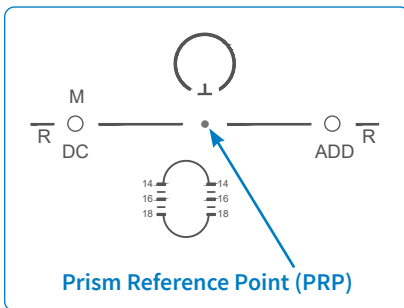


# Troubleshooting Progressive Lenses

By Laurie Pierce

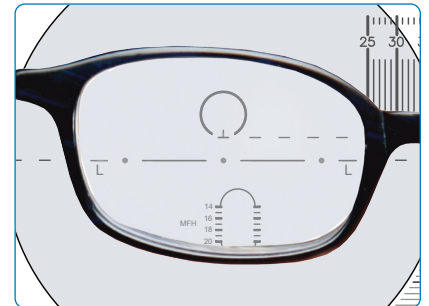
Progressive lenses are intricate. Given today's advanced designs with complex mathematical algorithms, state of the art ray tracing programs and more, one would think that PAL designs are more forgiving, and accurate optical placement parameters are not as important as before.

In fact, with high-tech surfaces with complex curvatures, the placement of the optics in front of the eyes is more crucial than ever. When we begin the troubleshooting process, when a patient states 'I can't see', there is a logical method to follow to solve the optical problem. The overwhelming majority of visual complaints with PALs do not require a re-check from the doctor. These visual optical challenges can usually be solved at the dispensing table.

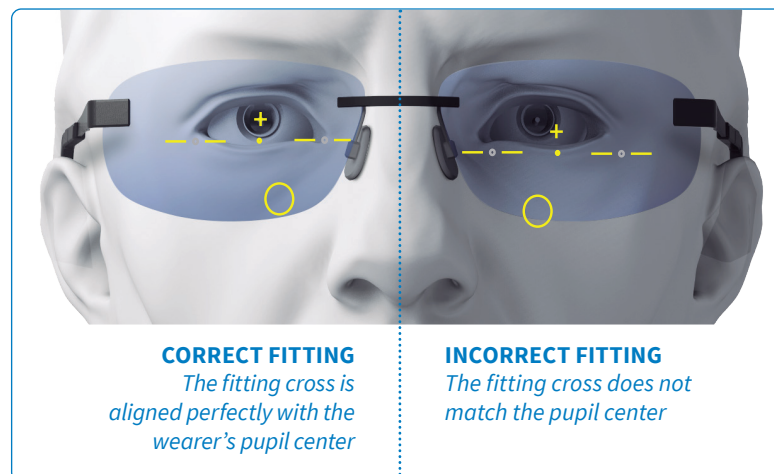


This begins with checking all the parameters of the finished lenses: prescription, horizontal and vertical measurements (PDs and fitting heights), and verifying that there is no vertical imbalance present. Vertical imbalance is checked by centering the middle pin on the spotting device on the lensometer directly on the prism reference point (PRP). The PRP is the dot below the fitting cross. This requires that the markings are on the lenses. Then, slide the specs over, without moving the lens table up or down, and confirm that the mires (sphere and cylinder lines) are also vertically centered at the PRP on the other lens.

If the markings are not on the lenses, it is easy to re-create them. First, find one of the laser markings on the lens and spot it with a marker. If it is a conventional molded lens, it will be on the front surface; if it is a digital back surface free-form lens, the laser markings will be on the back surface. All layout markings, regardless of design, are 34 mm apart. Once you spot one, you can measure 34 mm over and spot the other. If you have a layout chart, you can simply place the lenses, convex side down on the chart, and fill in the rest of the markings (fitting cross, PRP, distance Rx circle, and near-point circle). If you do not have a layout chart, simply measure halfway in (17 mm) and make a spot. That represents the PRP.



Once the markings are on the lenses, place the eyewear back on the patient to verify that the fitting crosses are directly centered in front of the pupils.



# Troubleshooting Progressive Lenses cont.

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## Does everything check out?

The next step is configuration. That is, that the configurations of the lenses are properly placed in front of the eyes' visual system. This includes adjusting the vertex distance, pantoscopic tilt and face form (wrap angle) in the eyewear.

## To visualize this, try the following:

Place your hands in front of you at the width of your shoulders, with palms down, parallel to the floor. Imagine that this is like a windowsill, simulating the aberration/distortion in the periphery of the lenses. It is clearly in your line of sight. Then, bring your hands closer (decrease vertex distance). Then, tilt them downward (increase Pantoscopic tilt). And then wrap them towards your ears (increase face form/wrap). You will notice that your hands, simulating aberration, are near your ears and out of your line of sight. The aberration is still there, it is simply that the brain does not see it.



These adjustment techniques solve most configuration issues. If this does not work, invite the patient to manipulate the eyeglasses in front of their eyes. Ask them to move them up and down, back and forth, closer and farther from their face. If they do this and exclaim that the vision is better, it is our job to duplicate the adjustment exactly the way the patient is holding the frame.

Show or remind the patient how to use the lenses and explain that the brain needs to calibrate the new Rx/design and it may take a few days. Ask them to follow up in a few days, with the confidence that all will be well.

## Final tip:

Do the troubleshooting in front of the patient. They will see the science that goes into troubleshooting. Most importantly, they will be reassured that we are taking care to give them the best possible visual experience, which is always our goal.



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