# Eye strain and working from home

# ZEISS Web Series Speakers

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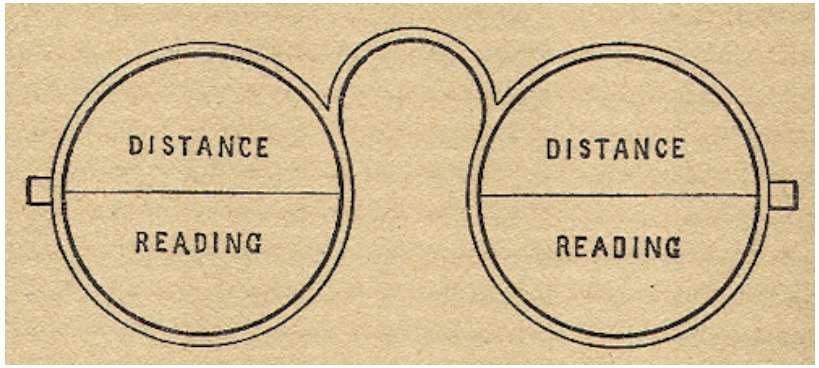
# A short history of visual behavior

# The evolution of visual requirements: The eye's design spec

Sharp distance vision for survival: find food, avoid threats

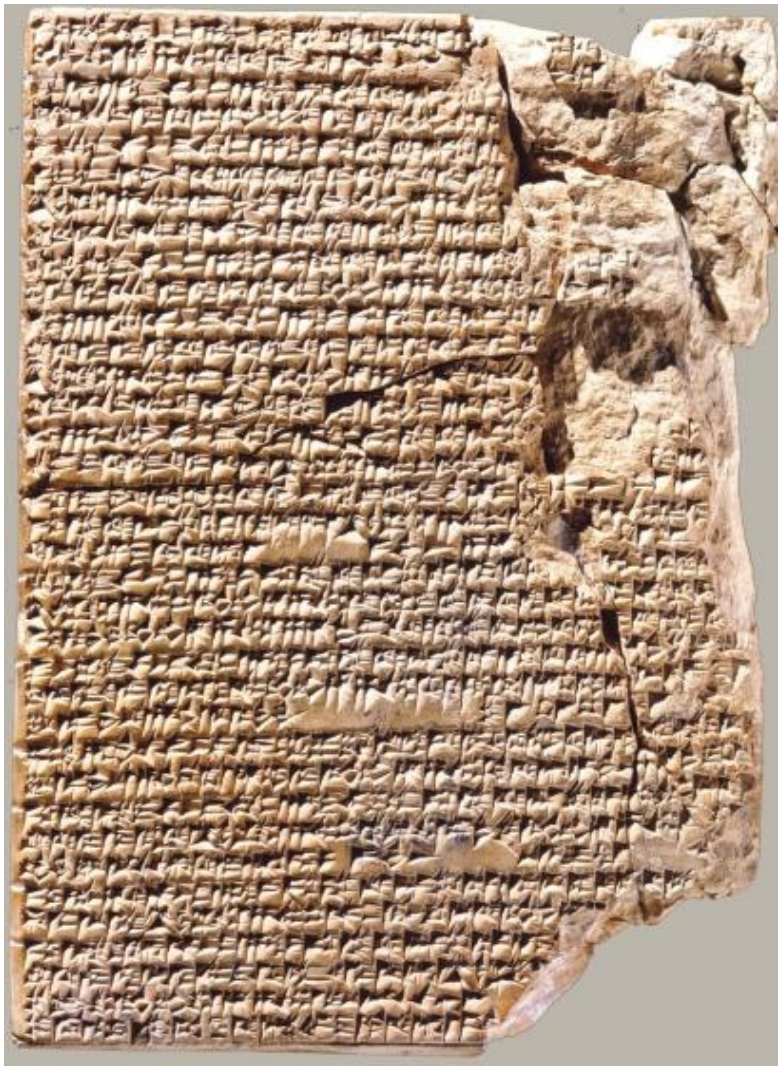
# Visual behavior has evolved, but the eye hasn't

- Corrective lenses were developed as a result of change in visual behavior
- As a result of digital technology, visual behavior has changed with unprecedented speed over the last four decades
- This has created new vision problems:
  - Computer vision syndrome (CVS)
  - Digital eye strain (DES)
- These problems affect most U.S. adults
- **Eyewear to relieve these symptoms is a huge need for consumers and a huge opportunity for practices**



# The evolution of visual requirements: Invention of written language c. 3200 BC

- Great for civilization.
  Challenging for the eyes.



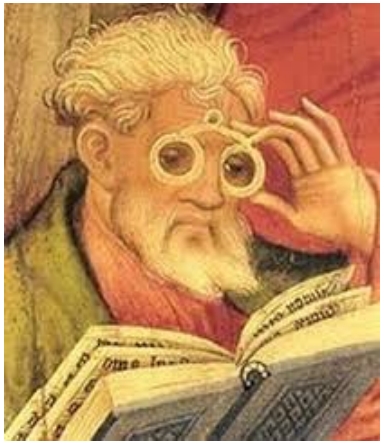
# The evolution of visual requirements: Solutions for reading vision

## Progress was slow

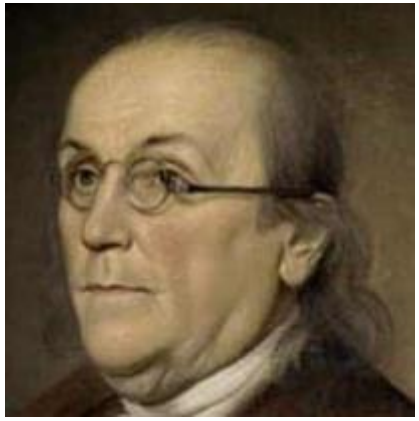
1st century AD: globe filled with water

9th century: reading stone

13thth century: eyeglasses



18th century: bifocals



20th century: progressives

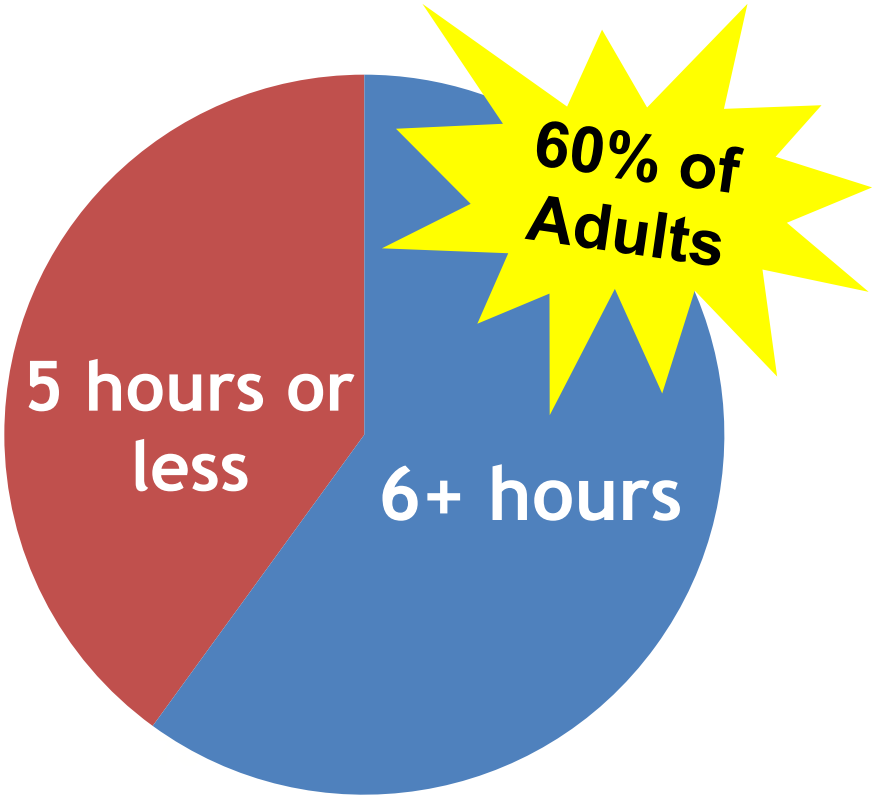
# The evolution of visual requirements: digital technology

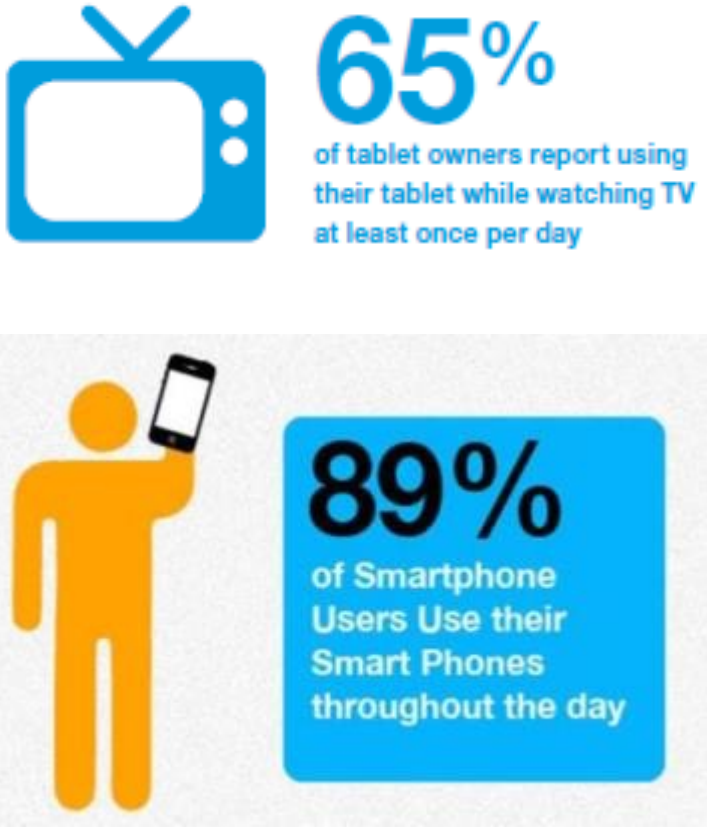
1977: Personal Computer

2007: Smartphone

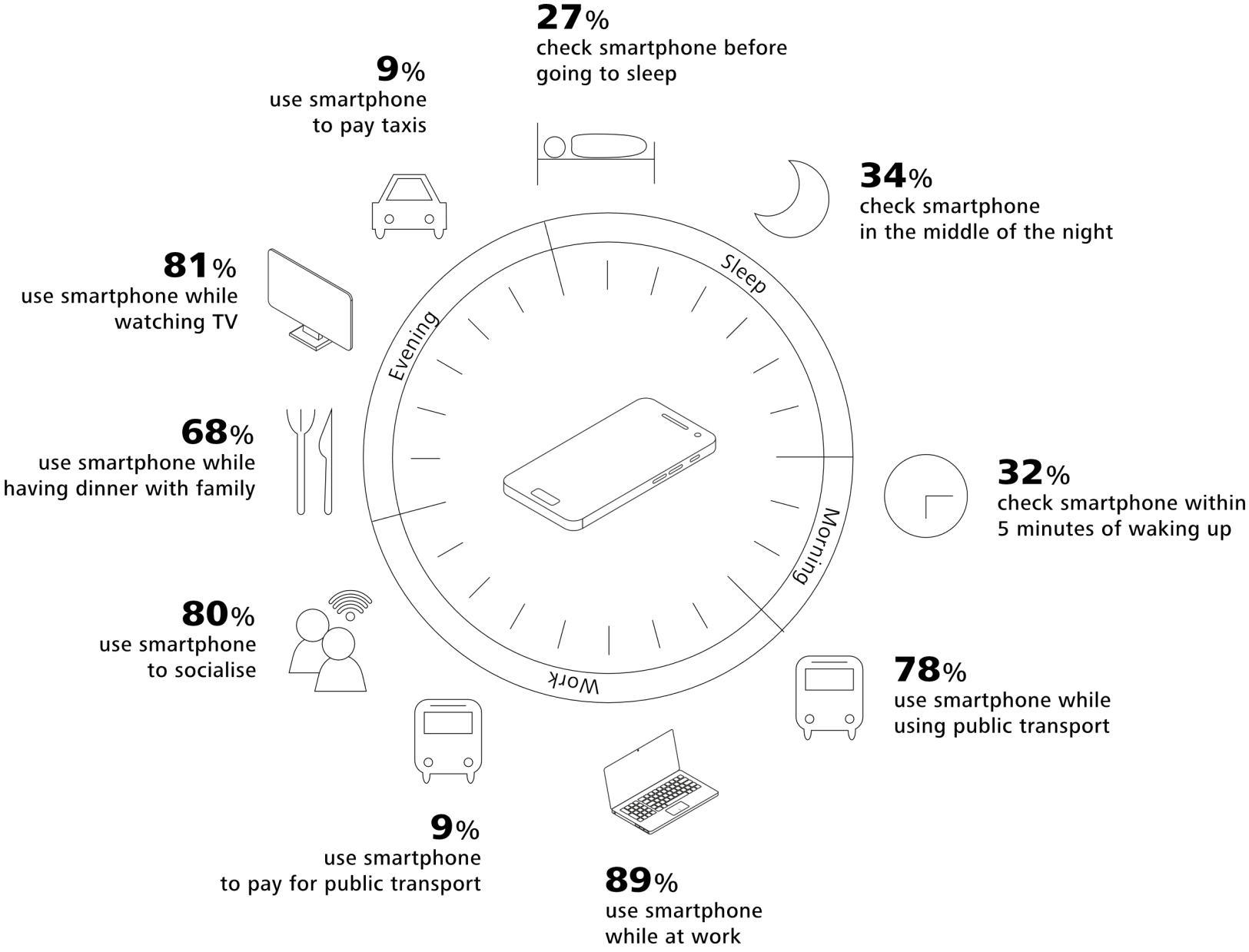
# Practically everyone owns a device – and USES it

People check their cell phone 80 times per day
168 hours per month



# Smartphone Usage

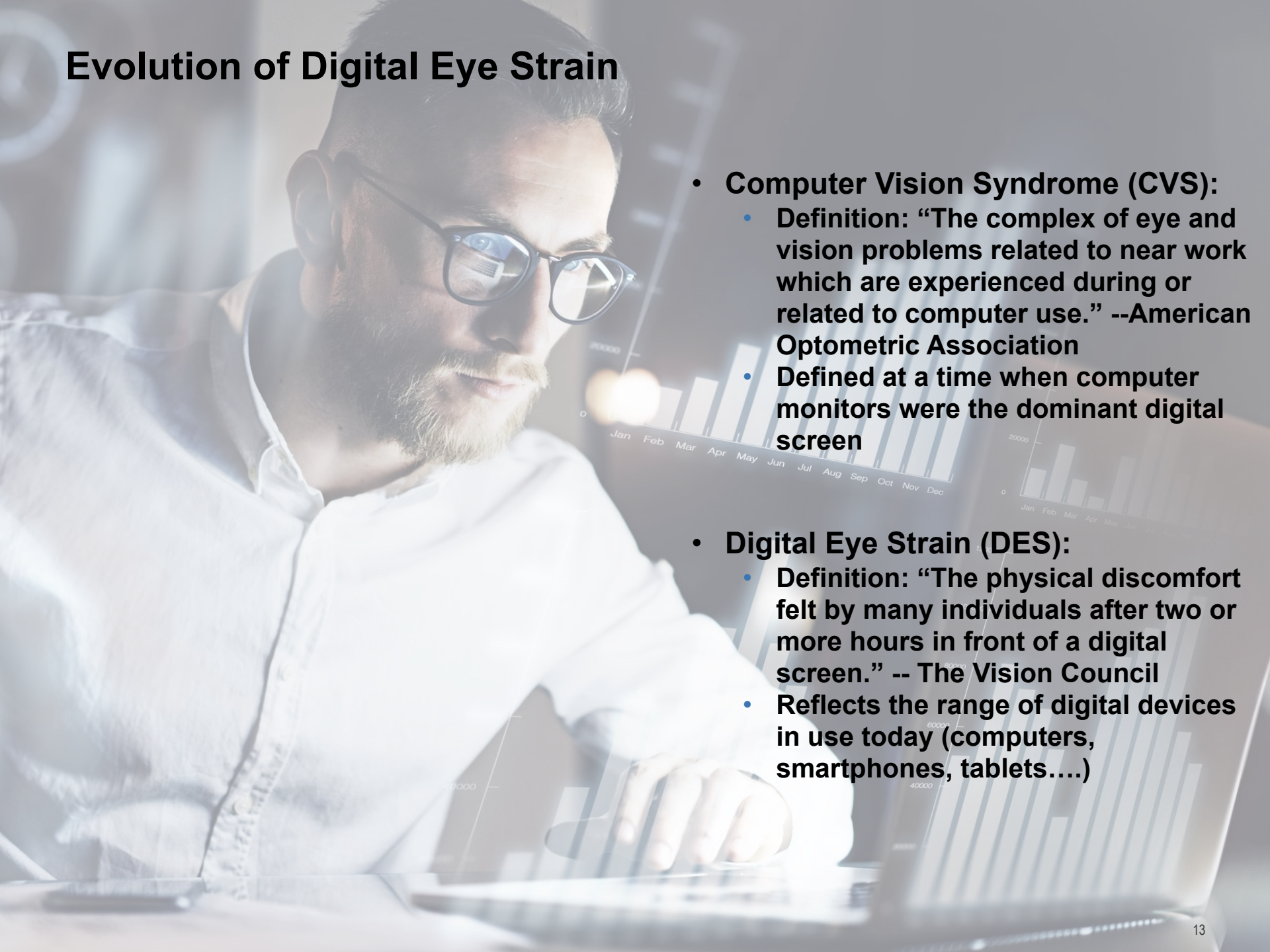


# Need more reasons to use your phone? There are a zillion apps for that.

- iTunes App Store started in 2008 with 500 apps
- 180 Billion Apps have been downloaded
  - 15 Billion per month
- How many apps do you use?

# Understanding Digital Eye Strain

# Evolution of Digital Eye Strain



- **Computer Vision Syndrome (CVS):**
  - **Definition: “The complex of eye and vision problems related to near work which are experienced during or related to computer use.” --American Optometric Association**
  - **Defined at a time when computer monitors were the dominant digital screen**
- **Digital Eye Strain (DES):**
  - **Definition: “The physical discomfort felt by many individuals after two or more hours in front of a digital screen.” -- The Vision Council**
  - **Reflects the range of digital devices in use today (computers, smartphones, tablets….)**

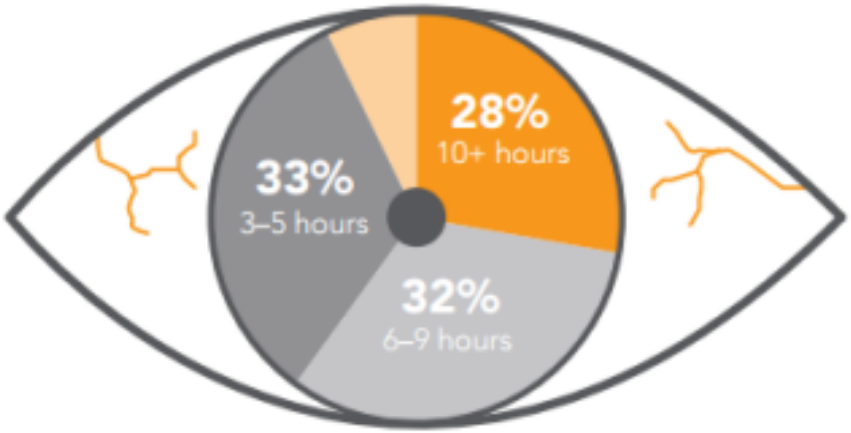
# Symptoms of Digital Eye Strain

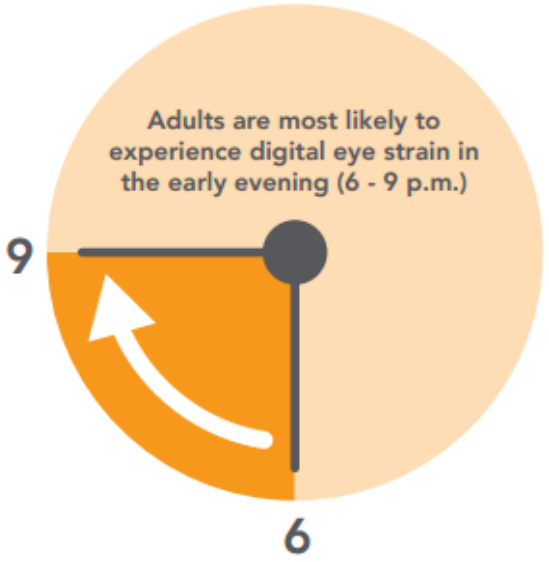
| Category | Symptoms |
|---|---|
| Asthenopic | Eyestrain<br>Tired or sore eyes<br>Headache |
| Musculoskeletal | Neck pain<br>Back pain<br>Shoulder pain |
| Visual | Blurred vision<br>Slowness of focus<br>Double vision |
| Ocular | Irritated eyes<br>Redness |

# Digital Eye Strain
# An emerging health risk

THE VISION COUNCIL

**Time spent in front of digital devices:**



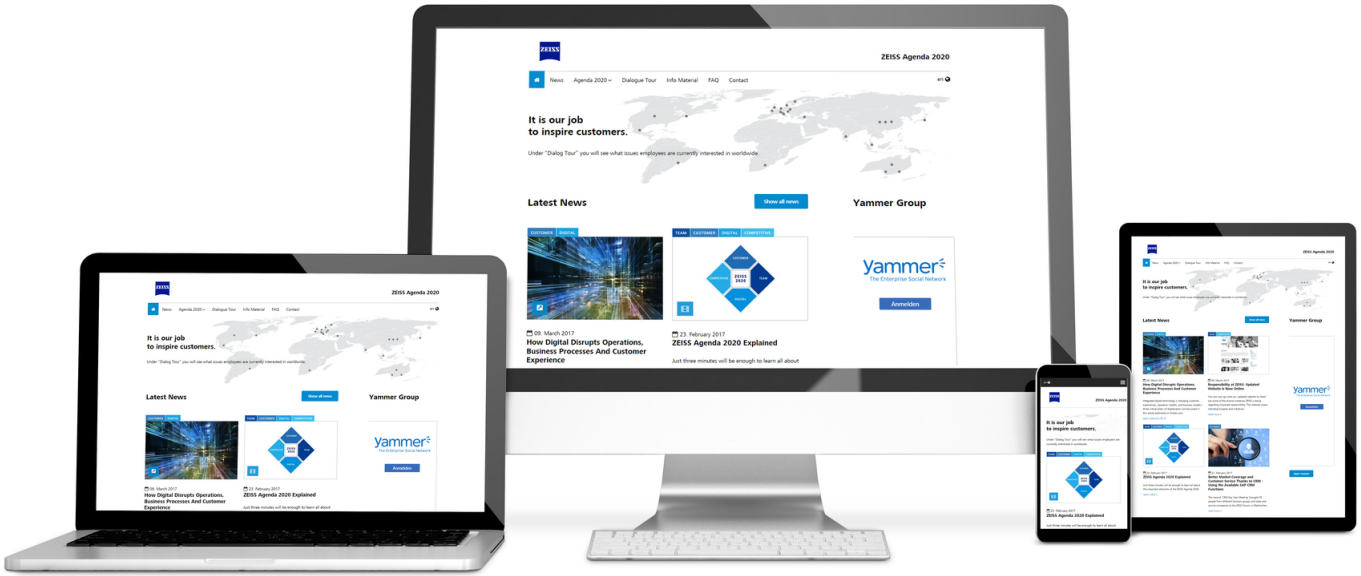

**Nearly 70%** of American adults experience some form of digital eye strain due to prolonged use of electronic devices.

Adults aged 18 to 34 report feeling eye strain at a higher rate (43%) than their older counterparts.

Digital Eye Strain… surpassing carpal tunnel syndrome and tendinitis.

# Contributing factors

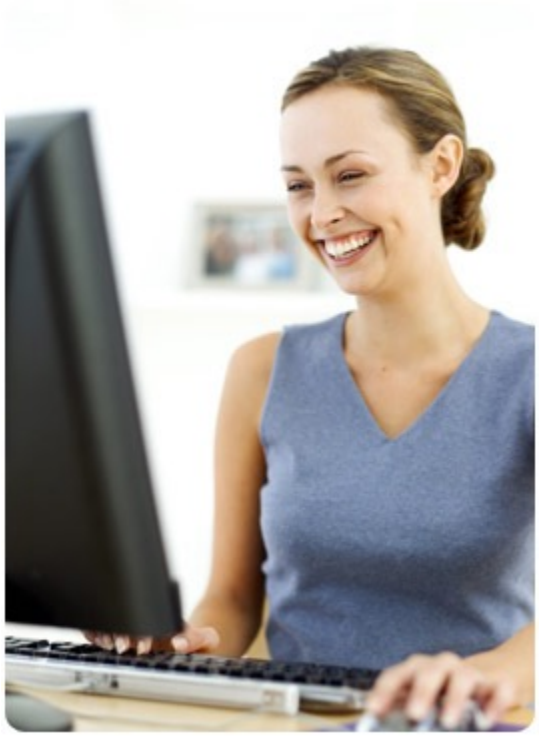
- Screen resolution
- Viewing distance and accommodation
- Ergonomics
- Behavior – how we use the digital device



# Digital screens: lower resolution and contrast


Resolution and contrast are lower than a printed page.

# Typical viewing distances



**Computer monitor:**
**20-26 inches**

**Print:**
**16 inches**

**Mobile device:**
**12 inches**

# The ability to focus on near objects declines throughout life

**Age: 5**
**Amplitude of accommodation: 20D**
**Can focus on objects 5cm away**
**(about 2”)**

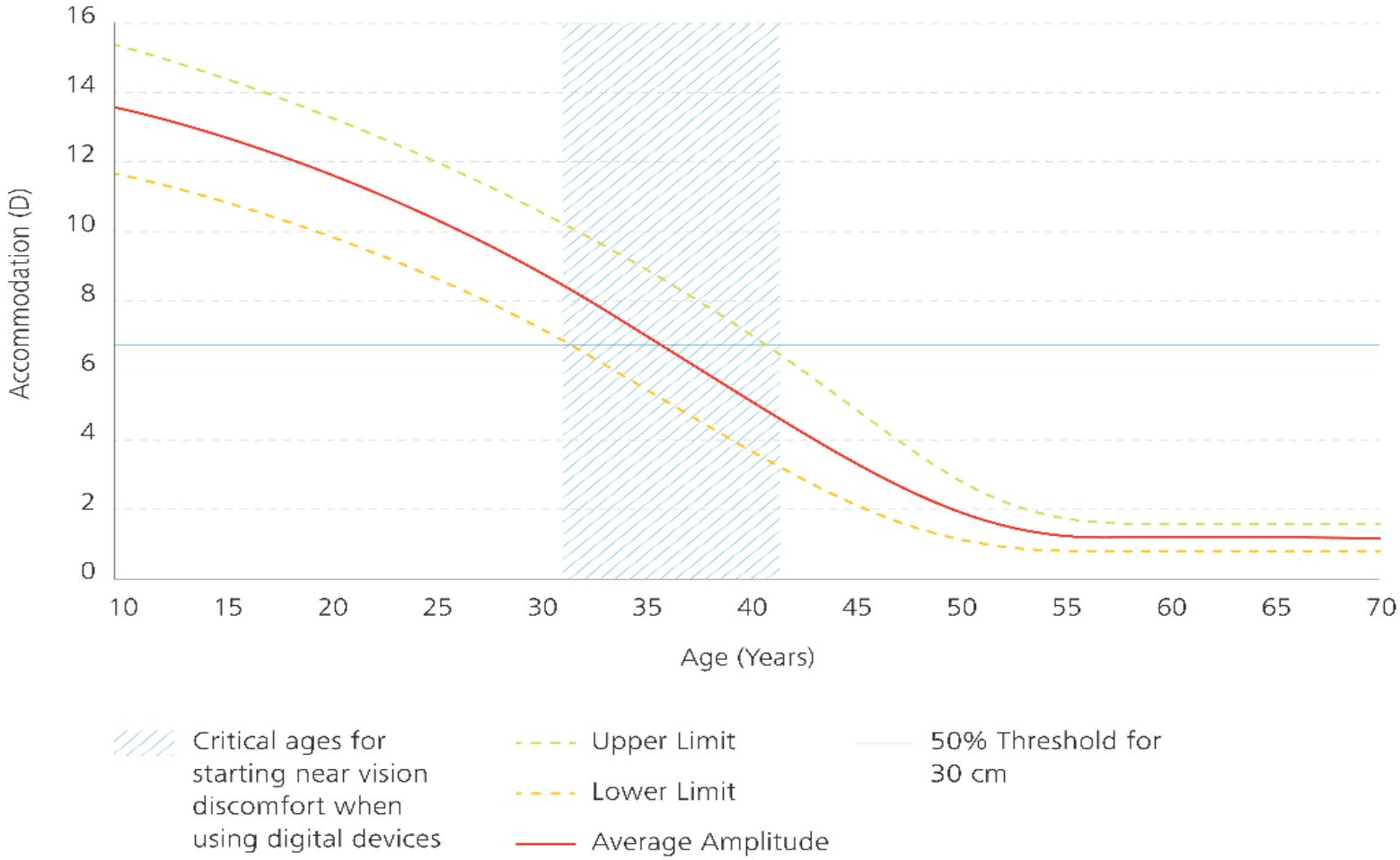
**Age: 25**
**Amplitude of accommodation: 10D**
**Can focus on objects 10cm away**
**(about 4”)**

**Age: 60+**
**Amplitude of accommodation: 0.50 - 1.00D**
**Can focus on objects 1 – 2 meters away**
**(about 40-80”)**

# How much accommodation do you need?

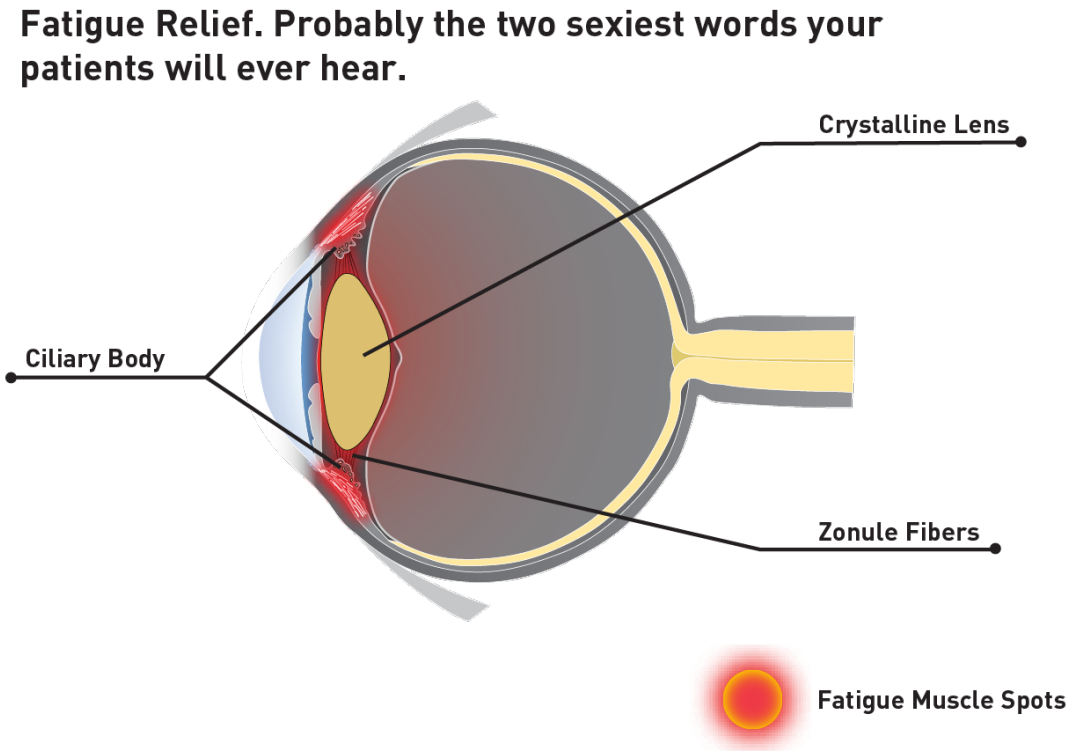
- Handheld devices typically held 12” (30cm) from eye
  - = 3.33D of demand
- Typical guideline for prescribing add power:  leave 50% of available accommodation in reserve to maintain comfortable vision for sustained near work
- Total needed for typical computer monitor distance (24”) = 1.66D
- If you are looking at 12”, you need 6.66D of total accommodation

# Amplitude of Accommodation



# What does it mean?

- Presbyopes may have trouble viewing their monitors beginning in their early 40s
- Pre-presbyopes may have trouble viewing their smartphones in their early 30s



# Summary of digital device issues

| Device | Characteristics | Problems affect | Needs |
|---|---|---|---|
| Computer | • Sustained task<br>• Fixed location (you go to it)<br>• Centered on intermediate | Presbyopes | • Comfortable intermediate and near vision<br>• Specialty lenses acceptable |
| Handheld | • Intermittent task/ multitask<br>• Any location (it goes with you)<br>• Frequent refocusing<br>• Centered on ultra-near | 20 and up | • Support for accommodation and refocusing<br>• Specialty lenses not acceptable |

# Limitations of Traditional Spectacle Lenses

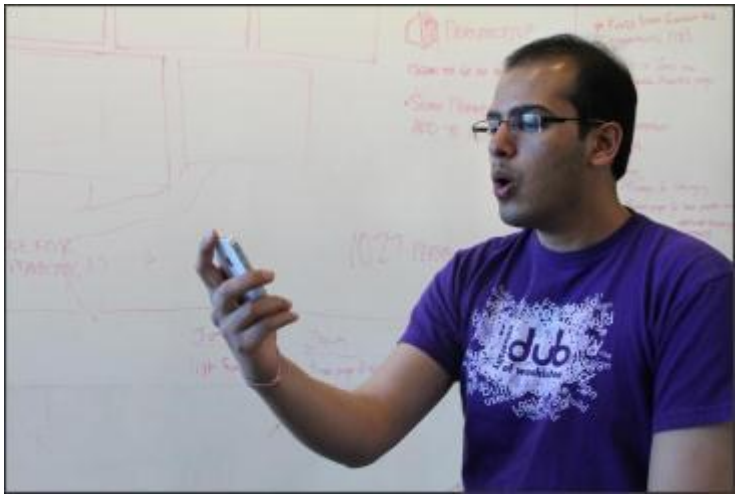
# Single vision and bifocals

Computer

- No midrange vision
- In order to see mid-range objects like a computer screen clearly, the wearer is forced to lean forward, resulting in back and neck pain

Mobile devices

- Single vision doesn't support short-distance accommodation
- Bifocals are something old people wear



# General-purpose progressive lenses

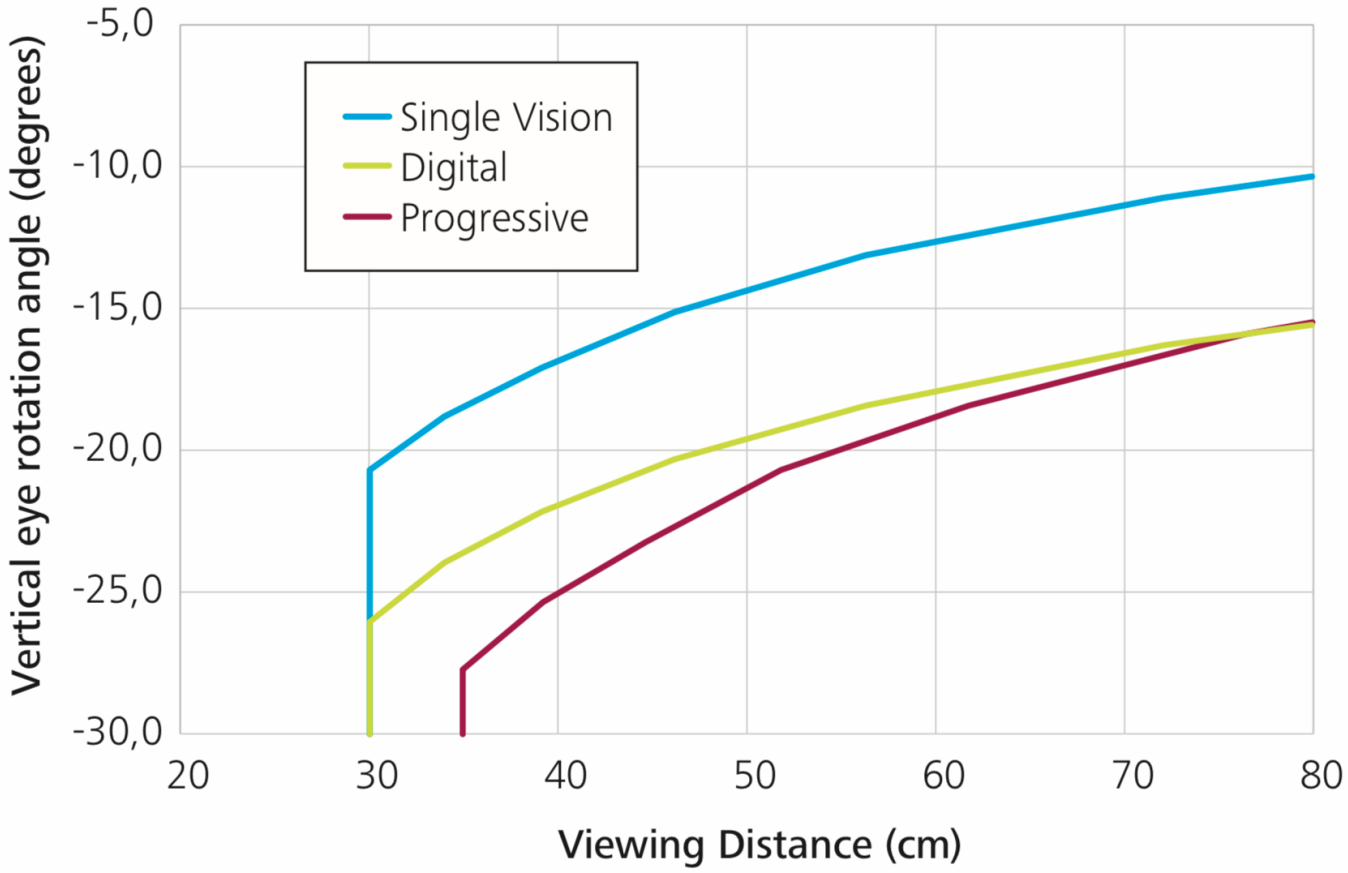
Computer:

- Relatively limited fields of clear vision through the intermediate zone of the lens
- Wearers must lift their chin to use the intermediate zone of the lens and execute frequent head movements to see across the visual field

Mobile devices

- Younger wearers: PALs offer more capability than they need, and cost more than they want to pay
- Presbyopes: Near is designed for the longer reading distance of printed matter

# Use the Correct lens For the Correct Task



# Lenses for mobile device use

## Purpose of Anti-Fatigue Lenses

- **Address a near/dynamic vision issue**
  - **A problem that affects a broad range of ages**
- **Provide a solution for an intermittent task**
- **With**
  - **Near vision/refocusing support**
  - **A general-purpose lens**

**Primary pair optimized for digital devices and all-day use**

**Large distance zone with a single vision feel**

**Comfortable near zone for digital viewing**

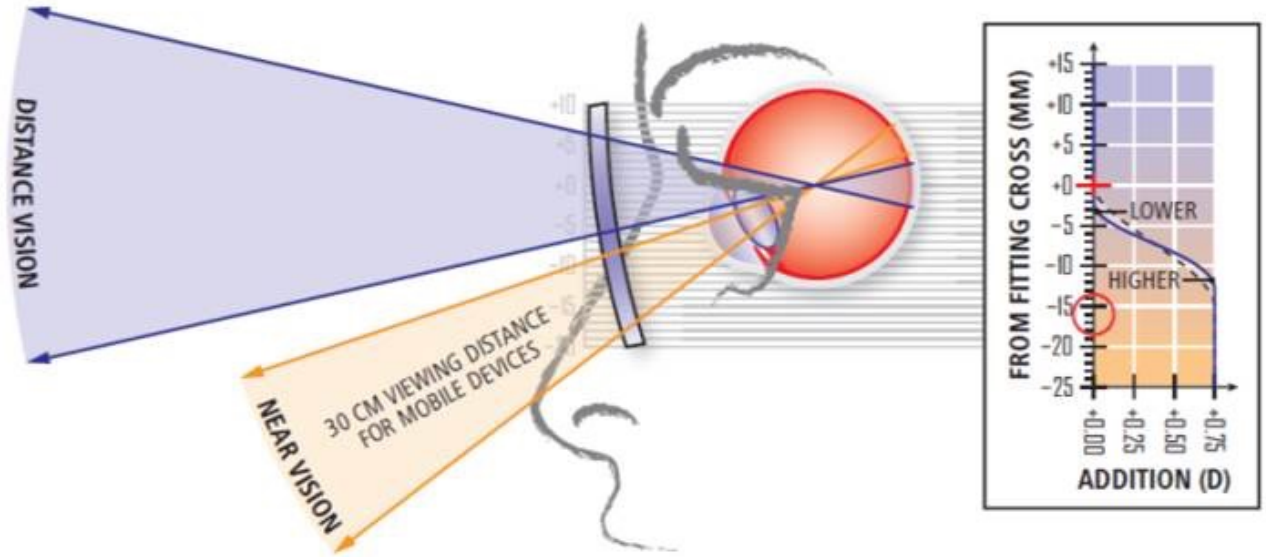
# For Single Vision Wearers Age 25-45 Years of Age

Wide and clear distance zone

Rapid transition to near zone

Low power boost in the near: +0.50D to +1.25D

# Designed for the Mobile Life of Single Vision wearers




- Supplemental addition power to offset the load on accommodation.
- Start of the progression of power has been lowered
- Length of the progression of addition power has been shortened
- Optics and position of the near zone have been specifically calculated for the optimum viewing of mobile devices at 30cm
- **Customized for Rx and frame height**

# Typical add power selection matrix

| Patient Type* | 25–35 Years | 35–45 Years |
|---|---|---|
| *Myopia Greater than −2.00 D* | *+0.50D* | *+0.75D* |
| *Emmetropia with Mild Symptoms* | *+0.50D* | *+0.75D* |
| *Emmetropia with Severe Symptoms* | *+0.75D* | *+1.00D* |
| *Hyperopia Greater than +2.00 D* | *+0.75D* | *+1.00D* |

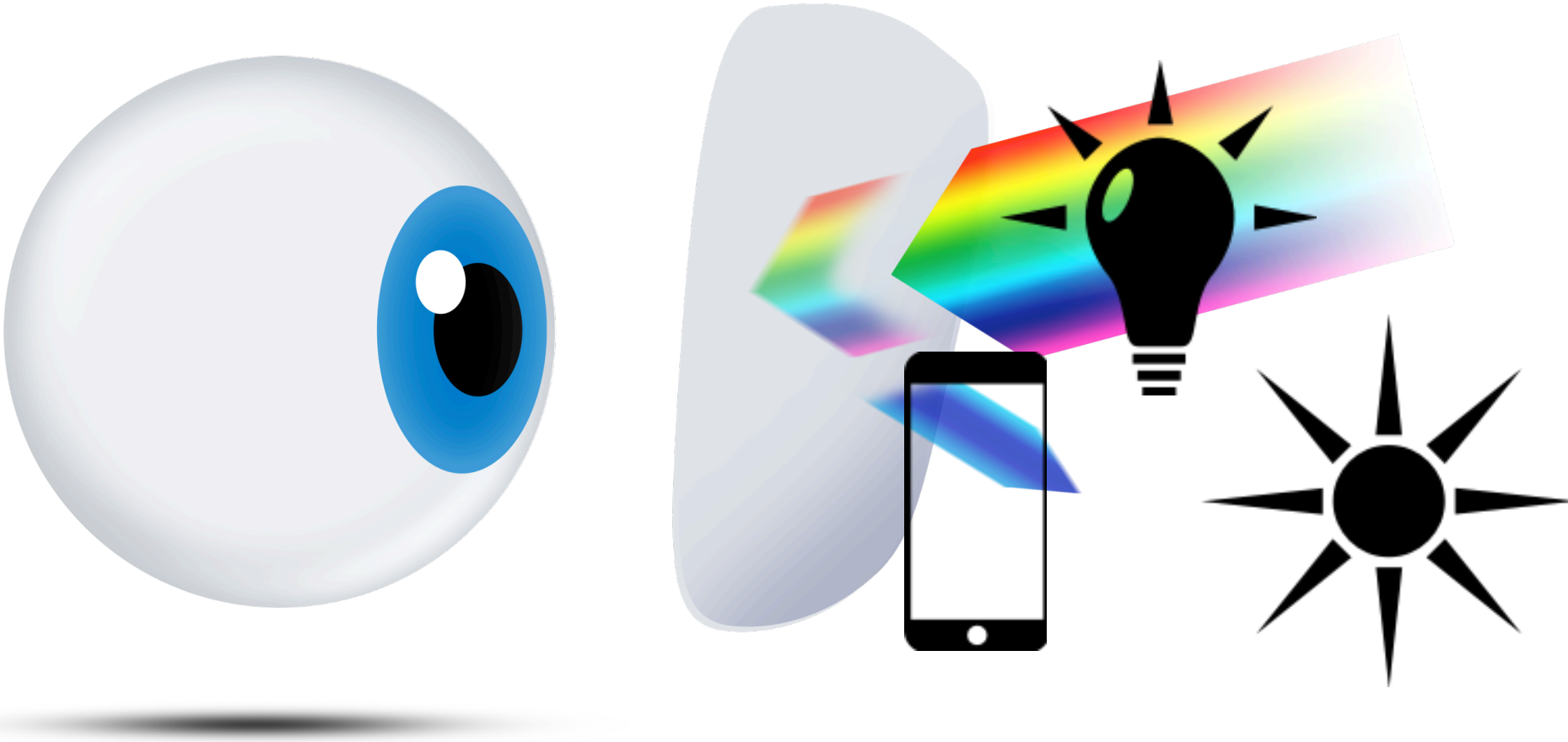
*** For moderate to severe symptoms of digital eye strain, rule out any pathology, binocular vision dysfunction, dry eye, poor ergonomics, and other factors that may contribute to visual discomfort**

**Near refraction results recommended before dispensing +1.25D add**

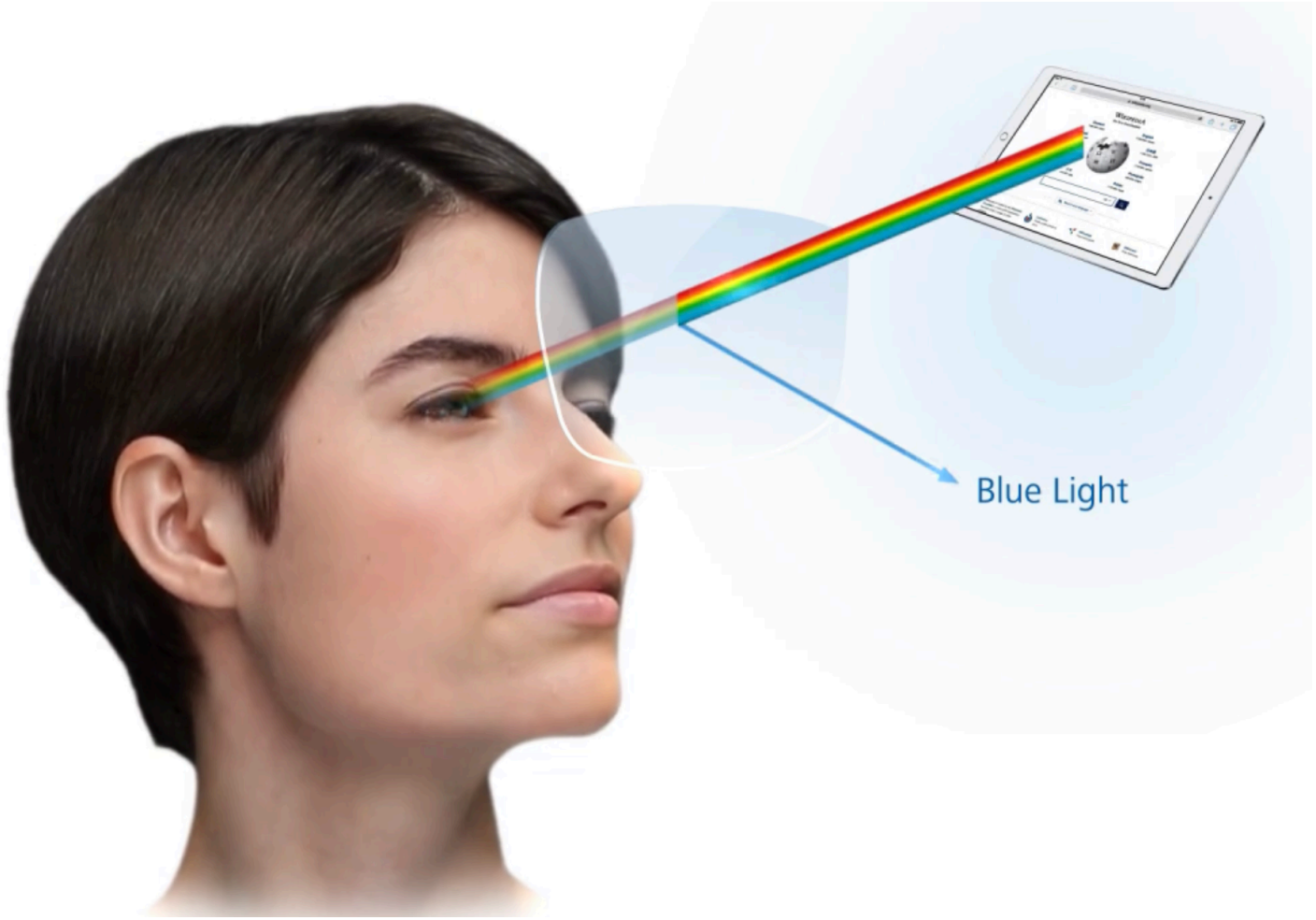
# Current Anti-Fatigue Lenses

| ZEISS | ESSILOR | HOYA | SHAMIR |
|---|---|---|---|
| ZEISS Digital (0.50 - 1.25)<br>EnergizeMe SV(0.40)<br>EnergizeMe Digital(0.65) | Eyezen +1 (0.40)<br>Eyezen +2 (0.60)<br>Eyezen +3 (0.85) | Sync 5 (0.53)<br>Sync 8 (0.88) | FirstPAL (0.50 - 1.50)<br>Relax (0.65) |

# Blue Light protection from DES



# Consider Pre-Made Plano Spectacles with Blue Light Protection



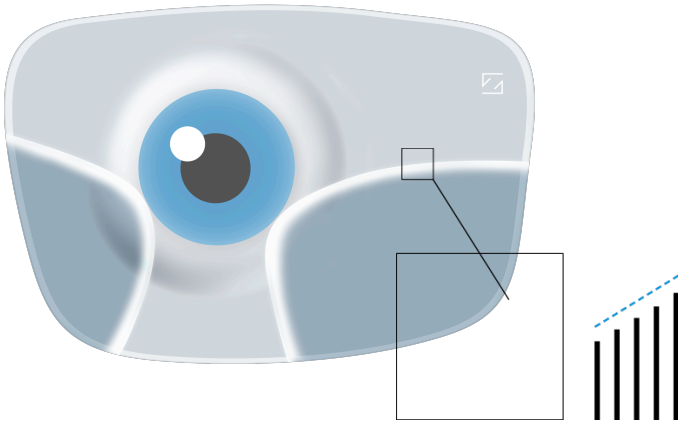
Lenses for computer use

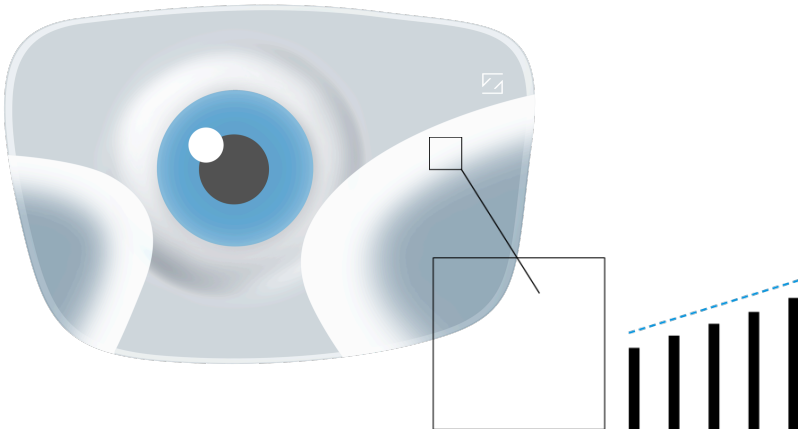
# Purpose of computer lenses

- Address an intermediate vision issue (viewing monitor)
  - i.e., a problem primarily affecting presbyopes
- Provide a solution for a sustained visual task (working at desk/workstation)
- With
  - More intermediate vision than provided by general purpose lenses
  - A task-specific lens

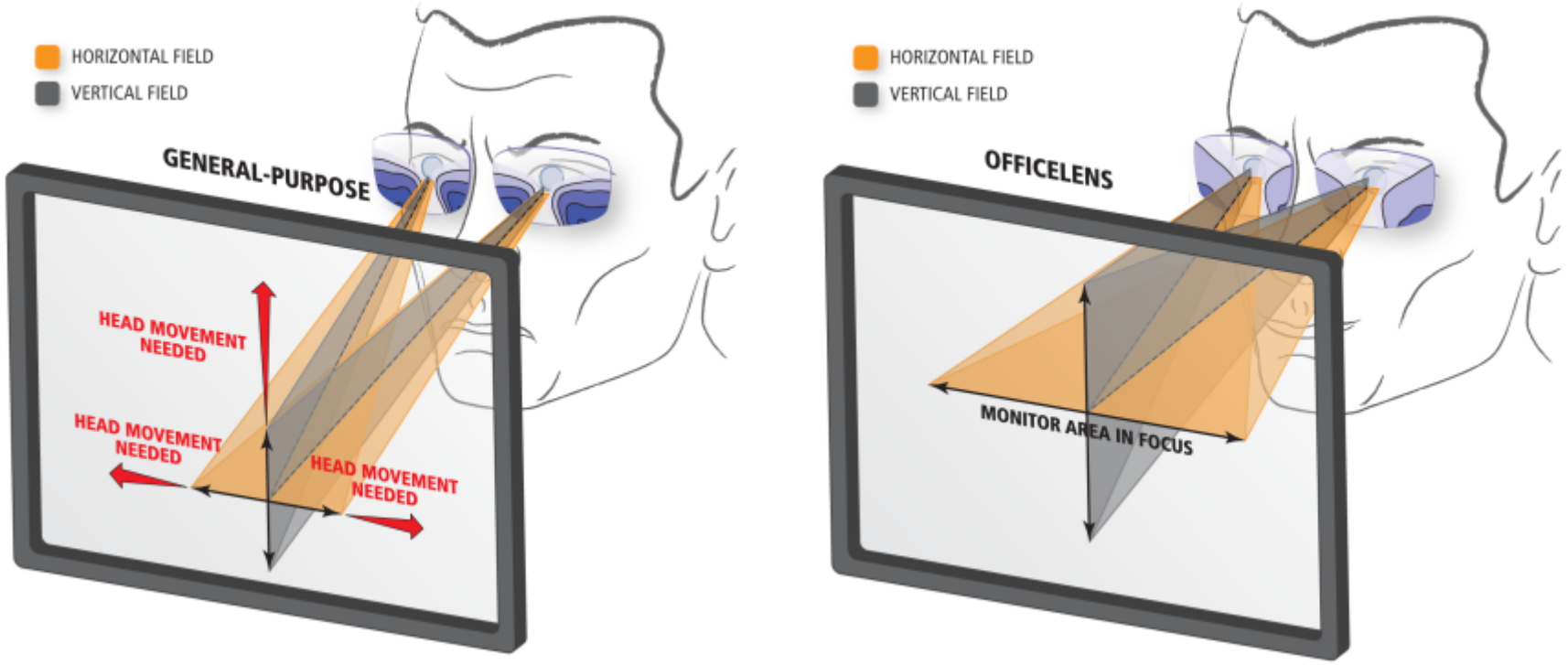
# Standard Progressives as Task Specific/ Computer Lenses

- Top half of lens provides wide area of stable midrange power
- Allows clear view of screen with comfortable posture
- Bottom half of lens provides extra-wide reading area
- Smaller power change from midrange to near reduces unwanted astigmatism





# Task specific lens: large field of clear intermediate vision,  less head movement



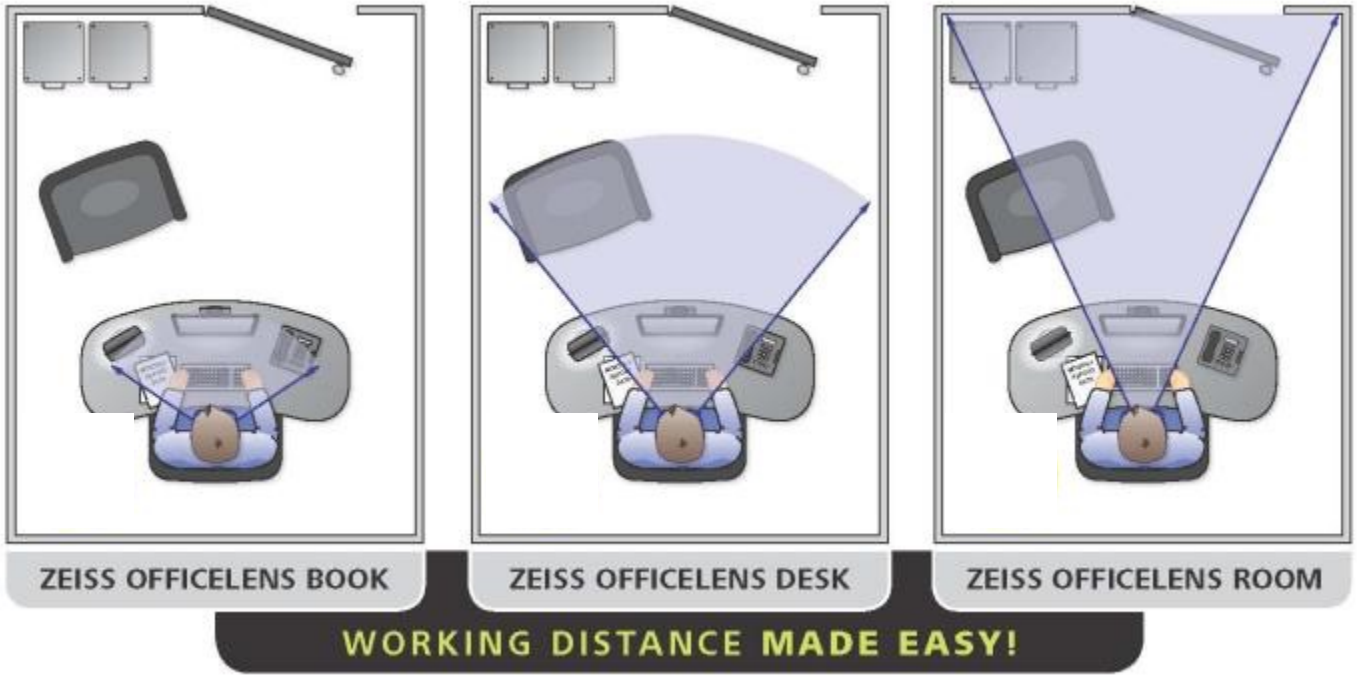
# Improved ergonomics




**Wide intermediate high in the lens allows clear view of screen without head tilt or excessive head turning.**

# Balance of zone width and vision range

- Office/Task Specific lenses come in different design options for every patient's workspace needs
- Each offers a different balance between the width of the viewing zones and the maximum extent of clear vision



# The opportunity

# Telecommuters need a vision solution for the way they live today

**Their Life**

Time starved, sleep deprived; balancing work and play

**Their Needs**

Need help reading digital devices, especially toward the end of the day. Does not want to feel “old” or pay for a progressive.

**Digital Lifestylers**

**25-45 yrs old**

**HIGHEST RISK TO PURCHASE EYEGLASSES ONLINE**

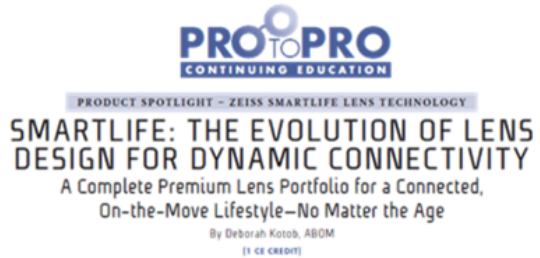
**The Solution**

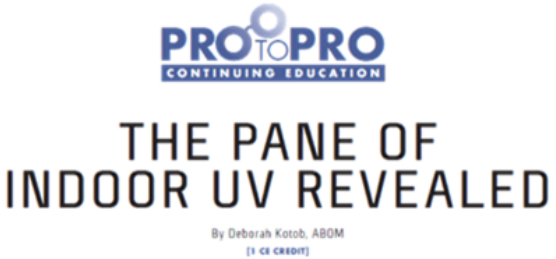
A primary pair lens designed specifically for digital devices, and all day use

Digital devices are used for everything – work and leisure

**Their Digital Life**

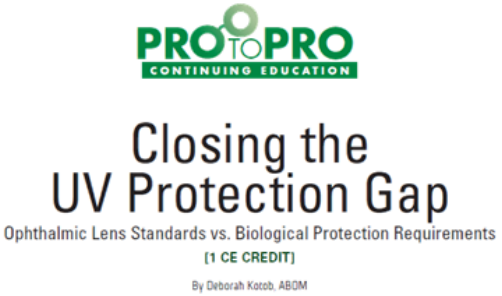
# ZEISS CE Credits










https://
www.2020mag.com/ce/

# ZEISS Other Webinars https://zeiss.com/

## Eye strain and working from home

While telecommuting is not a new concept, the Novel Coronavirus pandemic is creating tens of millions of new telecommuters as they adhere to social distancing guidelines. For many, the elimination of the daily commute is extending their workday which means more screen time as they work, meet, and socialize remotely. This webinar will look at the impact on our eyes this change creates and the solutions ECPs can provide to help.

## Telemedicine: Adapting to the new world we live in

In this webinar we will explore the ways Telemedicine can be implemented into practices of all sizes allowing Eye Care Professionals to improve the patient experience while improving efficiency, chair time, and even allow for the expansion of available exam times without necessarily increasing hours a doctor must spend in the office.

## Social Media and Patient Outreach

As traffic in your office and dispensary slows due to outside forces, it is more important than ever to make sure consumers know about the services you offer and how to you set yourself apart from the competition. In this webinar we will share with you some best practices for your online presence and patient outreach.

## ZEISS UVProtect: Elevating the standard of care by closing the UV protection gap

As an Eye Care Professional, you have a duty to warn and a duty to protect. In this webinar we will discuss how a gap in UV protection in clear lenses became the standard, the implications of not addressing it, and the tools Eye Care Professionals now have to eliminate it.

## Maximizing every selling opportunity

With increased competition and reduced traffic in the dispensary due to outside forces and social distancing it is more important than ever to understand the ways you can maximize each selling opportunity. This webinar will provide you with some of the best practices to improve margins for private pay and managed vision care.

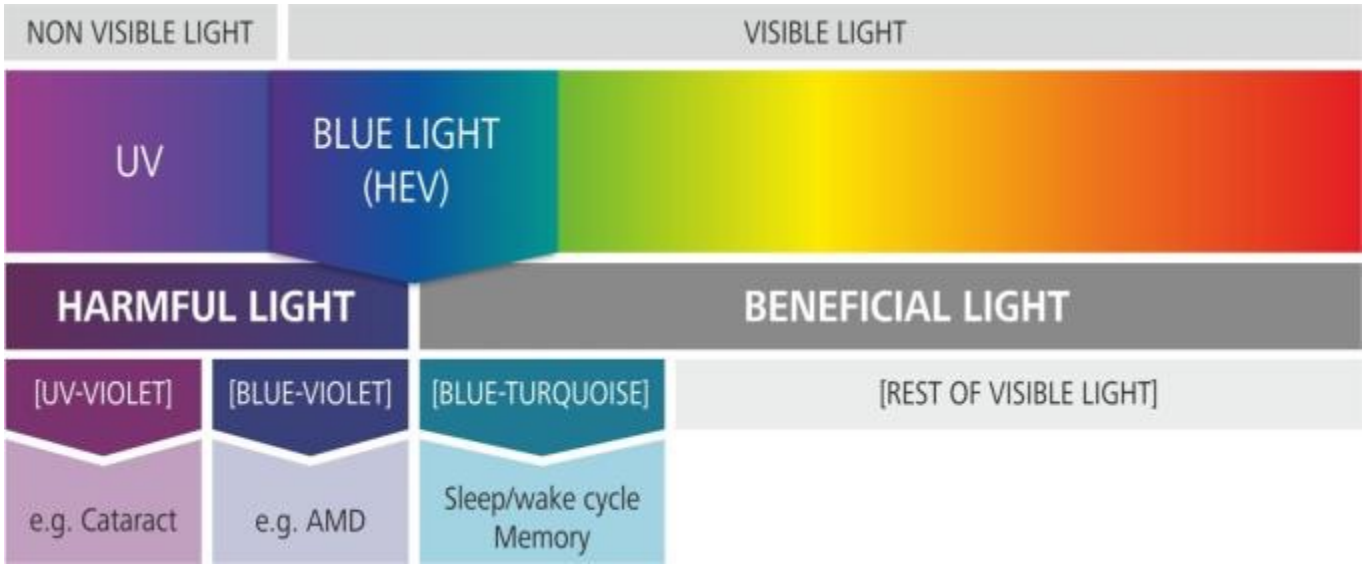

We make it visible.

It’s not just the lens design

## DuraVision® BlueProtect

What is blue-violet light?

**High Energy Visible Light** (HEV; 390-500nm) is part of the visible spectrum. Scientific evidence has indicated there are **benefits** to HEV exposure, but there are potentially **risks** as well (Dualism of blue light)




**Blue-Violet light** is considered the potentially harmful part of the HEV spectrum

- Blue-violet light typically is the range between 390 – 440nm)
- Blue-violet light might cause damage to the retina

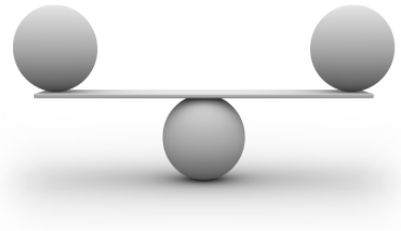
## DuraVision® BlueProtect

The positive and negative aspects of blue light

**The Blue Light Challenge**

Blue light

- provides **basic illumination** to us
- is directly involved in **biological processes** (e.g. day-night rhythm known as circadian rhythm)
- helps to increase feelings of **well being**



- Evidence that exposure to large amounts of blue light may be **harmful to the eyes.**

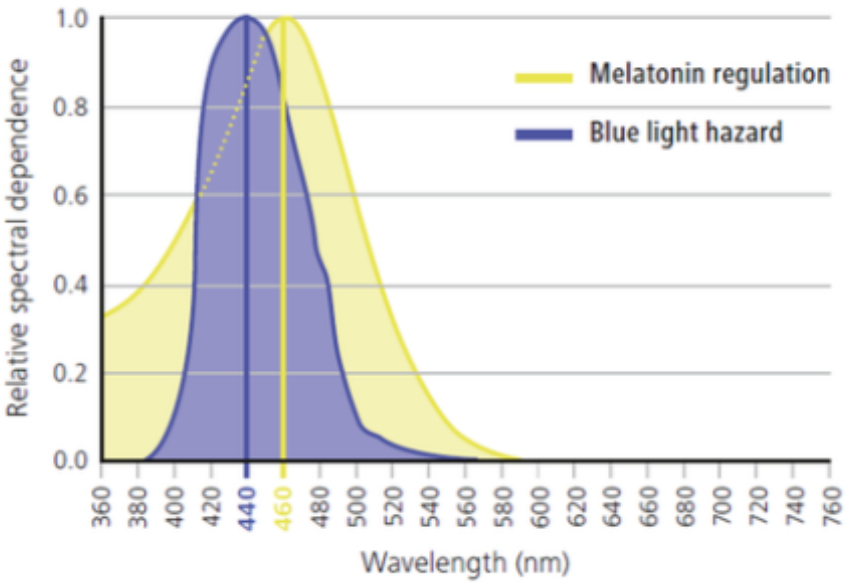
We call this the **Dualism of Blue Light**
Blue light can be potentially both to us: harmful or beneficial.

## DuraVision® BlueProtect

Coming back to the dualism of blue light…

The goal is:

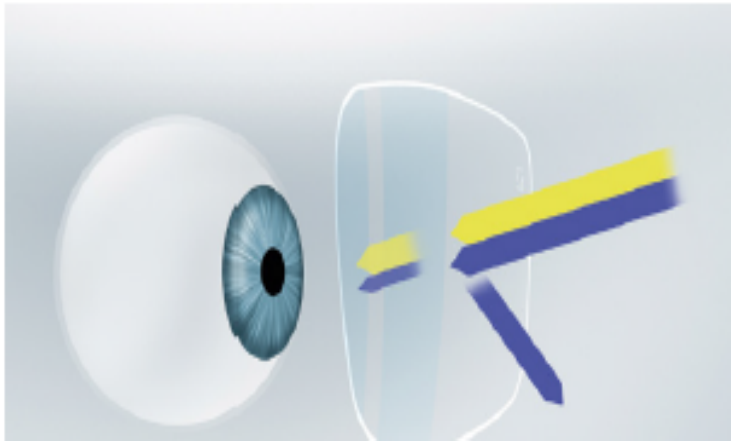
- **Block** blue light **below 440 nm** to reduce the potential risk of retinal damage. (blue curve)
- **Ensure transmission** of blue light **above 460 nm** to avoid disruptions to important biological and physiological functions. (yellow curve)




**It is essential to respect this dualism of blue light.**

# DuraVision® BlueProtect

**A coating with unique performance by:**



- **increased reflectance in the blue-violet** spectrum of light
- **selective attenuation of the blue-violet light** passing through the lens
- **reducing the amount** of blue-violet light **entering the eye**

**DuraVision® BlueProtect is a solution for specific needs:**
Reducing the amount of blue-violet light entering the wearer's eyes.

# ZEISS AR Portfolio

| DuraVision Silver | DuraVision Platinum | DuraVision Sun | DuraVision BlueProtect |
|---|---|---|---|
| | Index Optimization | Index Optimization | Index Optimization |
| Anti-Static | Anti-Static | Anti-Static | Anti-Static |
| Low Reflectance (Blue) | Lowest Reflectance (Blue) | Lowest Reflectance (Blue) | Specially Tuned “Blue Blocking” Reflectance |
| High Scratch Resistance | Ultra High Scratch Resistance | Ultra High Scratch Resistance | Ultra High Scratch Resistance |
| Easy Cleaning (110º) | Easy Cleaning (110º) | Easy Cleaning (110º) | Easy Cleaning (110º) |
| Long Lasting Cleanability | Long Lasting Cleanability | Long Lasting Cleanability | Long Lasting Cleanability |
| VSP - Category C | VSP - Category D | VSP - Category D | VSP - Category D |

## Presbyopes may need solutions for digital devices

26% of Baby Boomers spend at least 9 hours per day on digital devices

- Computer lenses:  can be tailored to each patient's workplace needs
- Progressives: shouldn't your patients have an all-day pair that addresses *all* of their daily vision needs? Now you can provide it.

## The evolution of digital device eyewear

- Use of digital devices was once a specialized task – now it is an activity embedded in our lives.
- For a specialized task, a specialized lens will work well
- But for tasks that are a continuous part of daily, live, the primary pair must address the issue
- A general purpose lens, whether for single-vision wearers or presbyopes, must address digital device viewing
  - If it doesn't, it's not really general purpose

# Final Thoughts

- Digital Eye Strain affects most U.S. adults – and it's not going to go away by itself

- We have the opportunity
  - To relieve the problems we know patients are having
  - To demonstrate the value we add in a new way
  - To increase premium lens sales

**Address the *entire* need!**

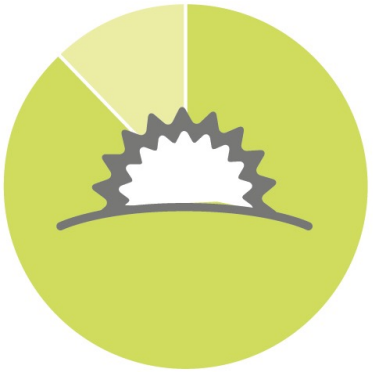

DriveSafe

# ZEISS DriveSafe - video

# Most patients have to drive in poor visual conditions. . .

**94%**
Rain/Mist

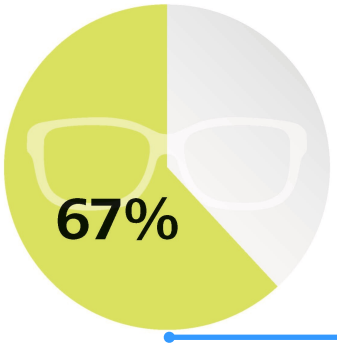
**76%**
At Night



**88%**
Dusk

**74%**
Fog

# . . . and millions of them struggle to feel confident on the road.




- More than 2/3 have difficulty driving in poor visual conditions

*“Headlights of cars dazzle me”*

*“ My distance vision is impaired"*

*“Hard to see direction & traffic signs”*

*“Driving is stressful. I feel very insecure”*

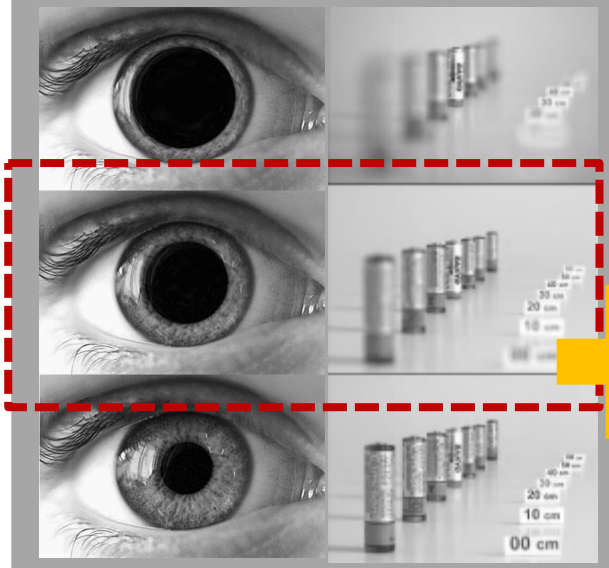
# What is causing these visual challenges?

1. Poor visibility in low light conditions such as rain, dusk or at night.
   - Poor peripheral vision and difficulty calculating distances
2. Glare from oncoming cars at night and dazzle from wet roads.
   - Glare impairs visibility and reaction time
3. Difficulty in refocusing when the eyes alternate between the road ahead and dashboard.
   - Impaired dynamic vision can lead to fatigue and dizziness

# ZEISS DriveSafe

The world's first lens/coating solution for driving and all day wear

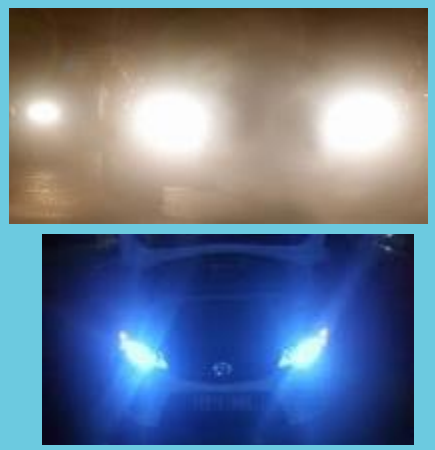
**1** Luminance Design®



- ZEISS … ons calcu…
- Op… mes…

**Better**
**Color** Distinction
**Depth** Perception
**Reaction** Time

**2** DuraVision® DriveSafe



HELLA
Technology with Vision

- **Proprietary coating** selecti… …e light glar… …alogen hea…
- **Te…** …**with HEL…**

**2 to 1**
Preference for Glare Reduction

**3** DriveSafe Design


**ZEISS Drive PAL**

- **ZEISS V… …ce &** **FKFS** …havior whil…
- **14…**
- **43%**
- **Faste…** …rors-road

**Optimal**
**Distance** Zone
**Dynamic** Vision

# ZEISS DriveSafe – a new solution patients love.

**Wearer trials demonstrate VERY HIGH patient SATISFACTION for both driving and all-day use:**

**97%**

**97%** when driving

**94%**

**94%** doing everyday tasks, e.g. work in the office

# Help a real patient need while building your practice.

- ✓ Meets a real need for millions of patients
- ✓ Clear benefits that are easy to explain
- ✓ Easy to sell - a primary pair of eyeglasses
- ✓ Real innovations tested by ZEISS
- ✓ Proven with patients
- ✓ Solution story, no need to “upsell” features like AR

# ZEISS DriveSafe Individual PAL

## What's new?

| |  ZEISS Precision Pure |  ZEISS Precision Plus |  ZEISS DriveSafe PAL |  ZEISS Precision Superb |  ZEISS DriveSafe Individual |  ZEISS Individual 2 |
|---|---|---|---|---|---|---|
| IndividualFit™ Technology | | | | | | ✓ |
| Luminance Design® Technology | | | Optimized Mesopic | | Optimized Mesopic | Optimized All-day |
| FaceAdapt™ Technology | | | | ✓ | ✓ | ✓ |
| DriveSafe Design Technology | | | ✓ | | ✓ | |
| FrameFit+® Technology | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Digital Inside® Technology | ✓ | ✓ | | ✓ | | ✓ |
| Precision Technology | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Fixed corridor | Variable corridor | | | | |

Questions?

# Thank you!