NO MORE BITING THE BULLET

Thanks to recent progressive design innovations, presbyopic patients no longer have to compromise their vision for certain tasks

By John Young

The phrase "bite the bullet" was coined in the 19th century, back when wounded soldiers lacked the benefits of medication or anesthesia for pain during treatment of wartime injuries. At the time, servicemen were simply given something to bite down on during surgery. In the field, the handiest thing was a lead bullet. Needless to say, this technique hardly helped to ease the soldiers' suffering.

The same analogy can be used to describe progressive lens fitting in the 1970s, when the category was first introduced. Some of the early progressives were so painful to fit and wear (because of unwanted cylinder and "swim" – the difficult transition between viewing zones) that presbyopic wearers, it could be said had to "bite the bullet" with their vision. No one who fit them will soon forget these early designs and everyone is very pleased that lens manufacturers have made such great strides in progressive technology since.

Progressives of the 1970s and even the early 1980s were either "soft" or "hard" designs. There was no middle ground. Today that delineation is not as clear-cut. True, the super-hard designs have followed the dinosaur, but the improvements in progressive lens design technology have opened the door to "design-specific" products such as "daily" or "normal-wear" progressives, "computer-vision" lenses and "short-corridor" progressives.

Design differences are subtler today than they were back in the 1970s, but these products seem to work well for assigned tasks. Some very design-specific progressives still overlap enough that the wearer can be reasonably comfortable when wearing them for tasks outside the intended purview. To illustrate the differences between these new progressive subcategories, we mapped a few sample designs using our Rotlex Class 1 equipment. In general, the differences lie in the lenses' intermediate corridor, which is located near the center of the lens between the distance zone in the upper half and the reading zone in the lower half.
Looking at the table, the standard lens ("Lens A") is a good general progressive with a standard mid-range of intermediate corridor (See Figure 1). It features a wider corridor than the other designs show, allowing for good use at intermediate range (from roughly three to 10 feet). The unwanted cylinder/astigmatism in the group is also moderate and will present few problems for the emerging presbyopic wearer.

<table>
<thead>
<tr>
<th>Lens</th>
<th>Corridor Length</th>
<th>Corridor Width</th>
<th>Unwanted Astigmatism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens A</td>
<td>25.9mm</td>
<td>5.9mm</td>
<td>1.60D</td>
</tr>
<tr>
<td>Lens B</td>
<td>29.4mm</td>
<td>5.9mm</td>
<td>1.25D</td>
</tr>
<tr>
<td>Lens C</td>
<td>16.2mm</td>
<td>4.2mm</td>
<td>1.77D</td>
</tr>
</tbody>
</table>

(Figure2)

"Lens B" (see Figure 2) is designed for computer users. This "progressive" has a longer but wider corridor for enhanced vision at intermediate-range distances. The corridor length listed in the table is misleading because it is measured on the basis of reaching the full power of the 2.00D reading add (the standard, however, the computer application will utilize a greater percentage of the intermediate power, as it is more useful in viewing a computer screen. For this reason, the width actually enlarges well before the full add-power is reached. This product also exhibits unwanted cylinder/astigmatism in the group, in part due to its longer corridor.
Finally, “Lens C” (see Figure 3) is a product designed specifically for smaller frame styles. As you can see in the table, the corridor length is by far the shortest in the group, yet the unwanted cylinder hasn’t suffered all that much. (It should be noted that compared to the progressive lenses of just a decade ago this amount of unwanted cylinder is certainly modest and should be no problem at all to the wearer.) The corridor’s width is excellent considering how short it is. This product can actually be used for all frame sizes, as it could perform quite well for general wear. The wearer will have the advantage of reaching the full power of the reading add faster due to the shorter corridor.

All of the progressive lenses seen here are excellent designs. Wearers should have no difficulty in adapting to them, especially if they are prescribed according to their specific uses. During the dispensing process, always ask the important questions regarding patients’ vocational activities and recreational interests to ensure that they are prescribed the best progressive design for their application or lifestyle. Given the success of these designs, who knows what tomorrow’s designs will bring us? One thing seems evident from our data: Designs will continue to bring new avenues of innovation for the wearer and success to the dispenser.

John Young is an ophthalmic lens expert with more than 25 years experience in the optical industry. He has worked for several lens manufacturers, including American Optical and Essilor, and is the former technical director of the Optical industry Association. His company, COLTS Laboratories, is a Clearwater, Fla.-based independent lens testing facility designed to provide thorough and accurate quality and performance evaluations of spectacle lens products. His clients include lens manufacturers, independent research organizations, large retailers and independent dispensers. The lab was recently the first U.S. facility granted American Association for Laboratory Accreditation membership. It is a Safety Equipment Institute-accredited eye protection/safety test lab. Young can be reached by phone at (727) 725-2323 and by email at john@colts-laboratories.com.