Opticianry Study Center CE 20/20

JUST WHEN YOU THOUGHT YOU KNEW PRESBYOPES

Introducing Trinity Spacia, the Outdoor/Indoor Progressive for the Contemporary Presbyope

[1 CE Credit]

By Mark Mattison-Shupnick, ABOM

Choosing a progressive lens is a difficult task these days with so many advancements in designing and manufacturing technologies. With today's lenses, it's as if there are no bad progressives. In addition, presbyopes have also changed as their outdoor activities have increased and they immerse themselves in the technologies of the information age. This CE Spotlight suggests an alternative to new personalized lenses and a way that one can rethink "the new presbyope" and "general purpose" progressives. After all, not every patient will purchase a personalized lens and yet, if a standard lens can be picked, is there a way to better fit the wearer's needs so the presbyope is more satisfied?

The characteristics of a successful fit between the presbyope and a general-purpose PAL include a balance of individual need versus available distance, mid-range and near vision. Perhaps progressive lenses that provide three areas of clear vision that work equally well for the greatest range of wearers are no longer the best choice for today's presbyope. That's because the intermediate has been, for many lenses, short-changed given the intermediate vision needs of the current presbyopic population.

This course describes the new Trinity Spacia progressive lens by Augen Optics. Using a sophisticated surface design process, Augen Optics has created a lens that maximizes distance and intermediate vision. The result is a progressive designed more for the vision needs of the "new" contemporary presbyope.

A WORLD OF FAR AND MID-RANGE NEED

For many contemporary presbyopes, a majority of the vision tasks are at mid-range and distance. After all, the presbyopic population is more active, generally healthier and is longer lived than past generations. In fact, at work, at home, while shopping and at school, information bursts at arm's length and on computer screens bombard consumers' awareness every day. For computers, the US Bureau of Labor Statistics reports that 100 million people in the US spend over 50 percent of their

A Spotlight CE Course highlights a category or new product. It reviews market learnings or teaches a new product and how it can increase an optician's and patient's opportunities.

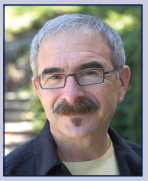
LEARNING OBJECTIVES:

Upon completion of this program, the participant should be able to:

1. Understand the changing needs of the presbyope as electronic gear affects lifestyle and visual demand

2. Learn how the design of a progressive can be altered for a specific distance, mid-range need.

3. Know that new research helps to determine lens designs for specific wearing preference



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workday at a computer.

With so much of the activity, news and information at arm's length or sourced online, professionals (optical included) spend much of the workday at mid-range, some with less demand at near. And, if the introduction of tablet PCs trends up significantly, as predicted following the iPad launch, that will further increase the demand at distances just beyond near. As a result, the average presbyope (+2.25 add) purchasing a single pair of glasses may be better served with a progressive that provides a better balance of mid-range and distance. Of course, a lens must be acceptable at near also.

OTHER NEW DEMANDS AT INTERMEDIATE

Will Web browsing and tablets change the demand on progressives for presbyopes? iPad and tablet computers are held farther way and have larger screens than PDAs and smartphones. That's expected to place additional demand on mid-range and intermediate vision. The vision zones of progressives must therefore be better chosen for the majority of today's vision tasks.

As a recent article about mobile computing trends on the Web site EnterpriseMobilToday notes, "Web browsing is one of the most important computing tasks for the average user and early adaptors are realizing that they can gain a very similar experience on the iPad as on a PC. The iPad has a 9.7-inch screen, while smartphones are less than four inches in size." Morgan Stanley analyst Katy Huberty has raised her projections on not only Apple's iPad but also the tablet market in general, predicting that tablets will outsell netbooks by 2012 as Apple ramps up iPad production and other vendors join the fray. Huberty suggests that 'daily iPad or tablet Web browsing will exceed traditional PC Internet usage in the coming years.' She also noted that 'the top 50 App downloads on the iPad lean more toward productivity and content, while the iPhone/iPod Touch tend to lean much more heavily toward gaming.' (*From Tablets Will Supplant Netbooks by 2012,* http://www.enterprisemobiletoday.com/news/article.php/3886881/Mobile-Computing-Trend-Tablets-Will-Supplant-Netbooks-by-2012.htm, *June 9, 2010, Andy Patrizio*)

Increasing trends in tablet and mobile device usage combined with more active lifestyles suggest lenses that better meet these new demands on vision.

THE NEW TRINITY SPACIA LENS

Trinity Spacia progressives are specifically designed to meet the needs of contemporary presbyopes with attention to a larger distance and intermediate viewing area.

Far Distance Vision—Design development for a performance stage or HD television resolution and screen size uses the cone of binocular vision concept, e.g., 30 degrees of intense focus control in an overall field of 60 degrees (Fig 1). While each eye sees a 30 degree field of crisp vision, it is the overlapping field from both eyes that creates this distinct cone (Fig 2). This is because two eyes add three-dimensionality (perspective) to the acuity ability of each eye. The result is improved recognition. So the Trinity Spacia progressive lens, designed especially to favor far distance vision, maximizes vision in the cone.

Intermediate Distance Vision—The same consideration of the cone of vision is also required when designing the intermediate. To maximize the field of distinct vision and better meet the needs of contemporary presbyopes, Augen Optics developed a wider and longer intermediate for the Trinity Spacia lens.

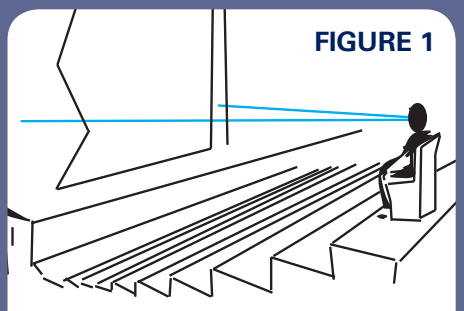
Near Vision—Near width must be convenient for reading but is balanced in this lens to provide the wider intermediate and distance portions of the lens.

LENS DESIGN

In the Trinity Spacia progressive design, the zone size and functionality of the distance can be demonstrated using astigmatism and mean power maps to describe the distribution of lens power. While not predictive of patient success, the maps allow a demonstration of a design respecting the cone of vision and design targets for better functionality for far and mid-range vision.

The astigmatism plot (Fig 3) clearly shows the wide distance and flat boundary at the junction between distance and intermediate, providing a wide, clear distance field. The intermediate is long and uniformly wide. Of course, prescriptions

FIGURE 1



For a stage, the normal cone of vision is 60 degrees. Binocularly, a viewer can see the entire stage easily.

After Drew University, Learning Perspective, drew.edu

FIGURE 2

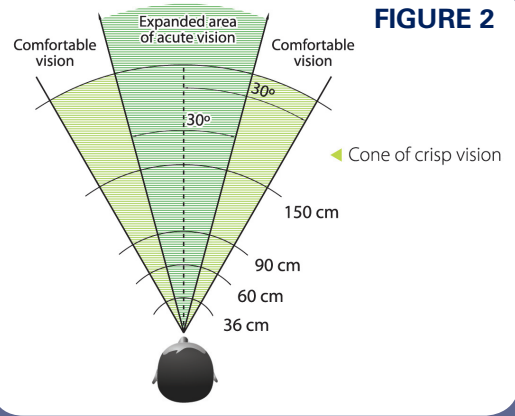


FIGURE 3

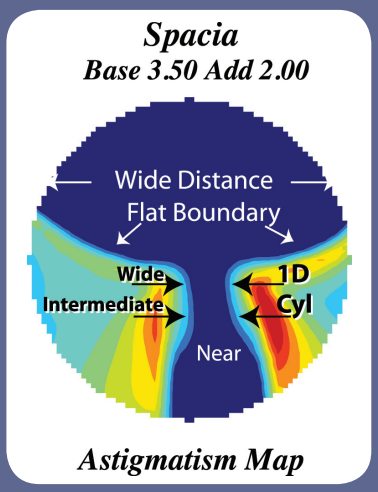


FIGURE 4

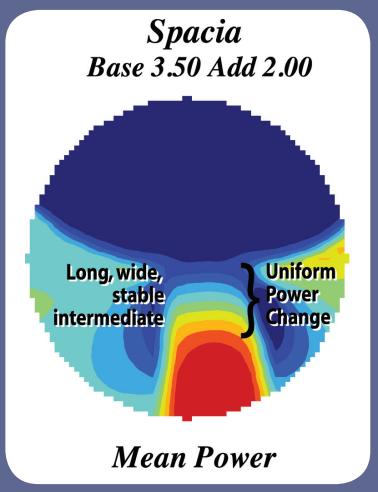


FIGURE 5

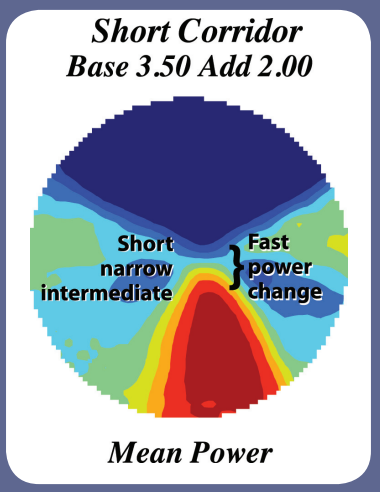
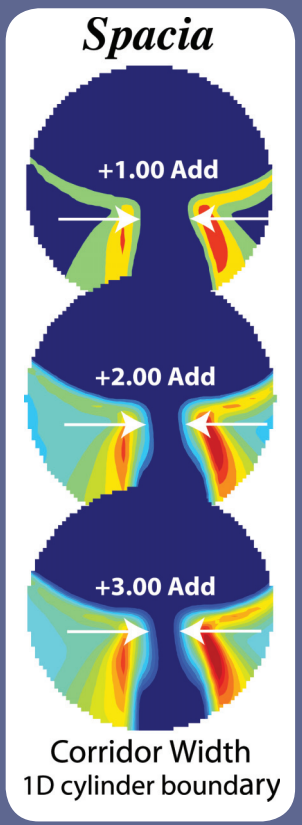


FIGURE 6



at the limits of the base curve range will alter the effects indicated on this map.

The mean power plot (Fig 4) describes plus power as it changes along the corridor. In this case, Trinity Spacia shows a series of uniform power changes for both increased width and length. By providing more length, it ensures that there is increased mid-range visibility compared to short corridor progressives designed for small "B" frames. Compare the Trinity Spacia plot to the Augen HD Short Corridor lens plot (Fig 5). Note the increased amount of mid-range powers available for the width delivered.

The design method, used and customized by Augen, creates a progressive surface with increased distance and intermediate zones while at the same time controlling near zone size and unwanted peripheral blur to the extent possible. While a number of design programs allow the assignment of merit functions as a way to relegate design attributes to particular portions of a lens surface, Augen engineers modified the program to meet their design objectives. First, using **Non-Uniform Rational Basis Splines (NURBS) technique, the design team applied the** mathematical model to provide greater flexibility and precision for handling freely formed surfaces and shapes, the shapes that are required to deliver progressive surfaces and the Rxes created from them. The intermediate and near widths were locked during the design process, meaning the periphery would change based on surface curve, add power and right/left designs.

Typically, intermediate width for a given length narrows as add power increases. In fact, at higher add powers, intermediate width becomes a noted problem by patients at the computer. Corridors with inadequate length or width cause excessive nose pointing (too narrow width) and limited field height (too short a corridor). Augen designers maintained corridor width over a constant corridor length for adds +1.00D to +2.00D, so both ECPs and patients could expect the same mid-range experience with Trinity Spacia. The periphery was allowed to change. For adds of +2.25D and higher, the targeted intermediate width and near zone size was maintained by varying the corridor length as needed. This provides the same availability of mid-range vision to all wearers. For higher add wearers, where reading is a critical need due to lack of reserve of accommodation, near availability was also maintained.

Finally, peripheral blur and its effects are a function of effective zone width. Therefore, the distribution of mean oblique astigmatism was analyzed in the optimized Rx range for each base curve. The results of the analysis suggest a periphery aspherized to correct for off-axis errors. Maps of errors were compiled and a balanced correction was applied to maximize clearer fields of view.

MOLD MANUFACTURE

Augen Optics has significant design and mold making expertise. In fact, a number of companies use Augen produced molds. The reason is that Augen is a master of control of the mold and the subsequent lens blank attributes, especially when cast in PPG's Trivex material. For standard progressives, ECPs have come to rely on design uniformity from manufacturers. That's because manufacturers cast a mold many times and verify the lenses produced before that mold becomes part of the mold inventory regularly used to manufacture lenses. In free-form, the ECP's choice of

lab is critical to ensure that the design received is the design expected. So, since a portion of the patients fit with progressives will for some period of time use standard front surface progressives, be sure that the designs and lenses chosen continue to meet your high requirements for performance consistency. The supplier must verify lenses at each step to assure expected performance for both ECP and wearer.

22mm MINIMUM FITTING HEIGHT—ARE YOU SURE?

In the lab Rx analysis that this author has completed over the last few years, the average fitting height ordered appears to be about 17mm. Therefore, at a 22mm minimum fitting height, is the Trinity Spacia lens limiting? It's really a question of vision need versus frame style. Ask patients what they want and need to accomplish with their new pair of glasses. If your patients' daily vision preferences support outdoor activities and Internet browsing (sports, driving, iPad, tablets, large flat screen desktops) and their budget also suggests only one pair of glasses, consider a lens design like Trinity Spacia.

PREDICTING LENS PREFERENCE

That still leaves the question—is this lens a good everyday choice for Mr. Diaz, Mrs. Johnson, etc? With progressive lens fitting in the past, any reduction of blur and increase of viewing zone size typically improved one lens's acceptance over another. However, there have been no definitive studies that suggest a way of characterizing the patient by Rx or other attribute to predict preference for one lens or the other. In addition, it's only more recently that lens design has begun to consider eye and head movements as a way of defining design and preference.

Although we have a variety of lenses a patient could wear successfully, if given a choice, they would probably prefer one lens over another. Since we don't give patients a choice, we have relied on overall global improvements to design for choosing our "favorite" progressive. That was until recently. Personalization improves a design so that it can deliver more of what a patient's Rx and fit intend. However, as noted, not all patients will purchase personalized lenses. Is there any other way to predict preference?

A poster was presented at the 2009 Vision Performance Institute meeting at the Optometry School at Pacific University titled **Lifestyle and Refractive Factors Affecting Progressive Addition Lens Preference**. One of its conclusions was *"PAL design preference varies with patient needs. Subjects with far visual needs clearly prefer PAL designs with superior far characteristics while those with near visual needs prefer PAL designs with better near features."* While this seems logical, it is also support for an ECP being most successful when actually defining patient want and need. The mostly outdoor presbyope and/or one who puts high demand at intermediate is more likely to prefer a lens designed with that usage in mind.

WEARERS TO CONSIDER FOR MOSTLY OUTDOOR/MID-RANGE PROGRESSIVES

- Myopes, athletes, sports fans, tablet users, or just a world of less near are suggestive of the patients that can be identified for Trinity Spacia.
- I also think of my own needs, +2.50 add, shorter in height than others, and the way that I lift my head to see the things above me 2 to 5 feet away (supermarket or even the vision tasks in the airplane seat that I so often occupy). Over the years, a lens that had a very accessible intermediate made me more comfortable overall daily.
- However, I have two different needs—the freedom of clear lenses and the easily accessible reading that my add requires. That has meant two different pairs of progressives plus computer glasses—"oh the trials of an aging presbyope".

ADDING IN A NEW PROGRESSIVE CHOICE

How can the ECP successfully add this new progressive to their current mix of lenses—what does this replace?

First, develop a list of questions to ask patients to identify the Trinity Spacia opportunity. This entails simple questions about the percent of the day that patients spend outdoors, how often they place demand at distances of 2 to 5 feet or will benefit from the lightness and clarity advantages of Trivex material, etc. Consider Trinity Spacia for sports eyewear where tints are ordered. See www.augenoptics.com for availability and collateral material to download.

CONCLUSION

If you think you know presbyopes, think again. Presbyopes have changed their general behavior and the demands they place on their eyes. Outdoor activities have increased and new technologies affect everyday life. So choosing the right progressive requires understanding whether the lens is designed with individual tasks in mind.

If you are a presbyopic optician, you understand the differences in the way that various lens designs work for you. If you are not yet presbyopic, don't assume that the office's favorite progressive is best for every patient. Tune your progressive lens selection to the wearer's needs.

Base general-purpose lens choices on the patient's physical and visual activities, rather than on the lens being a generally good or great design. Larger distance and intermediate viewing zones are a unique idea for a general-purpose lens and may well be ideal for many of today's presbyopes. ■

SELF-ASSESSMENT EXAMINATION

1. A successful fit between the presbyope and a general-purpose PAL requires a comparison of all of the following except
a. A balance of individual need
b. Available distance
c. Fit 2mm below pupil center
d. Available mid-range vision

2. Many contemporary presbyopes, when compared to previous generations
a. Require more distance and mid-range vision
b. Are more active
c. Are generally healthier and longer-lived
d. All of the above

3. The US Bureau of Labor Statistics reports that 100 million people in the US spend over _____% of their workday at a computer.
a. 25%
b. 35%
c. 50%
d. 75%

4. If Web browsing and tablets change presbyopes' progressives demand
a. Progressives that work better at intermediate would be preferred
b. Increased absorption of infrared will be required
c. A reduced vision zone is needed
d. None of the above

5. New Trinity Spacia is designed with attention to
a. the contemporary presbyope
b. larger intermediate
c. larger distance
d. All of the above

6. The distinct cone of vision is composed of
a. a 30 degree cone of binocular vision
b. a 60 degree cone
c. a 60 degree cone monocularly
d. a 30 degree cone from only the right eye

7. _____ added to acuity makes vision more distinct
a. Near vision
b. Perspective
c. Astigmatism
d. UV absorption

8. NURBS is a design tool that
a. provides greater flexibility in design
b. increases design precision
c. is the latest technology in a molded product.
d. all of the above

9. Trinity Spacia uses a long corridor to help create
a. a narrower near and intermediate
b. a wide uniform-width intermediate
c. narrow distance
d. None of the above

10. Increased intermediate length in this lens provides
a. increased mid-range visibility
b. lens good for small "B" frames
c. wider intermediate
d. A & C only

11. In general purpose progressives, at higher adds, intermediate width typically
a. narrows significantly
b. becomes more usable
c. works best for the computer
d. All of the above

Questions 12 through 16 refer to characteristics of Trinity Spacia design—

12. At what add power is the corridor length of Trinity Spacia lenses allowed to vary?
a. +1.50
b. +2.00
c. +2.25
d. +2.50

13. Constant corridor length and width are maintained for adds
a. +2.00 to +3.00
b. +1.00 to +3.00
c. +1.00 to +2.00
d. +2.25 to +2.50

14. Maintaining a constant corridor length and width over many add powers
a. means ECPs can expect the same mid-range experience across patients***
b. makes lab work easier
c. is more expensive
d. requires that only minus Rx's are chosen

15. Peripheral blur contributes to all of the following except
a. the borders of the intermediate
b. comfortable distance vision width
c. determination of fitting position
d. the borders of the near zone

16. To maximize zone size and correct for peripheral blur in progressives, the designers
a. analyzed oblique astigmatism for each base curve's Rx range
b. aspherized the peripheral lens surface
c. used NURBS to compile the overall PAL lens front surface
d. all of the above

17. An advantage of front surface cast progressives is
a. consistency of design from lens to lens
b. personalization using tilt and wrap
c. inventory reduction
d. all of the above

18. A 22mm minimum fitting height requires
a. the optician know how the patient will use the lens most
b. understanding near vision demands
c. assessment of vision task lifestyles
d. all of the above

19. The Lifestyle and Performance Factors study suggests "Subjects with far visual needs clearly prefer PAL designs with superior far characteristics…". This is suggestive that
a. large clear distance zones in progressives may be favored if the patient can define that need
b. myopes may benefit from large distance PALs
c. Patients with near needs prefer designs with far characteristics
d. A & C only

20. It's easier to describe and sell the benefits of different lens designs to patients when
a. you have the need for and can try different lenses
b. you can tune the progressive or sports sun-lens to the wearer's actual wants and needs
c. you wear the lenses yourself and can talk from personal experience
d. all of the above

Examination Answer Sheet

1 hour of CE credit by the American Board of Opticianry ~ Valid for credit through October 30, 2011

This exam can be taken online at www.2020mag.com. Upon passing the exam, you can view your results immediately. You can also view your test history at any time from the Web site.

Just When You Thought You Knew Presbyopes

Directions: Select one answer for each question in the exam and completely darken the appropriate circle. A minimum score of 80% is required to obtain a certificate.

Mail to: Jobson OptSC, PO Box 488, Canal Street Station, New York, NY 10013.

This program is supported by an educational grant from **Augen Optics**

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	11.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
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1=Excellent 2=Very Good 3=Good 4=Fair 5=Poor

In questions 21-23 please rate the effectiveness of each activity:

21. Met the stated learning objectives? ① ② ③ ④ ⑤
22. Avoided commercial bias/influence? ① ② ③ ④ ⑤
23. How would you rate the overall quality of the material presented? ① ② ③ ④ ⑤
24. How were you directed to this course?
    - Ⓐ 2020mag.com
    - Ⓑ OAA Website
    - Ⓒ NYSSO Website
    - Ⓓ Ohio Opticians Website
    - Ⓔ Other
25. Please describe the office in which you work.
    - Ⓐ Independent Optician
    - Ⓑ Independent Optometry
    - Ⓒ Chain retail
    - Ⓓ HMO/Military/Other

Comments on this course: _____

Future Topics: _____

Please retain a copy for your records. Please print clearly.

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By submitting this answer sheet, I certify that I have read the lesson in its entirety and completed the self-assessment exam personally based on the material presented. I have not obtained the answers to this exam by any fraudulent or improper means.

Signature _____ Date _____

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