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**How to Take Position-Of-Wear
Measures for PALS**

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Alex Yoho, ABOM
Alex Yoho has no financial interests to disclose.

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Lens Position of Refraction

- Intent of the refraction
- Carried out with Phoropter
- Lenses are positioned vertically

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Lens Position of Wear

- This Changes everything!
- Vertex Distance
- Pantoscopic tilt
- Wrap – or face form

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Vertex Distance

- Distance from the cornea to the spectacle lens
- Changes the effective power of the lens
- This occurs because the point of focus moves as the lens moves.

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Vertex Distance

- As a lens is moved away from the eye
 - Plus lenses require more minus in the lens
 - Minus lenses require more minus in the lens
- As a lens is moved closer to the eye
 - Plus lenses require more plus in the lens
 - Minus lenses require more plus in the lens

The Focus on the retina moves with the lens, so add plus to shorten the focus, add minus to stretch the focus.

Compensated Power = Original Power / (1 + Distance Moved * Original Power)

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Measuring Vertex Distance

- Refractionist should provide starting vertex
 - if not, default will be used
- Optician should provide spectacle vertex
 - if not, default will be used

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Measuring Vertex Distance

- Manual Methods
 - Distometer
 - Side view measuring



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Measuring Vertex Distance

- Electronic Measurements
 - Essilor Visioffice 2
 - M'eye fit
 - Otto
 - Shamir Spark (iPad adapter)
 - Zeiss iTerminal 2



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Pantoscopic Tilt

- Incorrect amounts create marginal astigmatism
- Normal amount required for optimal optics
- A rotation of the lens about the 180 axis
- Changes the effective power of the lens
- Too much or too little effectively creates cylinder
- Too much or too little effectively creates prism

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Pantoscopic Tilt

- Should be adjusted for patient first
- Equal distance between top and bottom of lens to the face places the lens perpendicular to the visual axis with eyes at rest.
- Changes from the normal will need compensation

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Measuring Pantoscopic Tilt

- Adjust as it will be worn first
- Measurement is the actual tilt of the lens
- May, or may not be the relationship of the temple to the plane of the lens

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Measuring Pantoscopic Tilt

- Manual Methods
 - Use a protractor to measure the relationship between the temple and the plane of the lenses
 - Use a gravity angle measuring device
 - Use a Smart phone with a clinometer app



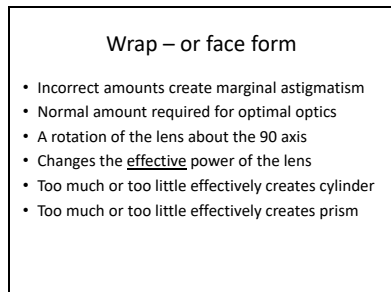
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Wrap – or face form

- Should be adjusted for patient first
- Ideally the lens surface should be perpendicular at the PD
- Changes from the normal will need compensation

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Measuring Wrap – or face form

- Adjust as it will be worn first
- Measurement is the actual tilt of the lens
- May, or may not be the relationship of the temple to the plane of the lens

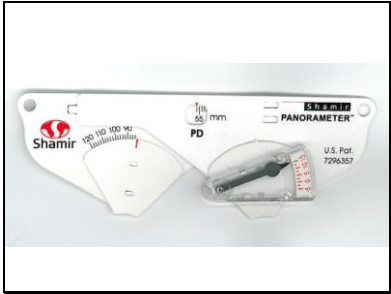
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Measuring Wrap – or face form

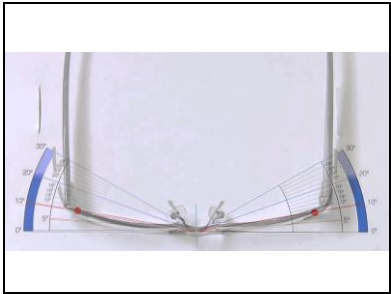
- Manual Methods
 - Use a protractor to measure the relationship between a line across the backs of each endpiece and the plane of the lenses
 - Use a wrap angle measuring chart
 - Use a panorameter



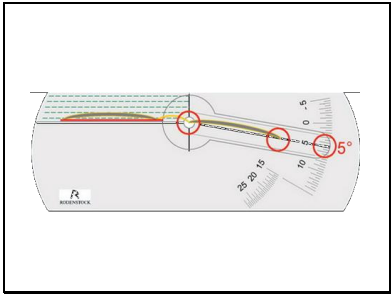
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Measuring Wrap – or face form

- Electronic Measurements
 - Essilor Visioffice 2
 - M'eye fit
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Electronic Measurements

- Good to use the unit your favorite lens recommends
- Pay close attention to how clip-on devices fit
- Practice makes perfect AND NORMAL
- Develop a routine
- Use all of the features (marketing, etc.)

Questions
