Retinoscopy

Terms To Know

Intercept – (or streak) the light streak projected from the retinoscope into the patient's eye

Working distance – the distance between the examiners eye and the patient's eye

Reflex – reflected light seen from the patient's pupil

Neutralization – the reflex movement stops, and the pupil fills with light

Break in the reflex – indicates astigmatism

Dynamic retinoscopy –technique to evaluate the effectiveness of active accommodation

Static retinoscopy – technique where accommodation is relaxed

Break – angle between the intercept and the reflex which is observed when astigmatism is
         Present. When the intercept is not aligned with the principal meridian

Proximity to Neutrality Terms

Speed – reflex movement becomes faster as you achieve neutralization

Brightness – reflex becomes more brilliant and brighter

Width – reflex grows wider and fills the entire pupil

"With" Motion – reflex moves in the same direction of the streak

"Against" Motion – reflex moves in the opposite direction of the streak

Plus Cylinder Retinoscopy

Patient Setup

- Patient sitting behind phoropter or fit trial frames comfortably on the patient
    - Set the pupillary distance, vertex distance and level the phoropter
    - Make sure the phoropter is not in the converging position
- Both oculars open with no power
    - For the eye that is being tested, the "R" on the auxiliary dial can be used which equals to the working distance
        - Or the working distance can be recorded is not using the auxiliary lens
            - Average distance is 66cm or -1.50D
    - Fog the eye that is not being tested
- Ask the patient to fixate on a non-accommodative image
    - Best performed with eyes dilated
    - Have the patient focus on a target at distance
- Dim the room lighting (for the best reflex)

Examiner's Setup

- Turn on the retinoscope and adjust the sleeve for the type of retinoscope being used
    - Sleeve down for Welch Allyn
    - Sleeve up for Copeland
- Use the "Same Side Method"
    - Scope patient's OD with retinoscope in your right hand using your right eye
- One hand method, forefinger on sleeve to rotate streak. Left hand on sphere dial
    - Sleeve down for Welch Allyn retinoscopes, up for most others
        - If not sure, always scope when intercept is the widest or more blurry position when shining on a wall 1' away
- Sit slightly to side so that patient can see fixation
- Focus through the peephole of the retinoscope and shine the light into the eye being tested
    - Sweep the light across the pupil and observe its direction (reflex)
    - Scan the reflex in all directions
- Determine the principal reflex
    - Identify the two axes for an astigmatic eye that is most noticeable
    - Should be 90◦ apart
    - A spherical eye will not have two reflexes
- Maintain the same working distance throughout the test

Steps to Neutralization (SPAM)

SPAM – same motion = plus power and against motion = minus power

1. **Shine and Sweep**
   - The streak from the retinoscope across pupil, vertical and horizontal
   - Your head moves side to side for vertical and up and down for horizontal
2. **Observe the Reflex and Identify the Motion**
   - Align your streak with principal meridians (45◦, 90◦, 135◦ and 180◦)
     - If you see **WITH** motion, add plus sphere
     - If you see **AGAINST** motion, add minus to the sphere until you see **WITH** then add plus
     - If astigmatism is present, have both meridians **WITH** motion to begin
     - If all meridians neutralize at the same time, there is no astigmatism
3. Convert all meridians to WITH motion by adding minus lens
   - Once both are **WITH** motion, add plus to **NEUTRALIZE** the one closest to **NEUTRALIZE** first (brighter, narrow and faster)
     - Reflex is slower, dull and wide when far from neutral
     - Reflex is fast, bright and narrow when close to neutral
     - Neutralization is when the reflex fills the pupil
4. Align cylinder axis on the phoropter with the axis with the axis of the 2nd reflex and neutralize
5. If you have not used the "R" feature on the phoropter, subtract the working distance (1.50) from the sphere to move the far point of the patient from your scope to infinity.