Vertical Prism in Progressive Lenses

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NOTE: This calculator in eye*tools* is used to calculate the amount of *Vertical Prism* that will result in progressive lenses, when the patient looks through the different zones in the lens design.

This *Vertical Prism* will be different in the distance and near prescriptions, but problems will only occur in the binocular balance if there are differences between the two eyes.

A technique of vertical prism for "prism thinning" is standard laboratory practice, but by varying the prescribed prism for each eye, it may be possible for an optometrist to get a more balanced result between the two eyes.

Not only does eye*tools* make these complex calculations, but a special *Wizard* also helps to find the prescribed prism that will give the best balance in distance and near results.

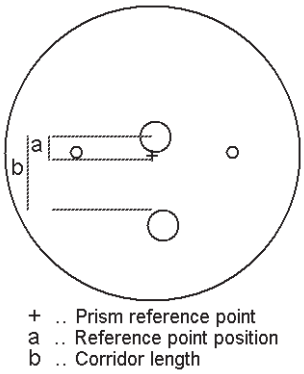

Figure: The measurements used to specify the lens design

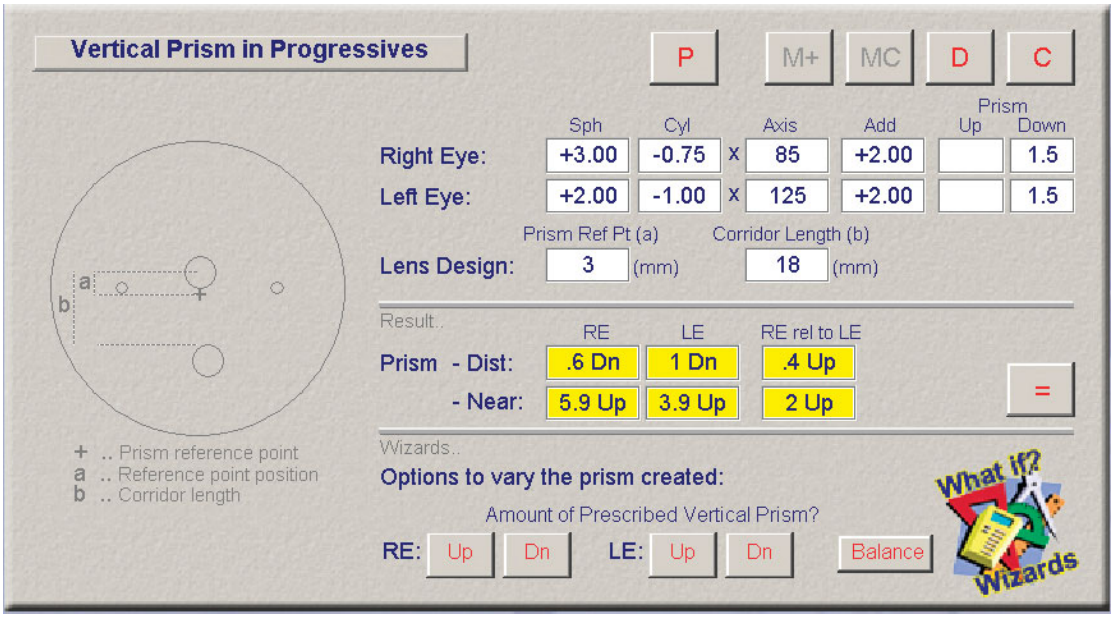

Figure: The calculator for Vertical Prism in Progressives

1. Click on C to clear all data.
2. Enter the prescriptions for the *Right* and *Left* eyes.
3. Enter the *Lens Design* parameters for *Prism Reference Point* and *Corridor Length.*
4. Click on D to set the default values for *Vertical Prism* (prism thinning)..

5. Click on [=] to make the calculation.

6. The results are displayed as the *Prism* in each eye for both *Distance* & *Near* and, most importantly, the prism in one eye relative to the other (*RE rel to LE*).

7. Using the *Wizard* feature, the optometrist can then experiment with adjusting the prescribed prism and observing the changes caused to the results. Click on the [Up] and [Dn] buttons to try different options.

8. Another alternative with the *Wizard* is to click on the [Balance] button. This will find a compromise result for the amount of unwanted difference between the *RE rel to LE* results.

9. To print a copy of the results: Click on [P]

Figure: The icon for an Eye Tools Wizard

✔ Tip:

- This calculation is used when there is a large difference in progressive lens prescription between the two eyes. Due to the difference between right and left powers, there will be a difference in the amount of vertical prism created by the patient looking down through the reading prescription.

  Differences in resulting vertical prism will also be less for shorter corridor lenses and those with lower adds.

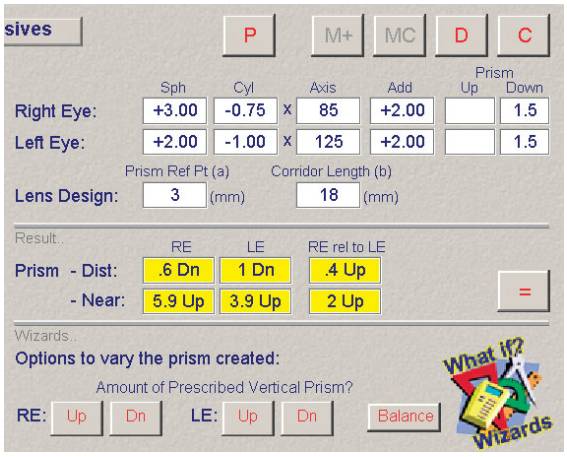

Figure: Part of the calculator for Vertical Prism in Progressives

EXAMPLE: In the example shown on this page, the resulting prism was a difference *RE rel to LE* for distance of 0.4 Base Up and for near of 2 Base Up.

An optometrist would expect that the near imbalance of 2 prism dioptres may cause clinical problems, so this could be reduced by varying the prism thinning.

By changing the prescribed prism to RE 2 Base Down and LE 1 Base Down, the resulting prism becomes a difference *RE rel to LE* for distance of 0.6 Base Down and for near of 1 Base Up. This could be expected to be a more comfortable clinical compromise.