



# New York State Society of Opticians, Inc.

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## New York State Continuing Education Mail-In Course

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### *Optical Considerations for Computer Uses*

*By Debra R. White, MSED, ABOM, FCLSA*

How many customers stroll through your office each day that regularly use a computer? Do you ask? Internet use in the U.S. is growing by a rate of 12 million new users each month! If they are presbyopes – it's even that much more important to know! Fifty-one percent of U.S. households have one or more computers, and what about people using computers on the job? Let's face it; computers are ingrained in our culture!

According to a study by PRIO (a computer eyewear specialist company) – Computer Vision Syndrome has been called the #1 occupational hazard of the 21<sup>st</sup> century. A 1998 American Optometric Association study determined that approximately 70% of computer users experience some type of Computer Vision Syndrome (CVS). According to the AOA, the definition of CVS is “the complex of eye and vision problems related to near work which are experienced during computer use.” Common complaints of computer users heard during an eye exam are: headache, eyestrain and fatigue, burning, red and dry eyes, blurring, distance blur after the exam and intermittent diplopia.

Presbyopic eyeglass wearers wearing progressive lenses or segmented bifocals many times have to tilt their chin up to use the “usable” space of their multifocal. This isn't correct ergonomically, and unacceptable when there are so many multifocal options for computer users. Additionally, there are many issues that deal totally with computers themselves – flicker, poor contrast, bright office lighting and positioning.

Your customers will truly appreciate the few non-optical suggestions that will aid the computer user in their daily comfort. They are:

- position the computer monitor more than 20 inches away, and approximately 20 degrees below the user's straight ahead seeing position
- position reference material close to the monitor, and at the same distance as the monitor, to avoid eye and head movement and re-focusing
- reduce room lighting to 30 – 50 foot-candles (less than most office lighting)
- minimize glare – don't face a window, or have a window to your back to reduce reflections

*This course is worth one (1) New York State continuing education credit, which can be applied to Ophthalmic Dispensing licensing requirements.*

- don't wear white or light-colored clothing, as these cause more reflections

Obviously for presbyopes there are many lens options to assist in decreasing CVS. Let's first take a look at a few other optical recommendations you can give your customer:

- take frequent visual breaks – look at something in the distance every so often
- use eye drops for dry eyes if you experience dryness, itching, etc. Contact lens re-wetting drops or NATURE'S TEARS EyeMist are very helpful in relubricating dry eyes
- Exaggerate the number of blinks than usual – as computer users tend to stare at a computer screen

As optical dispensers, we specialize in our knowledge of lenses for specific needs. There are numerous lens options for us to learn about and recommend confidently to the people who look for our advice. Many others with needs similar to computer users will benefit from the multitude of lenses that have been designed for people with specific near/intermediate tasks. A few might be:

- optical dispensers (think how a presbyopic dispenser might have to tilt their head back in order to measure a PD or seg height!)
- musician – music at arm's length
- cosmetologist – working with hair at near/intermediate distance
- attorney – spending a large portion of their day behind a desk
- librarian – again working at near/ intermediate work distance
- physicians – ability to read charts and look at patient at same time
- many, many other occupations, that require intense concentration at near/intermediate work zones

Let's take a look at lens options that should be at the top of your recommendations for the presbyopic customer with near/intermediate visual requirements. When considering which lens type to recommend, be sure to consider a light tint if the customer tells you their office is brightly lit. And, for all types of lenses that computer users will use, be sure to consider anti-reflective coating (ARC) to reduce reflections. A study conducted by the National Institute for Occupational Safety and Health (NIOSH) concluded with the following statement: "The VDT does not present a radiation hazard to the VDT operator." Therefore, there really is no need to sell as an add-on UV coating.

### **Single Vision Lenses**

This type of lens works well for the pre-presbyopic customer or younger presbyopes. It is important that the Rx generated has been for the specific work distance that the computer user is working at. Many near prescriptions are for near work only, approximately 14". Many computer monitors are located 26" or further away. Remember, the person will be limited to seeing only at this work distance, so in that sense they would be considered "work only" glasses.

### **Enhanced Reader Lenses**

In days past, these were referred to as "extended range reading glasses." These lenses provide variable focus that are ideal for computer users. Providing large, wide near and intermediate zones, the upper portion of the lens can range from  $-0.75D$  to  $-1.75D$  than the lower portion. Depending on the add power of the customer, the greater power change (for instance  $-1.75D$ ) would be selected for a more advance presbyope. Most manufacturers suggest specific selections based upon the add power range.

AO SOLA's Access lens has a power of  $-0.75$  or  $-1.25D$  less than the add power, found in the upper portion. The Office by Shamir Insight, Inc offers three power shifts choices:  $-0.75D$ ,  $-1.25D$ , and  $-1.75D$ . Rodenstock North America's Cosmolit Office offers a decrease in plus power of either  $-1.00D$  or  $-1.75$ . Essilor of America's Interview has  $0.80D$  less plus at the top of the lens.

### **Near Variable Focus Lenses**

This is one of the newest computer lens categories: Near Variable Focus Lenses (NVF), providing near and mid-distance power that works nicely for computer use as well as general office wear. The PRIO Computer Lens (PCL) and PRIO Browser lens from PRIO Corp. both have large, wide near and intermediate zones. The power that the customer needs for computer use is placed at the fitting cross. To take a fitting height, simply dot pupil center. The eyecare professional can select a power reduction from the near area of either  $-0.75D$  to  $-1.75$  for the upper portion of the lens.

For any of the variable power lens designs where there is a choice of power reduction in the upper area of the lens, keep in mind to choose the higher power range ( $-1.75$  if available) for higher add powers. This for instance would be appropriate for people with add powers above  $+2.50$ .

### **Bifocals**

Using bifocals are really a low-tech means of assisting computer users. Fit at the usual position, they would require

the user to tip their head back, which isn't ergonomically correct. One effective means of using bifocals however, might be to place the intermediate prescription power in the "distance" area, with the full add power in the segment. Be sure to fit the segment to at least the base of pupil.

### **Large-Segmented Multifocals**

These still remain under-utilized, and yet can provide the clearest vision and most comfort for people spending a lot of time in front of their computer. Providing large, wide near and intermediate regions in the segment, the customer's distance prescription is in the upper half of the lens. While this allows the customer to walk around their home/office – the customer must be instructed that these are occupational lenses, and should not be worn as every-day glasses. This is due to the height that the segment should be positioned in front of the eye, and my recommendation is HIGH! The top of the segment should be fitted at least to base of pupil, and even as high as pupil center. This is to eliminate a head/chin tilt up while looking at the monitor.

Many of these lenses have an intermediate power which is greater than 50% of the add power (unlike regular trifocals that provide 50% of the add power in the intermediate portion]. The CRT DataLite from Vision Ease and the CRT Trifocal from X-Cel Optical are good examples, offering a FT 14x35 design. The Acclaim by X-Cel has a FT 8x34, 10x35, or 12x35, all with intermediate powers of 61% of the add. AO SOLA's ED Trifocal has a D25 segment for the near that is placed 8mm below the Executive intermediate top line.

### **Progressive Computer Lenses**

While these lenses are progressive in nature, they are still occupational lenses. The emphasis here is providing a progressive power, while offering an invisible design for people not wanting the limitation of single vision lenses or who are bothered by the unattractiveness of large segmented lenses. Carl Zeiss Optical offers the Gradal RD. This is a modern, yet classic design that offers a near zone twice as large and an intermediate area four times bigger than those on standard progressives. The AO SOLA Truvision Technica is a special PAL that has an intermediate zone located at the fitting cross, rather than a few millimeters below. There is a distance "thumbprint" in the upper region that allows the customer to view far away. The Nikon Online from Essilor of America offers a wide near vision zone with enhanced depth of field. This lens is available in either 1.5 standard plastic or 1.67 high index. The HOYA Tact is basically a progressive lens, but was designed specifically with computer users in mind. The Tact has three fitting dots to use when blocking. Use the upper dot to give your patient more distance vision, utilize the middle fitting dot for less distance and more intermediate and near, and use the lower dot for little distance yet more reading and intermediate viewing.

According to the U.S. Census Bureau, 51% of Americans use a computer in their home. While this isn't particularly surprising, a huge 56.9% of these computer users are aged 45 – 64, and 24% are 65 and older. These people are prime candidates for computer specific lenses. Be sure to keep these lens types in your portfolio of optical knowledge!

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## ***Optical Considerations for Computer Users***

***Circle the best answer for each question (or write in the correct answer)  
and return to: NYSSO, 48 Howard Street, Albany 12207 • fax (518) 463-8656***

Name: \_\_\_\_\_ License #: \_\_\_\_\_

Mailing Address \_\_\_\_\_

NYSSO Member:  Yes  No ***If no, the registration fee is \$30.00; please complete the section below or the membership application on the reverse side:***

Method of Payment:  Check (payable to NYSSO)  Credit Card (please complete section below):

Type of Credit Card:  Visa  Mastercard Dollar Amount \_\_\_\_\_

Expiration Date: \_\_\_\_\_ Card #: \_\_\_\_\_ Signature: \_\_\_\_\_

1. Two non-optical recommendations for computer lenses would be to increase the office lighting and, if there is a window, to have it at your side. True or False
2. Due to typical placement of a computer monitor, an intermediate power that is slightly more plus than normal would be beneficial. True or False
3. When fitting large-segmented trifocals, take a fitting height to:
  - a. lower lash line
  - b. lower lash line plus 3mm
  - c. base of pupil
  - d. top of pupil
4. Which should be considered for all computer lens sales:
  - a. light tint
  - b. ARC
  - c. UV Coat
  - d. all of these
  - e. A & B
5. When measuring for a large-segmented trifocal, given a 40mm frame "B" measurement, a fitting height of 18mm is appropriate. True or False
6. Which variable focus has the most plus power decrease in the upper portion of the lens?
  - a. Rodenstock Cosmolit Office
  - b. Shamir Office
  - c. PRIO Browser
  - d. all of these
7. Which lens option is to be used SOLELY for intermediate/near work?
  - a. single vision readers
  - b. FT 14x35
  - c. Acclaim by X-Cel
  - d. Zeiss Gradal RD
8. With the base of the pupil as a fitting reference point, which lens is likely being measured for?
  - a. AO SOLA ED Trifocal
  - b. single vision computer lenses
  - c. Vision Ease CRT Datalite
  - d. A & C
9. When blocking the HOYA Tact Computer lens, which "dot" should be selected in order for the wearer to enjoy a greater near viewing area?
  - a. upper
  - b. middle
  - c. lower
  - d. both upper and lower
10. If the add power is +2.50D, what would you expect the power of the intermediate portion of an Acclaim by X-Cel to be?
  - a. +1.25D
  - b. +1.50D
  - c. +1.75D
  - d. +2.00D
11. Which of the following would offer a computer user the largest intermediate field of view?
  - a. single vision lens
  - b. CRT DataLite
  - c. PRIO Browser
  - d. AO SOLA Truvision Technica
12. Of the 51% of Americans that own home computers, how many of them are 65 and older?
  - a. 24%
  - b. 51%
  - c. 56.9%
  - d. 12 million
13. Which complaint is not associated with computer vision syndrome?
  - a. dry eye
  - b. blurring distance vision
  - c. drooping lids
  - d. eye fatigue
14. If the customer Rx is: -4.00 sph. +2.50 add, and you want to order a FT 35 with the intermediate power for the "distance" portion and the full add power in the seg area, what power should be ordered for distance?
  - a. -4.00
  - b. -2.75
  - c. -2.00
  - d. +2.50
15. When recommending the AO SOLA's Access for a customer with a +1.75 add power, which power reduction should be used for the upper portion of the lens?
  - a. -0.75
  - b. +0.75
  - c. -1.75
  - d. +1.75

# Membership Application

INDIVIDUAL'S NAME \_\_\_\_\_ COMPANY \_\_\_\_\_

HOME ADDRESS \_\_\_\_\_


BUSINESS ADDRESS \_\_\_\_\_

PHONE (HOME) \_\_\_\_\_ PHONE (BUSINESS) \_\_\_\_\_

FAX \_\_\_\_\_ EMAIL \_\_\_\_\_

Preferred Address:  Home  Business Preferred Phone:  Home  Business

Membership Type:  Active (\$150.00)  Newly Licensed-Active (\$75.00)  Associate (\$75.00)  
 (see below for category descriptions)  Corporate (\$150.00)  Student (~~\$100.00~~) *Waived for current membership year*

Method of Payment:  Check (payable to NYSSO)  Credit Card (please complete section below) 

Type of Credit Card:  Visa  Mastercard Dollar Amount: \_\_\_\_\_

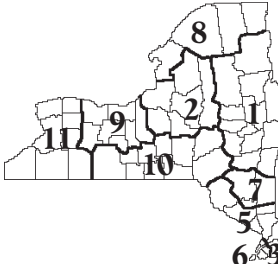
Expiration Date: \_\_\_\_\_ Card #: \_\_\_\_\_ Signature: \_\_\_\_\_ 10/02

**Voluntary Opticians PAC Contribution**  
 (Contributions to the NYSSO Political Action Committee)

\$25.00  \$50.00  \$75.00  \$100.00  Other \_\_\_\_\_

**Membership Year is September 1-August 31.**  
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 E-mail: [nysso@caphill.com](mailto:nysso@caphill.com) • Web Page: [www.nysso.org](http://www.nysso.org)

<p>To be listed accurately in the NYSSO Membership Directory, please indicate which of the following services are offered by your business:</p> <p><input type="checkbox"/> Artificial Eyes <input type="checkbox"/> Contact Lenses  <input type="checkbox"/> Eyeglasses <input type="checkbox"/> Refractions Available  <input type="checkbox"/> Hearing Aids <input type="checkbox"/> Low Vision</p>	<p style="text-align: center;"><u>Please Complete the Following:</u></p> <p>Chapter (see map) _____ Date of Birth: ____/____/____</p> <p>NYS License # _____ Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female</p> <p>Contact Lens Fitter # _____ Signature _____</p> <p>Sponsor (if applicable): _____ Date _____</p>
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<p>Please indicate to which organizations you belong:</p> <p><input type="checkbox"/> American Board of Opticianry Certified (ABO)  <input type="checkbox"/> Fellow, National Academy of Opticianry (FNAO)  <input type="checkbox"/> Opticians Association of America (OAA)  <input type="checkbox"/> National Contact Lens Examiners (NCLE)  <input type="checkbox"/> Contact Lens Society of America (CLSA)</p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p><b><u>NYSSO Chapters</u></b></p> <table style="width: 100%;"> <tr> <td>1. Capital District</td> <td>7. Mid Hudson Valley</td> </tr> <tr> <td>2. Central</td> <td>8. North Country</td> </tr> <tr> <td>3. Long Island-Nassau</td> <td>9. Rochester</td> </tr> <tr> <td>4. Long Island-Suffolk</td> <td>10. Southern Tier</td> </tr> <tr> <td>5. Lower Hudson Valley</td> <td>11. Western</td> </tr> <tr> <td>6. Metropolitan</td> <td>Out of State</td> </tr> </table> </div> </div>	1. Capital District	7. Mid Hudson Valley	2. Central	8. North Country	3. Long Island-Nassau	9. Rochester	4. Long Island-Suffolk	10. Southern Tier	5. Lower Hudson Valley	11. Western	6. Metropolitan	Out of State
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## Membership Categories

<p><b><u>ACTIVE MEMBERSHIP</u></b> – Annual dues of \$150.00. Any person possessing a valid New York State Ophthalmic Dispensing License is eligible to become an Active Member.</p> <p><b><u>NEWLY LICENSED MEMBERSHIP</u></b> – Annual dues of \$75.00 (first year), \$100.00 (second year), and \$150.00 (third year). Any newly licensed optician (licensed within the past six months) is eligible for the special three-year prorated membership incentive. Newly licensed opticians who join under the special offer will be entitled to full Active Member benefits.</p> <p><b><u>ASSOCIATE MEMBERSHIP</u></b> – Annual dues of \$75.00. Any person who does not qualify for Active membership but is supportive of opticianry shall be eligible to become an Associate Member. Associate Members are entitled to all the rights of an Active Member, except voting and may participate in all activities of this Society, unless specifically excluded by the Board of Directors.</p>	<p><b><u>CORPORATE MEMBERSHIP</u></b> – Annual dues of \$150.00. Any proprietorship or corporation maintaining 51% of its licensed opticians as members of this Society and upholding the by-Laws and constitution of the Society is eligible to become a Corporate Member. Corporate Members are entitled to all rights of an Active Member, except voting and may participate in all activities of the Society, unless specifically excluded by the Board of Directors.</p> <p><b><u>STUDENT MEMBERSHIP</u></b> – Annual dues of <del>\$100.00</del>. Any person who is enrolled as a student in a New York State-accredited program for Ophthalmic Dispensing is eligible to become a Student Member. Student Members are entitled to all rights of an Active Member, except voting and may participate in all activities of this Society, unless specifically excluded by the Board of Directors.</p> <p style="text-align: right;"><i>Student dues waived through current membership year</i></p>
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