This PowerPage will review the proper instructions for obtaining/verifying a multifocal spectacle lens prescription. This will include distance and near add powers for bifocals, trifocals, and progressive addition lenses (PALs).

**Bifocals and Trifocals**

- Distance powers of bifocal and trifocal spectacle lenses are measured in the same manner as single vision spectacle lenses (see Lensometry and Transposition PowerPage)
  - Glasses are placed on the lensometer with the temples facing downward and away from the observer, which allows for the measurement of the back vertex power
  - This value should be recorded as the distance power of the multifocal lens
- To measure the add (near addition) power, the spectacles must first be turned around in the lensometer so that the temples are facing upward toward the observer
  - Distance power should be re-measured (this power is known as the front vertex power)
    - For higher-powered plus lenses, there is typically a difference between the front and back vertex add powers; this is due to modern lenses having the add on the front lens surface and the increased center thickness of a plus lens. For the greatest accuracy, the segment needs to be against the lensometer’s lens stop (front vertex power)
    - It is important to note that the cylinder axis for the front vertex power will be the mirror-image of the back vertex power cylinder axis
      - For example, a lens with a back vertex cylinder axis of 70 degrees will measure a front vertex power of 110 degrees; thus it is OK to refocus the lens by re-adjusting the axis wheel
  - Next, the lens should be moved up so that the near power can be measured through the segment
    - The difference between the distance and near front vertex sphere power is the power of the near addition in the spectacles
- When distance and near addition powers are either minus or low plus, there is usually little difference between the measurements of the front and back vertex power
  - Therefore, many clinicians will measure the distance and near power with back vertex powers instead of turning the glasses around in the lensometer
  - Keep in mind that as the distance plus and near add powers increase, adds measured only by back vertex power may yield incorrect results
Progressive Addition Lenses (PALs)

- In order to properly measure the distance power and near addition power of a progressive spectacle lens, the lenses first need to have the lens markings placed on the lenses
  - If no information is known about the lens, the hidden markings will provide the clinician with valuable information
  - These hidden reference points should be marked, and then a progressive lens identifier book can be referenced to find the type of lens using the marked logo on the lens
  - The lens should then be placed on the proper fitting chart and the distance reference point, prism reference point, near reference point, and the fitting cross should be marked on the lens
- The distance power of a progressive lens should be measured by placing the glasses on the lensometer so that the temples are facing away from the observer
  - The lens should be moved so that the distance power arc is centered on the lensometer aperture (this will measure back vertex power)
    - This measurement should be recorded as the distance power of the spectacle lens
- Prism can easily be measured or verified by centering the prism reference point over the lensometer aperture
- Near power of a progressive spectacle lens should be measured by turning the spectacles around in the lensometer so that the temples are facing towards the observer
  - The distance power must be re-measured by centering the distance arc on the lensometer aperture
    - As with bifocals/trifocals, the cylinder axis will be the mirror image of the back vertex cylinder axis
    - Only the front vertex distance sphere power needs to be measured
  - The lens should then be moved up so that the near reference circle is centered over the lensometer aperture
  - The difference between the front vertex distance and near power should be recorded as the near addition power
- Again, if the distance power is minus or low plus, the distance and near powers can typically be read as the back vertex power (without flipping the spectacles over)
Lensometry
Bifocals, Trifocals, PALs

Measurement of the distance power (back vertex)

Measurement of the add power (front vertex)