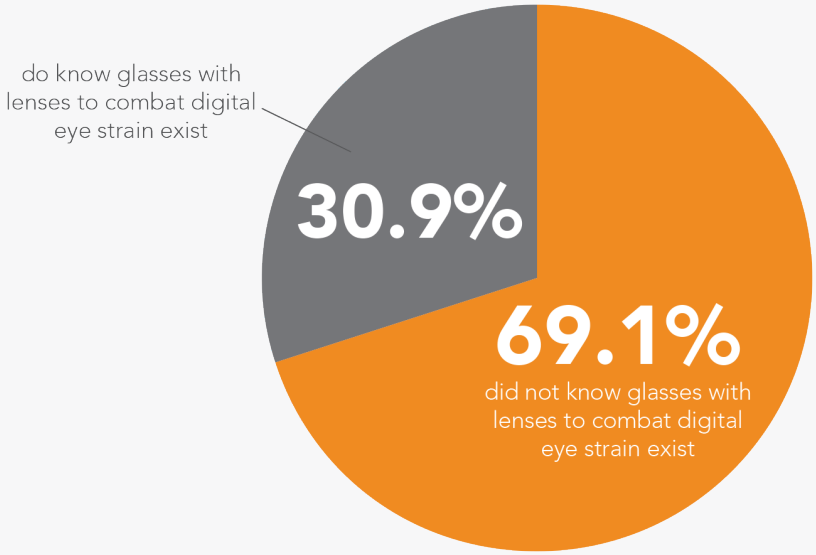
Awareness of Digital Eye Strain by U.S. Consumers



Source: The Vision Council's 2018 VisionWatch survey

Awareness by U.S. Consumers of Eyeglass Lenses That Combat Digital Eye Strain



Source: The Vision Council's 2018 VisionWatch survey

Lens Solutions for Digital Eye Strain

As knowledge and awareness of digital eye strain has increased, so too have the number of solutions for alleviating its symptoms. Solutions range from behavioral—reducing screen time, adjusting work spaces, work habits and screen brightness—to a growing range of products designed to prevent or alleviate DES symptoms.

Yet many consumers are unaware of these solutions. The Vision Council found that nearly seven out of 10 American adults report they didn't know glasses with lenses to combat digital eye strain existed, with 87 percent saying the same regarding contact lenses. Here are some recent examples of lens products designed to mitigate digital eye strain.

Biofinity Energys

Biofinity Energys contact lenses from CooperVision feature two proprietary technologies that work together to help with eye tiredness and dryness associated with digital device use. Digital Zone Optics lens design can help eye tiredness commonly associated with digital device use, according to CooperVision. Sustained focus on up-close digital devices strains the eye's accommodative system and can overwork ciliary muscles. Digital Zone Optics lens design may help ease accommodation and reduce ciliary muscle stress when changing focus from on-screen to off.

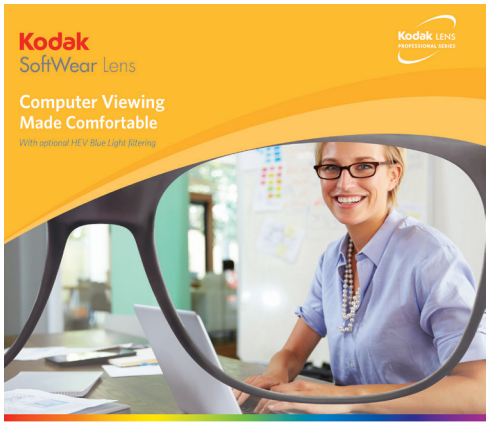
Aquaform Technology is combination of material technologies resulting in what CooperVision calls "a uniquely comfortable and high-performance lens." The material in Aquaform Technology lenses has high oxygen transmissibility for increased breathability to keep your eyes healthy and white. The lenses feature a low modulus, which makes them softer and more flexible.

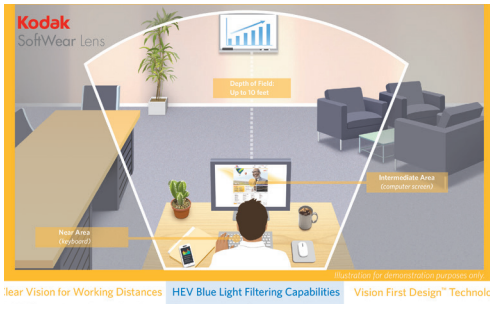
The molecular structure of Aquaform Technology lens material provides uniform wettability, creating a smooth lens surface, as well as natural wettability. The silicone macromers in Aquaform Technology lenses lock water into the lens keeping them moist even after periods of extended wear. Additionally, Aquaform Technology lenses feature an optimized rounded-edge design that reduces conjunctival interaction, providing an increased level of comfort.

Eyezen and Eyezen+

Essilor recommends Eyezen lenses for single vision wearers and adults suffering from eye strain and fatigue from viewing digital devices. Combined with Crizal Prevencia No-Glare lenses, Eyezen lenses help prevent the overexertion of certain muscles that help eyes focus. These computer glasses also filter blue-violet light, helping to keep eyes protected and comfortable, even with prolonged screen use.

Eyezen+ lenses utilize Essilor's Smart Blue Filter which reduces exposure to harmful blue light by at least 20 percent, according to Essilor. They are designed with W.A.V.E. (Wavefront Advanced Vision Enhancement) Technology to provide sharper vision than traditional single vision lenses, and are available with four different levels of accommodative relief for single vision patients in every age group.

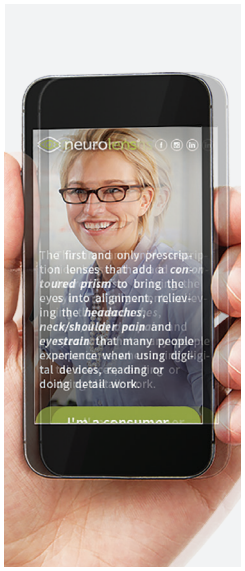




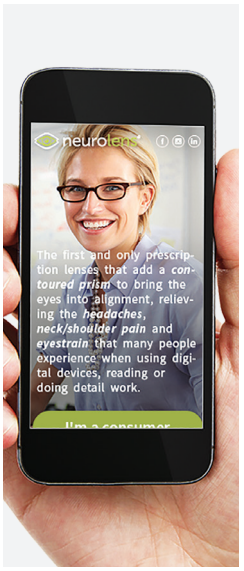
Kodak SoftWear Lens

The Kodak SoftWear Lens from Signet Armorlite delivers extra vision support to view the keyboard (near area) and computer screen (intermediate area) with a set computer monitor

distance of 24" and clear vision out to 10 feet. Signet Armorlite recommends this task-oriented lens for anyone doing computer-based projects or large amounts of detail work.



Without neurolenses, eye misalignment can cause vision impairments.

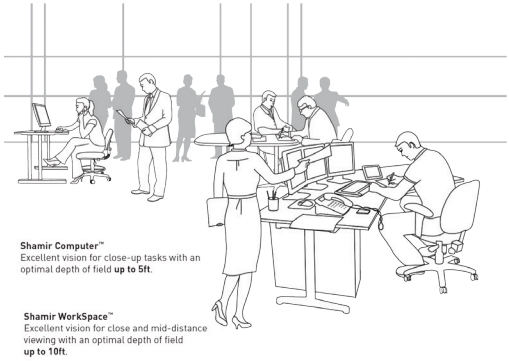


With neurolenses, eye misalignment is corrected, resulting in clear vision.

Neurolenses

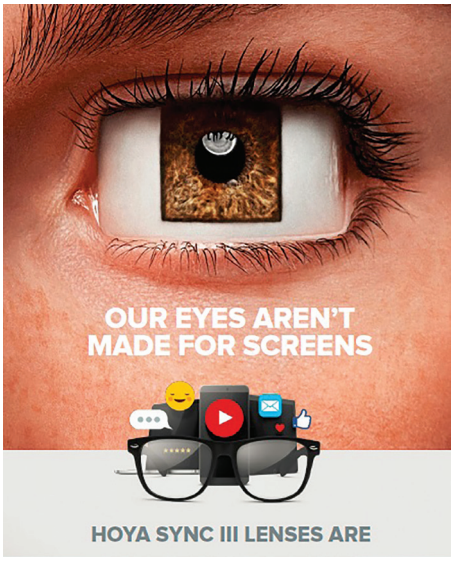
Neurolenses use a contoured prism to bring the eyes into alignment. Studies have shown that a contoured prism design helps relieve the headaches, neck/shoulder pain and eye strain that many patients experience when using digital devices, reading or doing detail work, according to the manufacturer, Neurolens.

The Neurolens system comprises a proprietary measurement device that uses eye tracking technology to objectively and accurately measure the degree of eye misalignment at distance, intermediate and near during a three-minute exam. The results provide a recommended prescription for the neurolens contoured prism design, which brings the eyes into proper alignment at all distances and alleviates symptoms.



Shamir Computer and Shamir WorkSpace

With Shamir Computer and Shamir WorkSpace lenses, presbyopic computer users no longer need to lift their head to see the computer clearly, as with progressive lens designs, or bend their neck to peer over the top of reading glasses. Wearers of these advanced Shamir occupational lenses can hold their head and neck in a natural comfortable position while enjoying perfect focus, the company said.



Sync III

Sync III lenses from Hoya Vision Care are designed for the single vision wearer who spends more than two hours a day on digital devices. The enhanced, single vision lenses have distance power for everyday use and a "boost zone" at the bottom of the lens which reduces eye strain during prolonged near activities such as looking at digital screens. This allows patients' eye muscles to relax and focus more easily, helping to relieve eye strain and provide visual comfort, Hoya said.

Unity Via OfficePro

Unity Via OfficePro from VSP Optics is a workplace lens designed around Unity Via technology that makes progressives that are easy to fit, customize and dispense. Unity Via OfficePro calculates the intermediate and near zones, ensuring that the monitor stays in the visual sweet spot without any extra measurements. ECPs need only to determine the progressive Rx, then pick the viewing distance.

A streamlined portfolio optimized for the most common workplace viewing distances makes it easy to match lens choice with specific patient needs. A five-foot design is optimized for computer work, desk work, reading and writing; a 10-foot design is intended for computer work, inventory, visitor reception, meetings and similar activities.

The lens design offers easy accommodation. Wearer benefits include reduced visual strain and fatigue, improved readability on digital displays, easy intermediate-near zone shift and improved ergonomic comfort.

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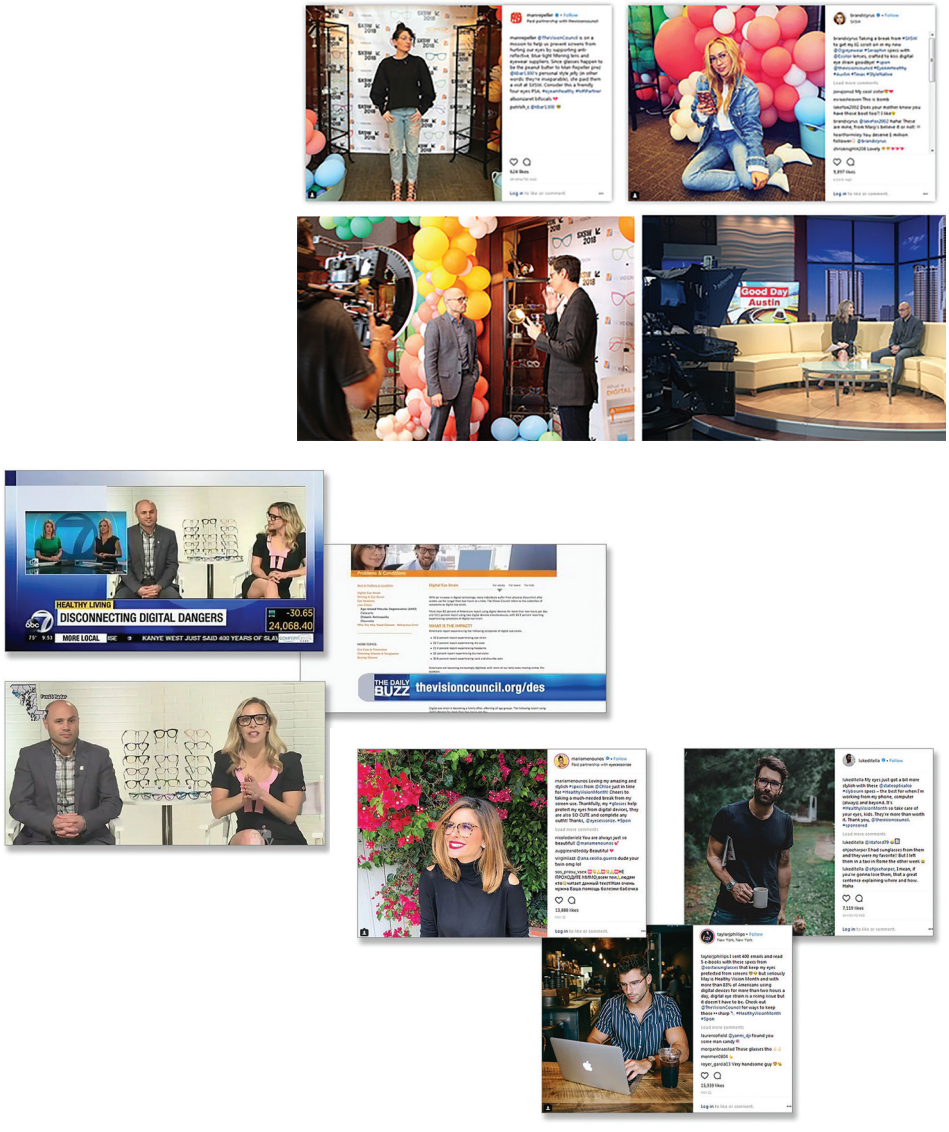
Raising Awareness of DES

As part of its ongoing efforts to raise public awareness of digital eyestrain, The Vision Council conducted a media campaign in 2018 in conjunction with Health Vision Month in May. The Vision Council teamed up with actress, journalist, podcaster and TV host Maria Menounos—best known for her correspondence on "E! News"—for a sponsored Instagram post promoting the importance of wearing glasses outfitted with specialized lenses to protect the eyes from digital devices, highlighting product from Eyewear & Accessories (E&A) Division member Marchon Eyewear. Menounos reaches 971,000 followers on Instagram, and her post has received nearly 14,000 likes.

Additionally, The Vision Council worked with fashion, lifestyle and health influencers Luke Ditella and Taylor Phillips for sponsored Instagram posts featuring the aforementioned messaging and highlighting product from E&A Division member Europa/State Optical Co. and Sunglass & Reader (SRD) Division member Costa, respectively. Ditella reaches 171,000 followers on Instagram, and his post has received more than 8,600 likes and counting. Phillips reaches 119,000 followers on Instagram, and his post has received nearly 16,000 likes.

The Vision Council's digital eye strain-focused media tour—a series of broadcast interviews with optometrist and medical adviser Dr. Justin Bazan and style expert Jenn Falik that were filmed May 2 and aired throughout the month—resulted in 28 live and live-to-tape radio and TV interviews, as well as an Audio News Release. The media tour ultimately garnered more than 13.6 million impressions. Select segments from outlets like "The Daily Buzz," "BMORE Lifestyle" and "ABC 7 News 9 AM" are available via YouTube.



The following Vision Council members were highlighted in the series: A&A Optical, B. Robinson/Legacie (RTW BluVue line), Classique Eyewear, ClearVision Optical (RTW BluTech Eyewear line), Marchon Eyewear, Marcolin Group (RTW Tom Ford line), OGI Eyewear (RTW BluLite line), FGX International (RTW Eyezen line with Essilor Group), Liberty Sport, Smith, Hoya, Zeiss Optics and CooperVision (Biofinity Energys product). ■

Lens Solutions for Digital Eye Strain

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Zeiss Officelens

Zeiss Officelens gives wearers crisp, clear vision of the three working area distances, according to the individual wearer's needs:

- Zeiss Officelens Book: Widest fields of clear vision out to three feet. For reading, using a computer or handheld device, and other visually intensive up-close activities.
- Zeiss Officelens Desk: Wide fields of view out to seven feet. For reading, computer use and a clear view of a cubicle or small office.
- Zeiss Officelens Room: For nearly any indoor or closer-range outdoor visual activities, with wide, clear vision out to 14 feet.

Zeiss Officelens features Digital Inside Technology and provides strain-free and clear vision when using computer screens and other digital devices. Digital Inside Technology was created to optimize visual performance for this closer viewing range and oblique gaze orientation through the lens. Wearer benefits include:

- Clear visual acuity for near to intermediate distance vision with wide vision zones.
- Relaxed and natural vision in the office and for any activities at near and mid-range.
- Comfortable head and body posture.
- Adapted to personal visual distance from the near to intermediate range.
- Maximum Intermediate Distance (M.I.D.) technology.

In order to provide a tailored solution for every wearer, Zeiss determines the wearer's "Maximum Intermediate Distance," according to his or her personal near to intermediate distance requirements. The M.I.D. technology offers variability for clear and relaxed vision from an "enhanced reading lens" up to an "indoor progressive lens," according to Zeiss. ■

More ⟶

Digital Eye Strain and Myopia

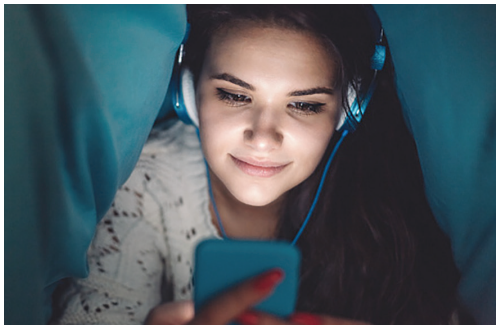
Many vision researchers believe there is growing evidence that digital screen use is a contributing factor to the spread of myopia worldwide. For example, Essilor USA's website, Myopiaexperts (https://www.essilorusa.com/myopiaexperts#/), points out that myopia tends to progress during childhood, as the eyes continue to grow and develop.

"Research suggests too much screen time on digital devices like smartphones and tablets may potentially put kids at risk of developing myopia, and increased time spent outdoors may help slow its progression. With this in mind, parents should urge kids to put down their devices and spend more time outside," Essilor said.

In their article "Myopia: a 21st Century Health Issue," published in the ophthalmic journal *mi-vision* and featured in *Vision Monday's* editorial supplement, "Protecting Eyes from Sun & Screens: Visual Wellness Through Modern Lens Technology," researchers Professor Padmaja Sankaridurg and Dr. Monica Jong of the Brien Holden Vision Institute wrote, "The global prevalence of myopia and high myopia is rapidly increasing, largely due to modern urban lifestyles."

Noting the rapid growth of the world's urban population, and the fact that cities are now home to nearly half of the world's children, the authors observe that "for many children, life in an urban community is dominated by high-density living and small living areas. As a consequence, time spent outdoors is restricted and in some instances, penetration of natural light to indoor spaces is limited... Recent technological advances, with respect to smartphone and screen-based devices, has resulted in many children spending a significant amount of time focused on near range activities."

Sankaridurg and Jong argue that the large amounts of time children spend using screen-based devices is linked to early onset myopia. ■



48 Ways to Balance the Blues

Exposure to blue light between 410 and 450 nm contributes to digital eye strain. *Vision Monday* has compiled an online resource that consists of descriptions of 48 different products that offer blue light management solutions for every situation, both indoors and outdoors. They run the gamut from blue light-filtering lenses and coatings to screen protectors, neutraceuticals and lens demonstration units. Follow this link to learn more: **https://bit.ly/2qrXNCb** ■