

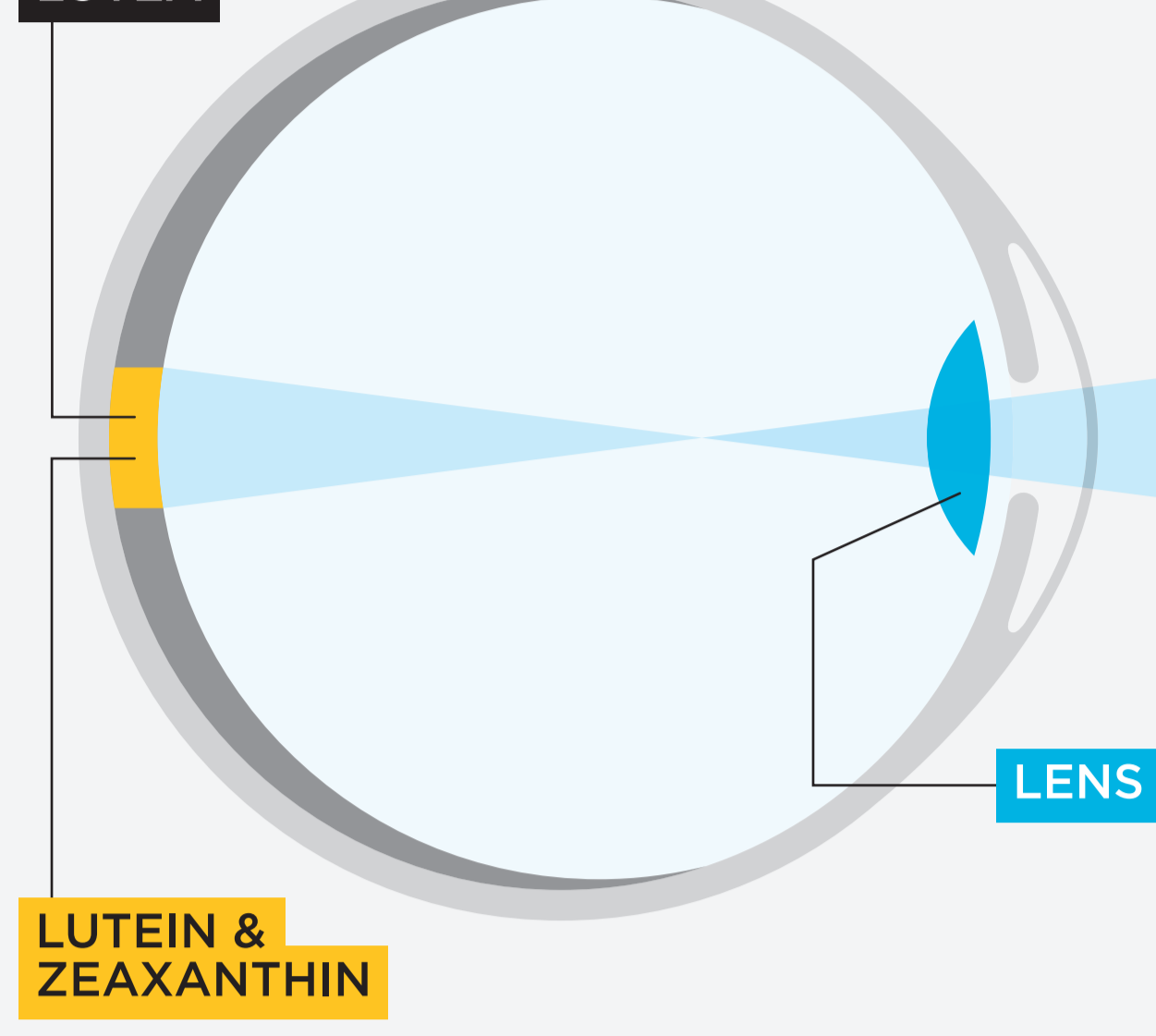
## FLORAGLO® LUTEIN: SO MUCH MORE THAN AN 'EYE VITAMIN'

Enhancing health, inside and out

FLORAGLO® LUTEIN HAS WHOLE BODY BENEFITS, SUPPORTING EYE, BRAIN AND SKIN HEALTH—TO BENEFIT THE ENTIRE PERSON.

## EYE HEALTH

LUTEIN BRINGS PROTECTIVE ANTIOXIDANT BENEFITS TO THE MACULA AND OTHER PARTS OF THE EYE.<sup>3</sup>



FLORAGLO® LUTEIN BENEFITS EYE HEALTH AT EVERY STAGE:<sup>3-6</sup>



EARLY LIFE NUTRITION (MOM & BABY)<sup>3</sup>



PRENATAL DEVELOPMENT



DEVELOPING INFANTS & CHILDREN<sup>4,5</sup>



ADULTS OF ALL AGES, INCLUDING YOUNG ADULTS<sup>6</sup>



SENIORS<sup>6</sup>

FloraGLO® Lutein is GRAS<sup>7</sup> for all ages.

### PROVEN EFFICACY

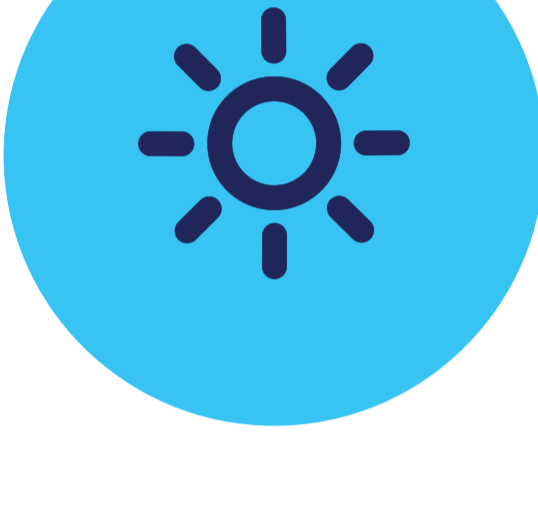


FloraGLO® is the most studied lutein, scientifically proven in over 100 clinical trials.<sup>8</sup>

### SUPPORTING EYE HEALTH



Improves visual performance and quality of vision<sup>3</sup>



Protects vulnerable eyes by absorbing blue light from digital devices and sunlight<sup>9</sup>

### IN CLINICAL STUDIES PERFORMED, LUTEIN WAS SHOWN TO:<sup>10</sup>

- Increase Macular Pigment Optical Density (MPOD)
- Improve visual function

## BRAIN HEALTH

LUTEIN IS AN ANTIOXIDANT THAT WORKS TO DECREASE OXIDATIVE STRESS IN CERTAIN BRAIN REGIONS.<sup>11</sup>



FLORAGLO® LUTEIN BENEFITS BRAIN HEALTH AT EVERY STAGE:<sup>12</sup>



EARLY LIFE NUTRITION (MOM & BABY)



DEVELOPING INFANTS & CHILDREN



ADULTS OF ALL AGES

### PROVEN EFFICACY



FloraGLO® Lutein has 10 publications from human intervention studies showing benefits for brain health.<sup>13-15</sup>

### SUPPORTING BRAIN HEALTH<sup>13-15</sup>



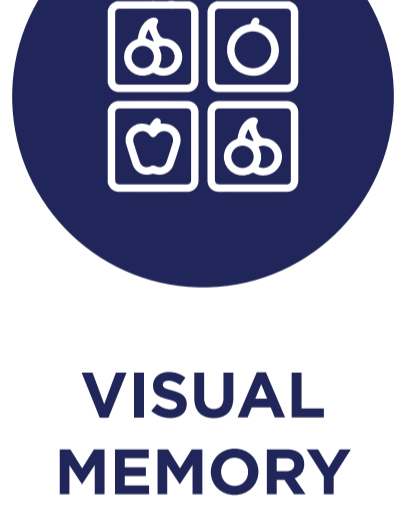
COGNITIVE FLEXIBILITY



COMPLEX ATTENTION



REASONING



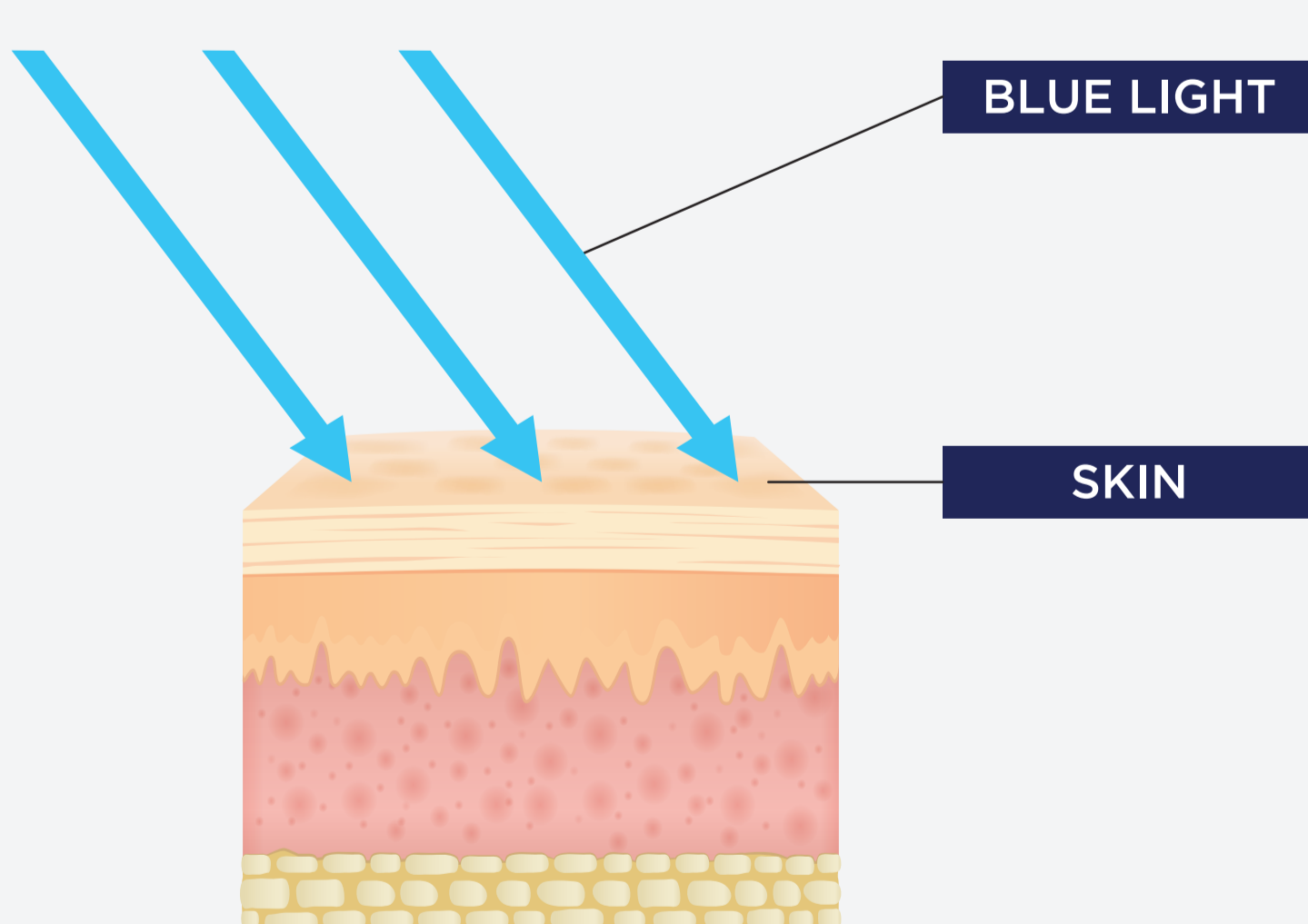
VISUAL MEMORY



VISUAL REACTION TIME

## SKIN HEALTH

LUTEIN SUPPORTS SKIN HEALTH BY SERVING AS AN ANTIOXIDANT AND ABSORBER OF BLUE LIGHT.<sup>16</sup>



FLORAGLO® LUTEIN BENEFITS SKIN HEALTH:<sup>17</sup>



INFANTS & CHILDREN



ADULTS OF ALL AGES

### PROVEN EFFICACY

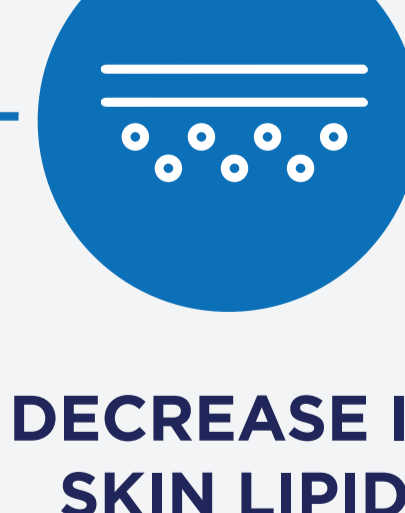


FloraGLO® Lutein's use in nutrition supplements is backed by three publications showing benefits for skin health.<sup>18-20</sup>

### SUPPORTING SKIN HEALTH



HYDRATION & ELASTICITY<sup>18-20</sup>



DECREASE IN SKIN LIPID PEROXIDATION<sup>18-20</sup>



ANTI-WRINKLING PROPERTIES<sup>18-20</sup>

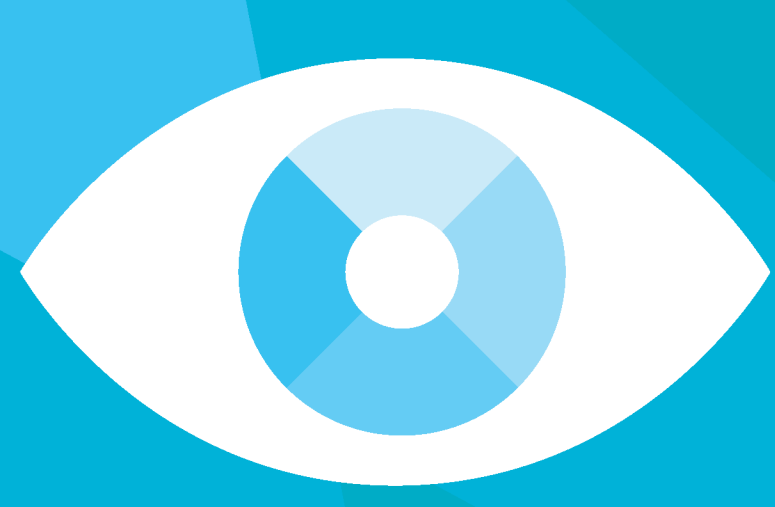


ABSORPTION OF DAMAGING BLUE LIGHT<sup>16</sup>

FLORAGLO® LUTEIN GOES BEYOND VISION HEALTH—TO BENEFIT CONSUMERS' BEAUTY FROM THE INSIDE OUT.

#### SOURCES

- DSM – Global Health Concerns 2019, Report US, Ipsos.
- FMC Gurus, 2019.
- Lai et al., Nutrients. 2020;12(2):1-11.
- Hammond BR. Nutr Rev. 66(12):695-702, 2008.
- Berstein Invest Ophthalmol Vis Sci. 2013 Jun 10;54(6):4034-40.
- Stringham, J. M. & Hammond, B. R. Macular pigment and visual performance under glare conditions. Optom. Vis. Sci. Off. Publ. Am. Acad. Optom. 85, 82-88 (2008).
- GRAS Notice Inventory, GRN No. 140, 221 and 390.
- PubMed, 2021.
- Roberts, Richard. "Methods of Treating Ocular Disorders." Kemin Industries, Inc., assignee. Patent US9226940 B2. Jan. 2016. Kemin's patent covers three conditions for all ages: presbyopia, hyperopia, and astigmatism.
- Richer, S. et al. Double-masked, placebo-controlled, randomized trial of lutein and antioxidant supplementation in the intervention of atrophic age-related macular degeneration: the Veterans LAST study (Lutein Antioxidant Supplementation Trial). Optom. St. Louis Mo 75, 216-230 (2004).
- Lieblein-Boff, J. C., Johnson, E. J., Kennedy, A. D., Lai, C.-S., & Kuchan, M. J. (2015). Exploratory Metabolomic Analyses Reveal Compounds Correlated with Lutein Concentration in Frontal Cortex, Hippocampus, and Occipital Cortex of Human Infant Brain. PLoS One, 10(8). doi:10.1371/journal.pone.0136904.
- Vishwanathan R. et al Nutr Neurosci. 2013 Jan;16(1):21-9.
- Hammond BR Jr., Miller LS, Bello MQ, Lindbergh CA, Mewborn C and Renzi-Hammond LM (2017) Effects of Lutein/Zeaxanthin Supplementation on the Cognitive Function of Community Dwelling Older Adults: A Randomized, Double-Masked, Placebo-Controlled Trial. Front. Aging Neurosci. 9:254.
- Bovier, E.R. and B.R. Hammond (2015) A randomized placebo-controlled study on the effects of lutein and zeaxanthin on visual processing speed in young healthy subjects. Arch Biochem Biophys. 572: p. 54-57.
- Renzi-Hammond, L.M., et al. (2017) Effects of a Lutein and Zeaxanthin Intervention on Cognitive Function: A Randomized, Double-Masked, Placebo-Controlled Trial of Younger Healthy Adults. Nutrients. 9(11).
- Gruszeski et al (1999), The Photochemistry of Carotenoids, Chapter 20, 363-379 and Sies H and Stahl W. (2003). Non-Nutritive Bioactive Constituents of Plants: Lycopene, Lutein and Zeaxanthin. Int J Vitam Nutr Res. 73 (2), 95-100.
- Kochevar, et al. (1999) In Dermatology in General Medicine (Freedberg, et al., eds.) 220-229.
- Gruszecki WJ, Carotenoids in Health and Disease. New York: Marcel Dekker, Inc. 151-163, 2004.
- Both references: Gruszeski et al (1999), The Photochemistry of Carotenoids, Chapter 20, 363-379 and Sies H and Stahl W. (2003). Non-Nutritive Bioactive Constituents of Plants: Lycopene, Lutein and Zeaxanthin. Int J Vitam Nutr Res. 73 (2), 95-100.

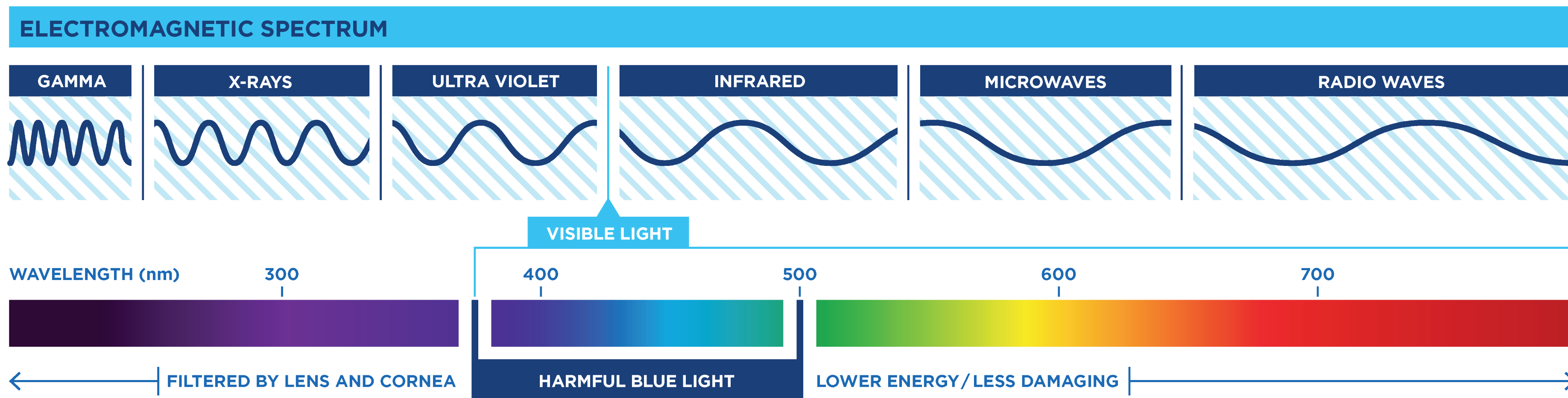


# BEAT THE BLUE™

BLUE LIGHT IS THE MOST HARMFUL LIGHT TO OUR EYES AND IT'S ALMOST EVERYWHERE.<sup>1,2</sup> WHILE IT'S IMPOSSIBLE TO COMPLETELY AVOID EXPOSURE TO BLUE LIGHT, THERE IS SOMETHING YOU CAN DO TO HELP PROTECT YOUR EYES TODAY AND MAINTAIN HEALTHY VISION FOR A LIFETIME.

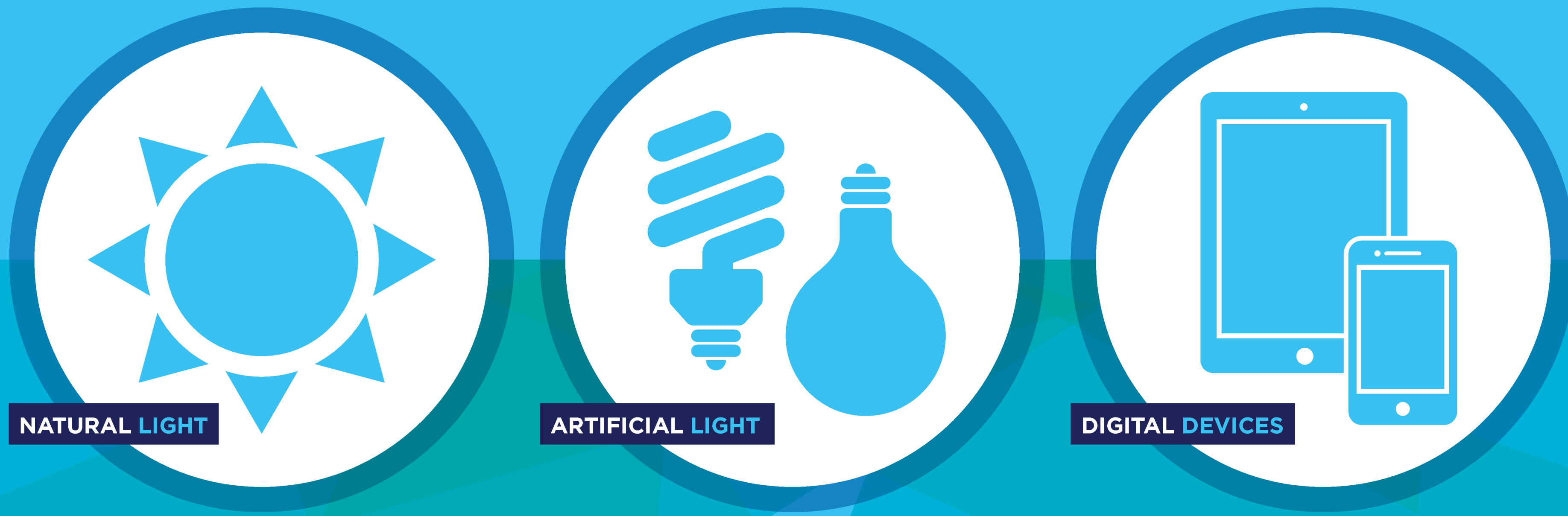
## WHAT IS BLUE LIGHT?

Blue light is a component of visible light and you are exposed to it without even realizing it.<sup>1,2</sup> Blue light is not easily filtered by your eyes and overexposure can negatively impact vision.<sup>3,4</sup>

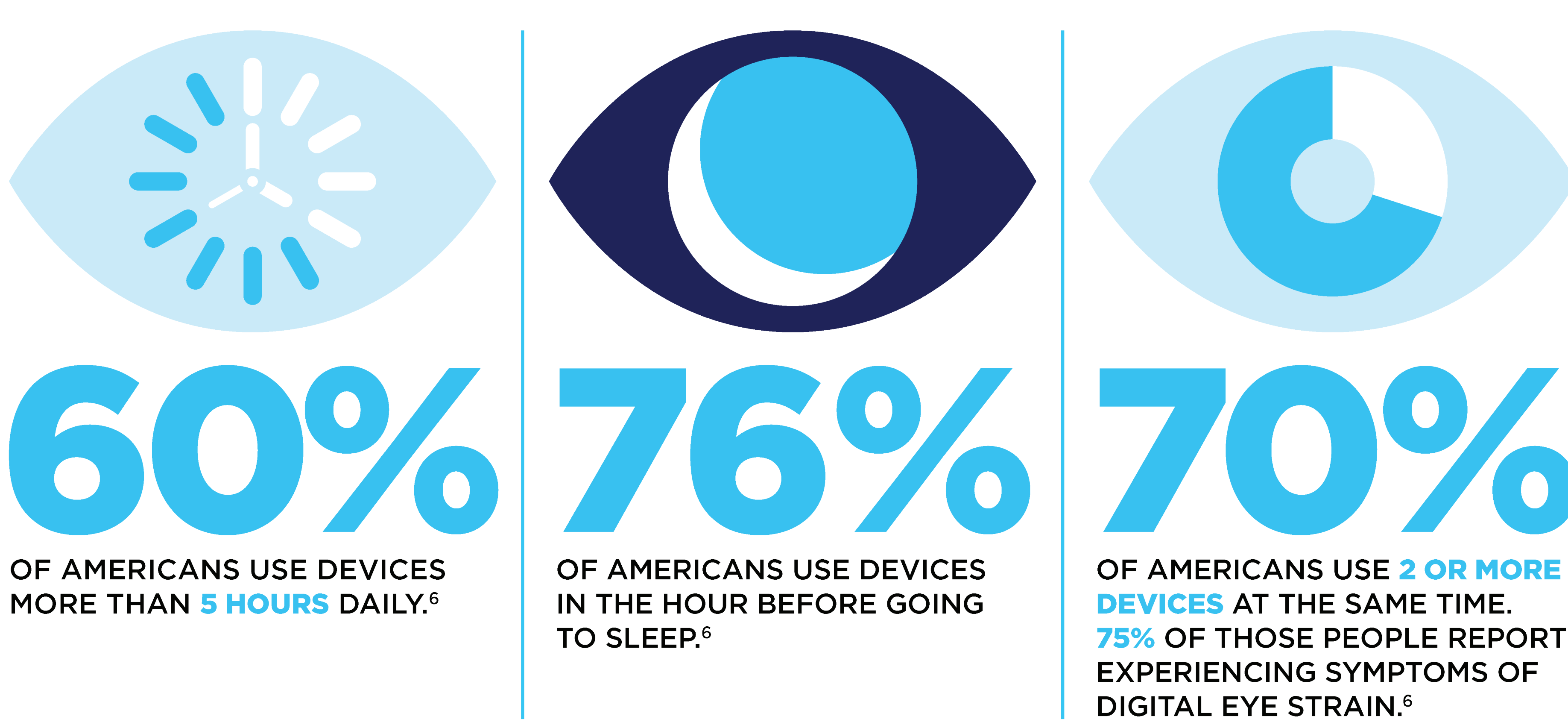


## IT'S EVERYWHERE, AND UNAVOIDABLE

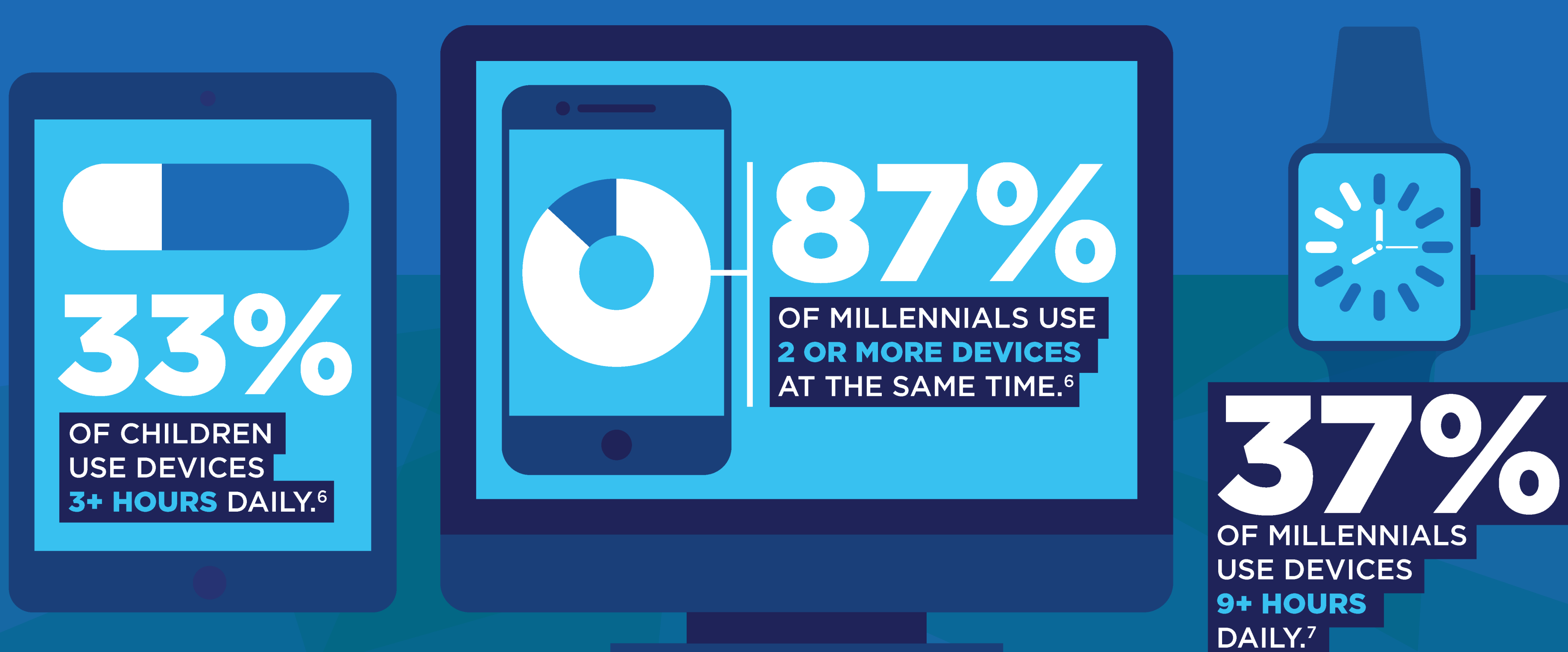
Nearly every source of light—whether natural or artificial—emits harmful blue light.<sup>1,2,5</sup> Your eyes are exposed to it all day long, both indoors and out and as the use of technology and digital devices increases, the risk to your eyes increases too.<sup>1,2</sup>



## MORE DIGITAL DEVICES = MORE BLUE LIGHT



## YOUNGER... AND YOUNGER



## MORE BLUE LIGHT = LIKELY MORE EYE DAMAGE

Not only could blue light damage your eyes now, but it can possibly affect your vision in the long term:

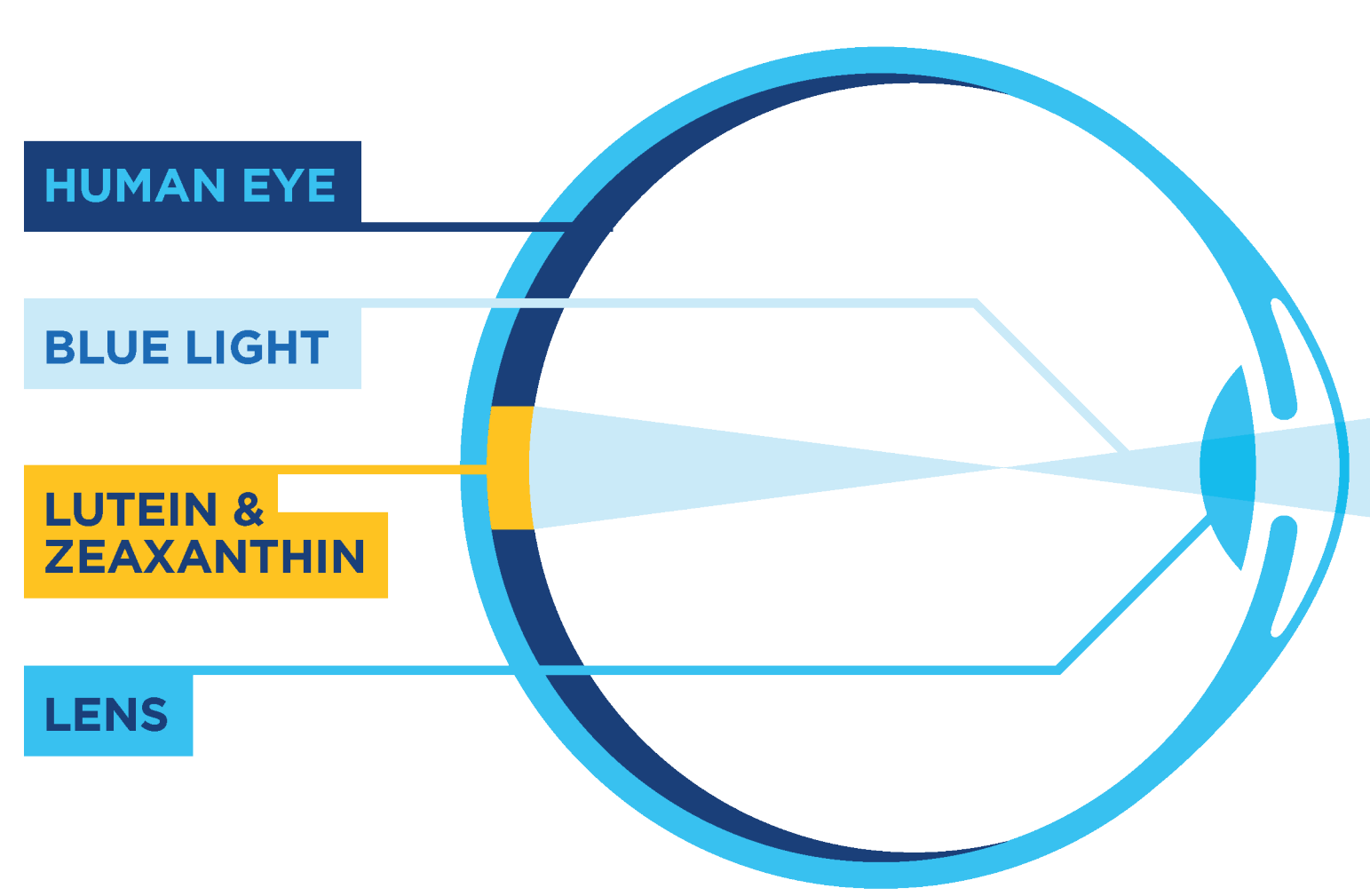


## WHAT CAN YOU DO?

### Make lutein part of your daily routine.

Found naturally in certain fruits and vegetables, lutein and zeaxanthin are the **ONLY** nutrients that are deposited by your body specifically into your eyes to help filter harmful blue light.<sup>11-13</sup>

Unfortunately, your body doesn't make lutein or zeaxanthin so you need to get these important nutrients through food and/or vitamins containing lutein and zeaxanthin.<sup>14</sup>



### LUTEIN AND ZEAXANTHIN-RICH FOODS / CONTENT PER SERVING<sup>15</sup>



## ARE YOU GETTING ENOUGH?

Probably not! Studies suggest that you need **10 mg of lutein and 2 mg of zeaxanthin** each day.<sup>16,17</sup> **Most people only get 1-2 mg** from diet alone.<sup>18</sup> Taking a daily vitamin with lutein and zeaxanthin can help ensure you are getting the eye nutrients you need.



# BEAT THE BLUE™ MAKE YOUR ROUTINE FLORAGLO LUTEIN™

LOOK FOR VITAMINS CONTAINING FLORAGLO®—THE LUTEIN BRAND PROVEN TO INCREASE LUTEIN LEVELS IN THE EYE.<sup>19</sup>

References available upon request

INFORMATION BROUGHT TO YOU BY



These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.  
© Kemin Industries, Inc. and its group of companies 2016. All rights reserved. \*™ Trademarks of Kemin Industries, Inc., U.S.A.  
(08-2016-00000) K19K1TC-022-000084 Rev. Level: 0 Rev Date: 10/06/2016



## Lutein and Zeaxanthin's Early Role

As lutein and zeaxanthin are transferred from pregnant mom to baby, the nutrients are deposited in specific areas of the fetal body. Lutein and zeaxanthin are present in the developing fetus' retina as early as 17 to 22 weeks.<sup>20,21</sup> The presence of these nutrients at early stages of life, along with their higher concentration compared to other carotenoids, suggests they may play a role in eye and brain development and protection. When maternal diet is an insufficient source, the case can be made for the addition of these important carotenoids in prenatal supplementation.

**Higher maternal lutein and zeaxanthin plasma concentrations at delivery were found to be associated with lower likelihood of poor distance-visual acuity later in the child's life.<sup>28</sup>**



## Lutein and Zeaxanthin's Role After Birth

After the baby is born, lutein and zeaxanthin continue to be important as major carotenoids in breast milk.<sup>23</sup> Lutein and zeaxanthin are preferentially secreted in breast milk and their levels are proportional to maternal intake.<sup>14,23-25</sup> Furthermore, the relative level of carotenoids in the plasma of infants has been found to match the level in breast milk.<sup>14</sup> When diet falls short, supplementation for the breast-feeding mother may be a valuable option.

**Low consumption of fruits and vegetables in many parts of the world points to limited lutein intake.<sup>26, 27</sup>**

## Major Carotenoid in the Infant Brain

In addition to being found in the retina, lutein represents a majority of the infant brain's carotenoids.<sup>22</sup> When comparing the contribution of lutein and zeaxanthin in the infant diet (17% of carotenoids) compared to the level in the infant brain (74% of carotenoids),<sup>22</sup> it is clear these nutrients are preferentially deposited.



FloraGLO Lutein  
**is sourced from marigold flowers.**

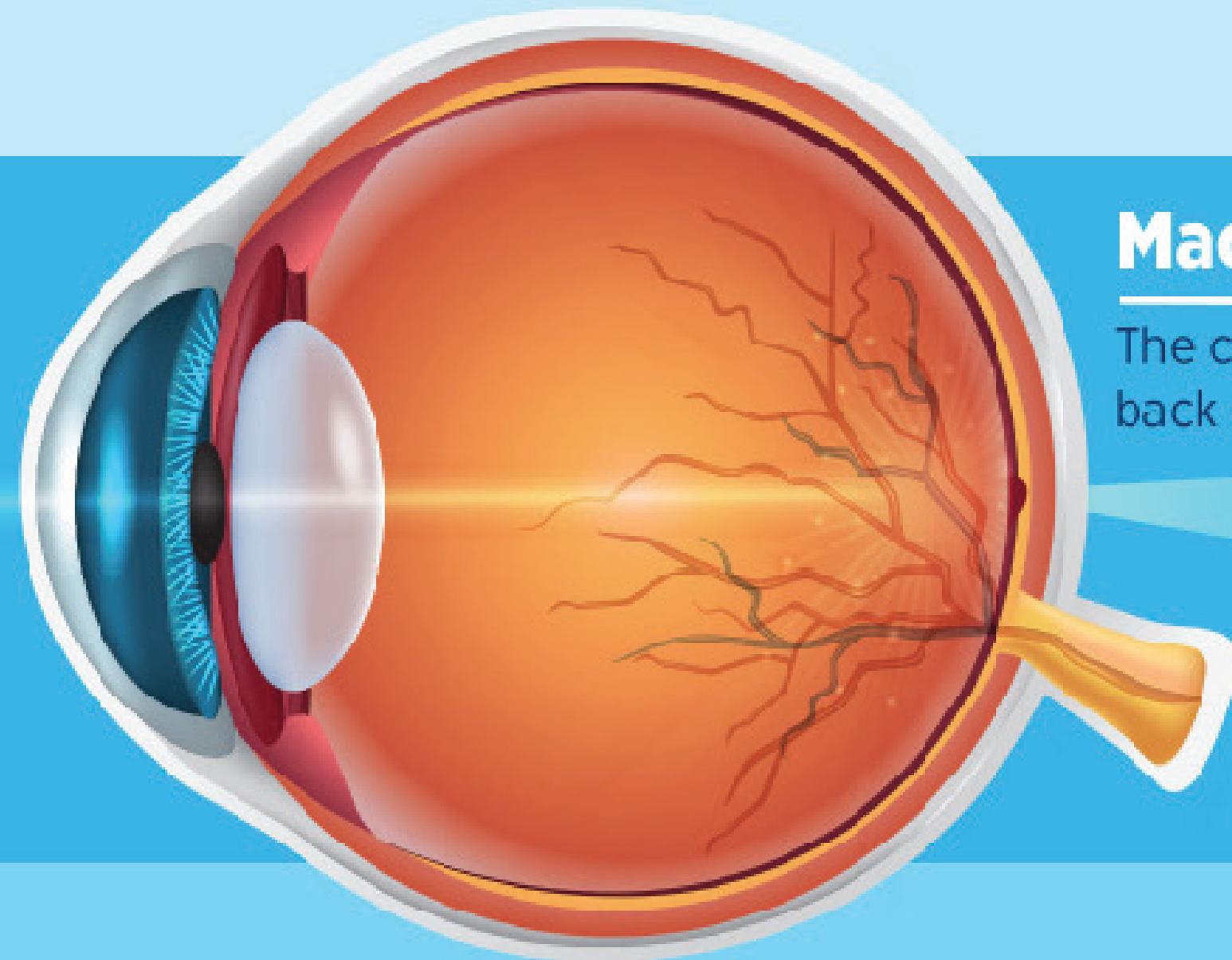
© Kemin Industries, Inc. and its group of companies 2020. All rights reserved. ®™Trademarks of Kemin Industries, Inc., U.S.A. FloraGLO® Lutein and ZeaONE® Zeaxanthin are registered trademarks of Kemin Industries, Inc. FloraGLO® is distributed by DSM Nutritional Products. OPTISHARP™ Natural is a trademark of DSM Nutritional Products. These statements have not been evaluated by the Food and Drug Administration. Certain statements may not be applicable in all geographical regions. This product is not intended to diagnose, treat, cure or prevent any disease. This business-to-business communication is not intended to be directed to the final consumer. References available upon request from FloraGLO@Kemin.com.



[kemin.com/health](https://kemin.com/health)

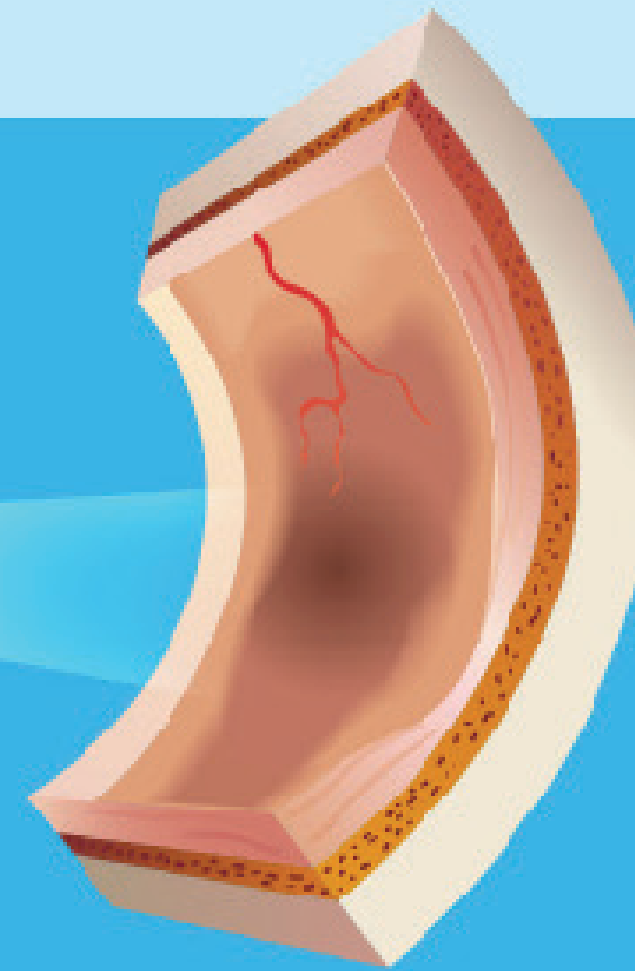
# Macular Pigment Optical Density (MPOD)

Lutein and RR-zeaxanthin accumulate in the eye and the brain to serve as antioxidants that protect cells. The level of lutein and RR-zeaxanthin in eyes is known as macular pigment optical density (MPOD). When we consume lutein and RR-zeaxanthin from food and supplements, we increase MPOD in our eyes.



## Macula

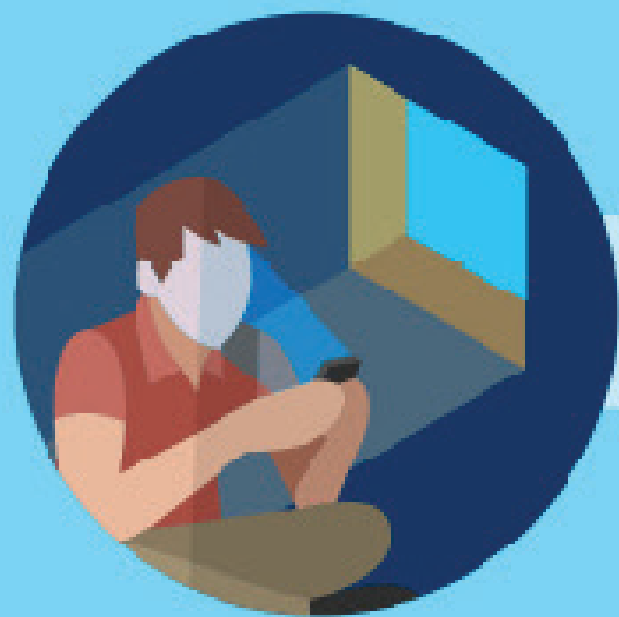
The center of the back of the eye



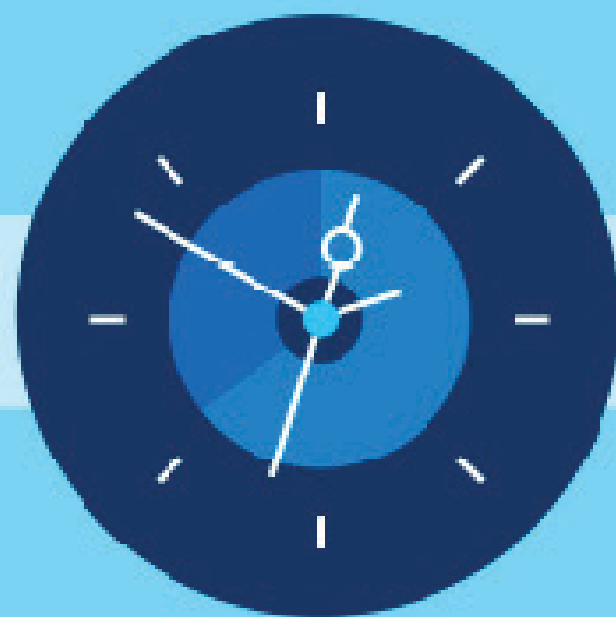
## Macular Pigment

Found in the macula to protect our eyes' photoreceptors

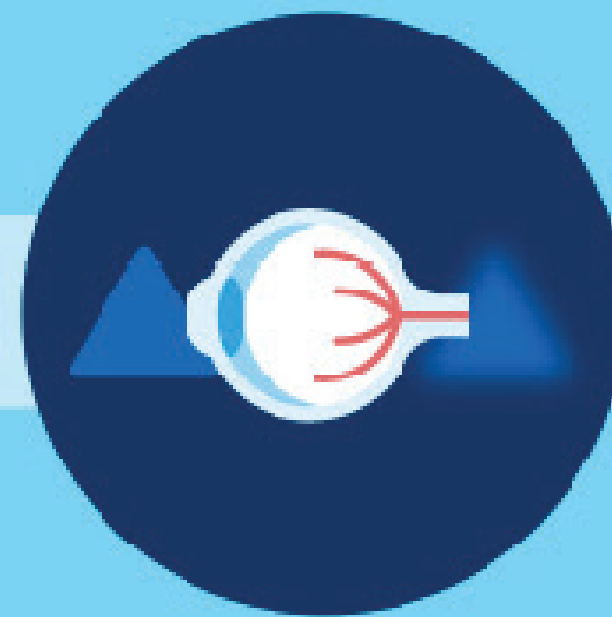
## What are the potential benefits of a high macular pigment optical density (MPOD)?



Protects against blue light damage from sun and digital devices



Improves visual reaction time



Increases quality of vision



Improves recovery from high-intensity light



Related to brain lutein and zeaxanthin levels

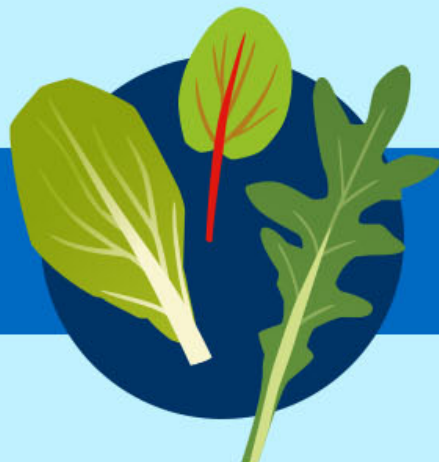
# Healthy Eyes and Brain for Mom and Baby: Lutein and RR-Zeaxanthin\*

## How to get enough lutein & RR-zeaxanthin

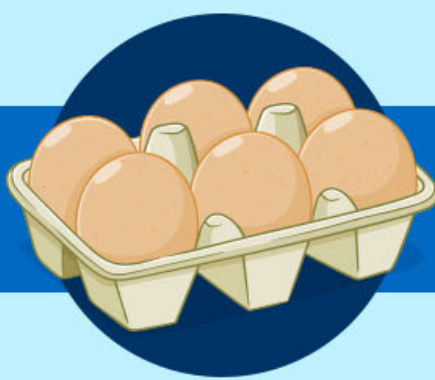
The human body can't make lutein and RR-zeaxanthin, but we can obtain them from foods and supplements.



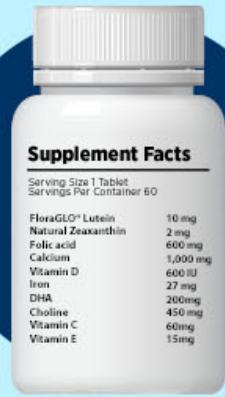
Corn



Leafy Greens

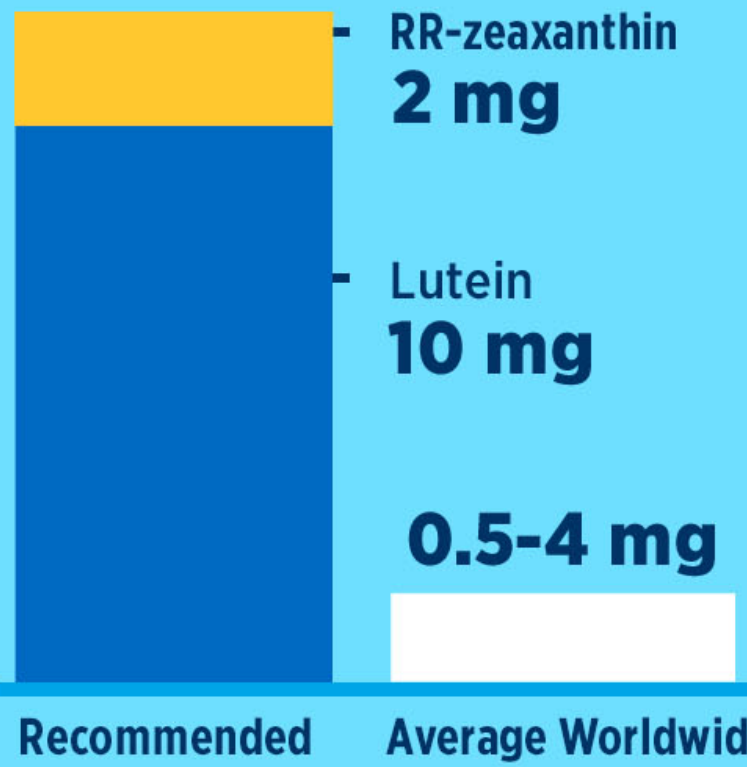


Eggs

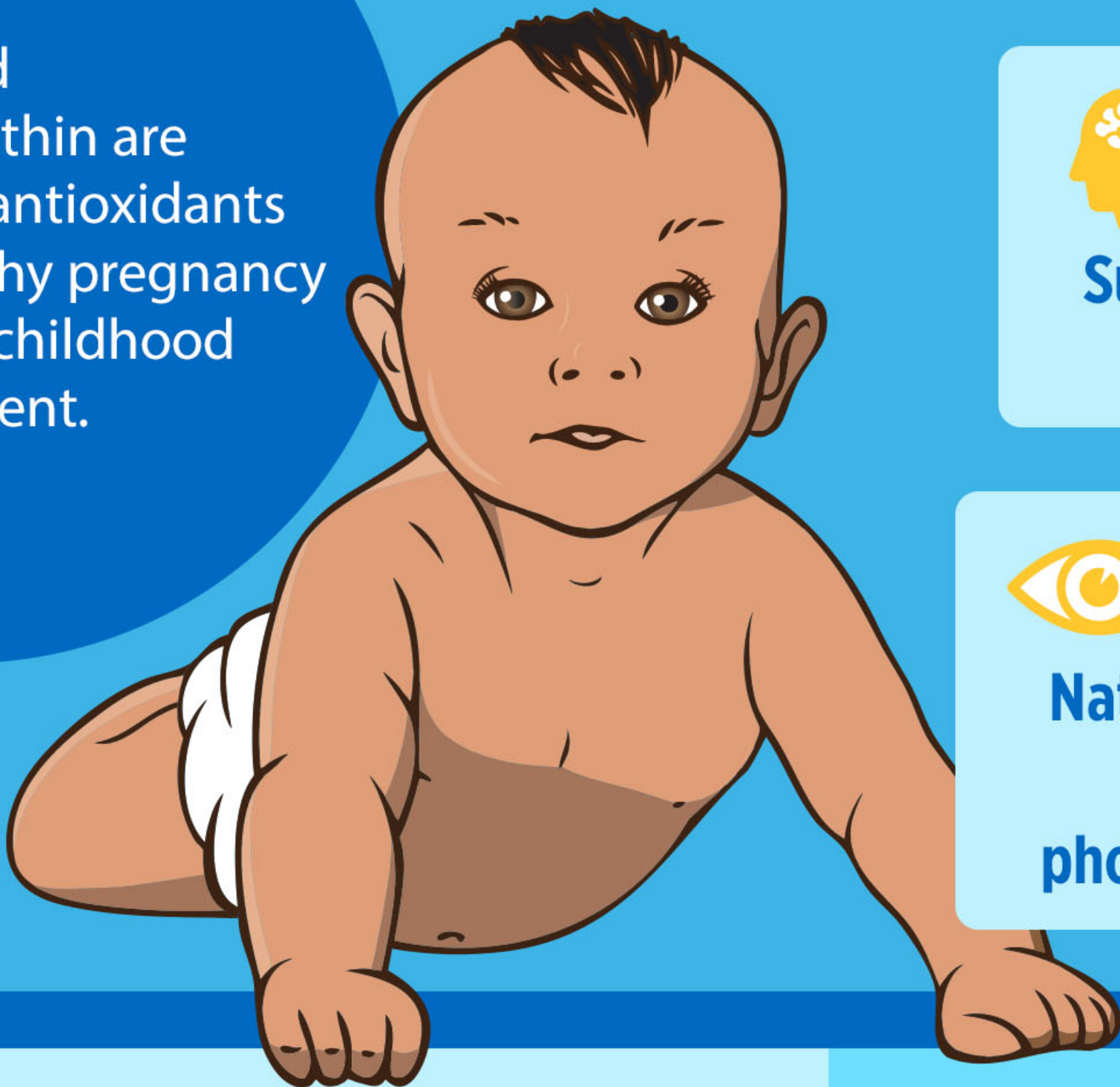


Supplements

### Adult Recommended vs. Average Daily Intake of Lutein & RR-zeaxanthin



Lutein and RR-zeaxanthin are powerful antioxidants for a healthy pregnancy and early childhood development.



### Brain

Supports healthy function



### Eyes

Naturally deposits to protect photoreceptor cells



THE MOST  
STUDIED  
LUTEIN  
BRAND



THE BLUE  
LIGHT BRAND



#1 DOCTOR  
RECOMMENDED  
LUTEIN  
(USA)



SAFE FOR  
BABIES

# Supporting Eye and Brain Health for Mom and Baby

FloraGLO® Lutein and OPTISHARP®/ZeaONE® Natural Zeaxanthin are clinically proven ingredients to support health throughout life—and the earliest stages are no exception. Emerging research has shown that these nutrients may be uniquely beneficial for the developing infant’s eyes and brain. Lutein and zeaxanthin are transferred to the developing baby via the cord blood, with the concentrations in the expectant mother’s blood increasing during pregnancy as other carotenoid levels remain fairly constant.<sup>1</sup> Many women’s diets fall short in food sources of lutein and zeaxanthin, so supplementation during pregnancy and post-partum may be considered.



## FLORAGLO® LUTEIN: THE TRUSTED SOURCE

FloraGLO® Lutein sets the standard for supplemental lutein for efficacy, safety and credibility. FloraGLO® Lutein is the only lutein brand that is Generally Recognized as Safe (GRAS) in the US for use in term and pre-term infant formula.<sup>3</sup> No other lutein brand worldwide has more science publications supporting its use.<sup>4</sup> FloraGLO® Lutein has 15 publications covering pregnancy, breastfeeding and preterm or term infants.<sup>5-19</sup> Unlike some forms of lutein on the market, FloraGLO® Lutein provides the same readily absorbed lutein as found in common foods like spinach and kale.



**MOST  
RESEARCHED**



**TRUSTED BY  
DOCTORS**



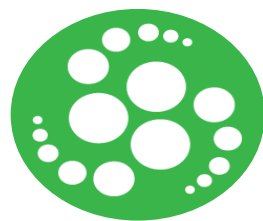
**BLUE LIGHT  
BRAND**



**SAFE FOR  
BABIES**



**EXCELLENT  
STABILITY**



**PROVEN  
BIOAVAILABLE**



[kemin.com/health](https://kemin.com/health)

This business-to-business communication is not intended to be directed to the final consumer.