Visual Fatigue Syndrome

The Price of Today’s Near and Intermediate World

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Fundamental Shift in Use of Vision

- Past: Primarily used Distance vision
- Today: Primarily use Intermediate/Near

Fundamental Shift in Use of Vision

Most professionals require extended intermediate and near viewing
- Accountants
- Attorneys
- Engineers
- Business administrators
- Architects
- Computer technology
- Designers
- Medical/allied health

Widespread Computer Use

Work, Home, School:

- Over 55% use computers at work
- Out of 100 million in US – 50% of workday is spent at a computer
Widespread Computer Use

- 73% of U.S. adults use computers
- 71% access the internet
- In a recent study of more than 1,000 patients 25 years and older, respondents averaged between 6 and 7 hours per day at a computer

In the past decade, computer use among children in the United States has increased dramatically... Consider these statistics:

- 94 percent of American families with children have a computer in the home with access to the Internet

Widespread Computer Use

- The amount of time children ages 8 to 18 devote to entertainment media (including computer and video games) each day has increased from 6.19 hours in 1999 to 7.38 hours in 2009

Widespread Computer Use

- In 2009, 29 percent of American children ages 8 to 18 had their own laptop computer, and kids in grades 7 through 12 reported spending an average of more than 90 minutes texting on their cell phones
Today’s visual demands place greater stress on near and intermediate vision than ever before...

- More than 70% of 143 million Americans who work on a computer are affected by visual fatigue on a daily basis according to the AOA.
- Studies show that eye strain and bothersome visual symptoms occur in up to 83% of computer users.

Approximately 10 million eye exams are performed annually in the U.S. due to vision problems related to computer use, making it a major public health issue.
- 71% of those patients examined already wear corrective lenses for myopia, hyperopia, astigmatism or presbyopia but still have visual fatigue and eye strain.

Computer use is the most common source of visual strain and fatigue, but cell phones, handheld electronic devices and video games also may cause visual strain.

What is Visual Fatigue Syndrome?
A visual condition consisting of a sum of TREATABLE symptoms including:
- Headache
- Loss of focus
- Blurred vision
- Burning of the Eyes
- Tired Eyes
What is Visual Fatigue Syndrome?

A visual condition consisting of a sum of TREATABLE symptoms including:

- Red Eyes
- Dry Eyes
- Neck and Shoulder Pain
- Overall general Fatigue

“The complex of eye and vision problems related to near work which are experienced during or related to computer use.”

---American Optometric Association

VFS- On the Rise

- 50-90% of computer users experience visual symptoms
- 22% of computer users experience musculoskeletal disorders

Contributing Factors – The Patient

- Condition of the patient’s eyes and visual system
- Working environment
- Work habits
- The eyes leading the body
- Too much staring, not enough blinking
Contributing Factors – The Computer

- Position of the monitor
  - Distance from the eyes
  - Location relative to eye level
- Nature of the image
  - Difficult to focus on pixel images
  - Eyes tend to relax to a point beyond the screen (resting point of accommodation)
  - Constant refocus needed, tiring the eyes

Contributing Factors – The Office Environment

- Inappropriate lighting
- Reflections from the computer screen or outside sources
- Poor ergonomics
- Dry and poor quality of office air

Detection and Diagnosis of VFS based on patient SYMPTOMS...

- During eye health exam, must screen every patient by asking specific questions regarding their computer use, hobbies, reading and any visual fatigue symptoms that may accompany these activities
- May use a specific patient questionnaire or add to case history form

What Specific Questions should we ask our patients?

1. How many hours per day are you on a computer or other electronic device at work and/or home?
2. Do you have any hobbies that require you to use your eyes up close?
3. Do your eyes ever feel tired or strained while on the computer?
4. Do you ever have blurred or out of focus vision while on the computer?
What Specific Questions should we ask our patients?

5. Do your eyes ever feel dry or get red while using the computer?
6. Do you experience headaches with computer or electronic device use or while engaging in your hobby?
7. Do you experience neck or shoulder pain while using the computer?
8. Do you feel overall fatigue during or after computer use?

Detection and Diagnosis of VFS based on CLINICAL FINDINGS...

What clinical tests will aid the doctors and staff in the diagnosis of VFS?

- Refractive errors
- Binocular vision
- Accommodative problems
- Presbyopia and near vision correction
- Dry eyes

Diagnosis of VFS

VFS
Symptoms + Clinical findings = VFS diagnosis

Who is affected by Visual Fatigue Syndrome?

- Emmetropes, Myopes, Hyperopes & Astigmats
- Non-presbyopes & presbyopes
- Spectacle lens wearers
- Contact lens wearers
- Refractive surgery patients

Visual Fatigue can affect anyone at any age...Child, Teen, Young to Mature Adult
Treating VFS using Computer Eyewear

1. Single Vision Lenses or Readers
2. “Anti-Fatigue” Lenses for Non-Presbyopes
3. Near Variable Focus “Computer” Lenses for Presbyopes
4. Progressive lenses

Single Vision Computer Lenses

- In the past most lenses prescribed in computer glasses were Single Vision because not many other lens options were available.
- Although SV lenses sometimes are an adequate solution for near tasks, the range of focus is extremely limited to one set distance. Patients are unable to walk around or see other distances in the office, so must constantly be taking on and off.

Single-Vision Lenses

- Most presbyopes wearing single vision lenses for reading and up-close work have blurred mid-range vision.
- One solution is to move mid-range objects closer, but that is not always possible.
- Another solution is an extra pair of single vision lenses for mid-range use; usually purchased from a pharmacy.

Single Vision Lenses

- For those ages 13 to 29, add +0.50 to their spherical distance correction.
- For those age 30 and over wearing Single Vision, add +0.75 to their spherical distance correction.
- These glasses are intended for use at computer/intermediate distance only and will cause blur at all other distances.
- **Always Rx with AR coating**
**Progressive Lenses**

- Progressive lenses usually require more power change from top to bottom and therefore are not the best option.
- Consequently, they produce more blur.
- As adds increase, there is less stable and narrow power in intermediate area.

**Optometrists’ Quotes**

“Up until now I basically gave up on these patients that have visual fatigue symptoms. I didn’t feel like I had anything to offer them in my clinical arsenal.”

“There really are not enough products for us to pick from for dealing with some of these accommodative disorders that we’re identifying.”

“The progressives don’t cut it for those patients who spend great deals of time on the computer.”

**Increasing Demand for New Computer Lens Technologies**

- Despite significant regular computer use by over 75% of the population, only 3% to 4% of Americans today wear eyeglasses to relieve vision problems at a computer.

**Newer Lens Solutions for Visual Fatigue Syndrome**

- Addresses the following:
  - Different diagnoses by the OD such as accommodative VFS in pre-presbyopic patients or true presbyopic VFS.
  - Must have lens options to treat a broad range of patient types and ages.
Newer Lens Solutions for Visual Fatigue Syndrome

- New category of lenses under “Visual Fatigue”
  - **Anti-Fatigue**—A primary wear pair for non-presbyopes or emerging presbyopes who suffer from VFS
  - **Variable Focus “Computer”**—A task specific lens for presbyopes who suffer from VFS

“Anti-Fatigue” Computer Lens Solution

Treating VFS with “Anti-Fatigue” Lenses

**Who is it for?**
- Non-Presbyopic patients suffering from VFS symptoms
- Emerging Presbyopes
- Individuals who use near vision for extended periods doing activities such as reading, texting, electronic device use, paperwork, etc.

Treating VFS with “Anti-Fatigue” Lenses

**How do they work?**
- Use as the primary pair to replace a patient’s single vision lenses
- Provides a slight +0.60D “power boost” in the lower part of the lens
- Provides greater patient comfort and reduced visual fatigue than standard single vision correction by allowing the eye muscles to relax thereby decreasing the accommodative effort
“Anti-Fatigue” Lenses
How do they work?

Concept:
- SV lens with distance vision (exactly as in a regular SV) w/a slight power variation (+0.6 D) in bottom part of lens to give some comfort in near vision, preventing and relieving visual fatigue
- +0.6 D power variation reached at 12mm from center = down gaze of 26°
- Sustains the accommodative effort
- Aspheric, so little or no distortion
- Compatible with all frame types => 23 mm B
  ***Only available with Non-glare***

“Anti-Fatigue” Lenses
Fitting & Mounting

- Center pupil fitting height
- 13 mm minimum
- 23 mm minimum B measurement
- Monocular Distance PDs

“Anti-Fatigue” Lenses
Key Patient Types

- 35 to 45 year olds just starting to need slight plus for reading
- Myopes or Hyperopes aged 13 to 34 years when they indicate VFS symptoms of tired eyes, eye strain or others
“Anti-Fatigue” Lens

Essilor Anti-fatigue is only lens available in this category

Variable Focus “Computer” Lens Solution

Treating VFS with Variable Focus “Computer” Lenses

Who is it for?

- Task specific wear by Presbyopes who spend extended time at intermediate and near viewing
- Meant to be used as a second pair to complement a patient’s primary pair of progressives

How does it work?

- **Intermediate Vision**: Wide and comfortable. “Computer” lenses provide full vision at intermediate distance by accommodating a patient’s natural posture and workplace ergonomics.
- **Near Vision**: Smooth transition. Wide near area that provides a smooth transition for looking at the keyboard or documents.
- **Distance Vision**: Functional and efficient. Offers clear vision at full distance within an office setting to most patients, allowing for effective sight at all distances.
**“Computer” Lens**

- Contains an intermediate field of vision designed to offer full coverage of the screen area.
- Lens power specifically tailored for clear screen vision and frequent movements from keyboard to screen to surroundings.
- The design was based on user observations; lenses let you keep a natural posture: a 30° angle between the positions for viewing keyboard and screen.

These lenses should NOT be worn for driving or other distance viewing activities.

**“Computer” Lens - Benefits**

- Comfortable viewing at distance, intermediate, and near
- Wide clear intermediate area
- Small area of viewing at distance to see across office
- No more head tipping – correct intermediate power is placed at center of lens

These lenses should NOT be worn for driving or other distance viewing activities.

**Near Variable Focus (NVF) Lens**

**“Computer” Design**

**Viewing Areas**

- Intermediate
- Reading
- Distance

- Visual Distortion
- Much larger computer/intermediate area

**“Computer” Lens - Key Patient Types**

- Any presbyope indicating VFS symptoms
- Also perfect lens for activities at intermediate and near – hobbies, remodeling, sewing, auto work, Optometrists, Optometric Assistants, etc.
“Computer” Lenses Available

- Essilor “Computer” Lens
- Zeiss “Business” and “Access” Computer Lens
- Shamir “Office” Computer Lens

Specific Fitting techniques and Lens parameters available through Sales Reps.

Next Steps

Put a plan together to:
- Identify patients and educate them on lens options
- Prescribe the best lens for their needs
- Become comfortable using Anti-Fatigue and Computer Lenses to treat their VFS

Additional Steps to Relieve VFS

- Use Proper Lighting
  Decrease both bright sunlight coming in and replace bright overhead fluorescent lighting with full spectrum bulbs or floor lamps
- Minimize Glare
  AR coating, Anti glare screen, paint white walls a darker color in matte finish

Additional Steps to Relieve VFS

- Adjust screen
  Brightness, contrast, text size and color
- Blink more - 5X less when using computer
  Rewets eyes to decrease dryness and irritation
  Artificial tears
- Relax Focusing
  20-20-20 rule - look away from computer Q 20 mins, 20 ft away for 20 sec.
Additional Steps to Relieve VFS

- **Frequent breaks**
  - Two 15 min breaks plus 4 mini 5 min breaks through day
  - Stand up, walk around, stretch arms, legs, back and neck

- **Modify Work Station**
  - Copy stand next to monitor, screen 20-24 inches from eyes and 10-15 degrees below eyes, good posture

Gunnar High Definition Lenses

***Digital Performance Eyewear***

- Total Lens and Frame technology addressing the needs of the most demanding digital device users

Gunnar High Definition Lenses

***Digital Performance Eyewear***

- Reduces visual stress, eyestrain and digital eye fatigue
- Wrap design for maximum field of clear vision
- Proprietary amber tint to increase contrast

***Considered the Ultimate***

***Gaming Lenses***
Thank You for your Attention!!

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