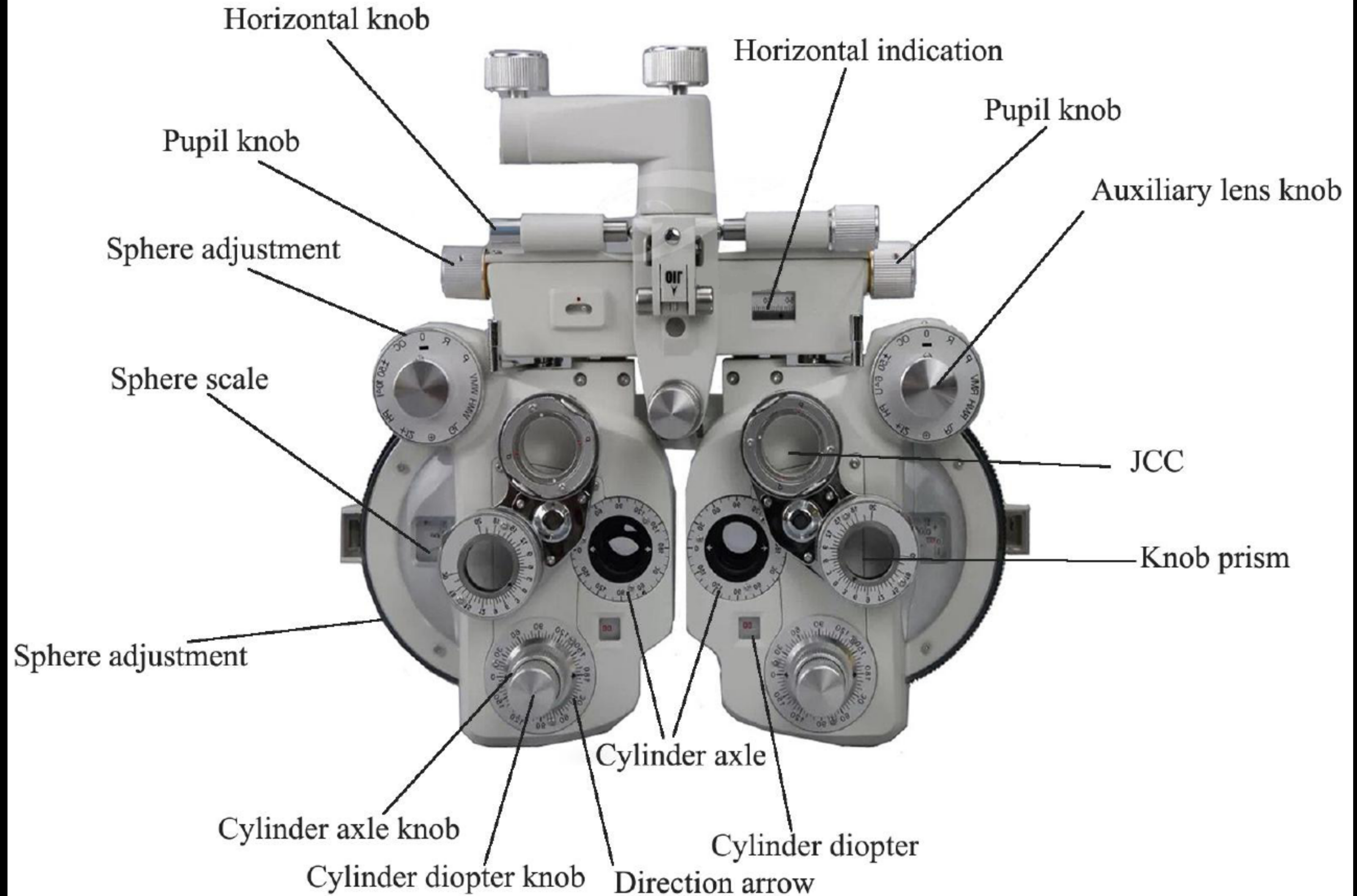
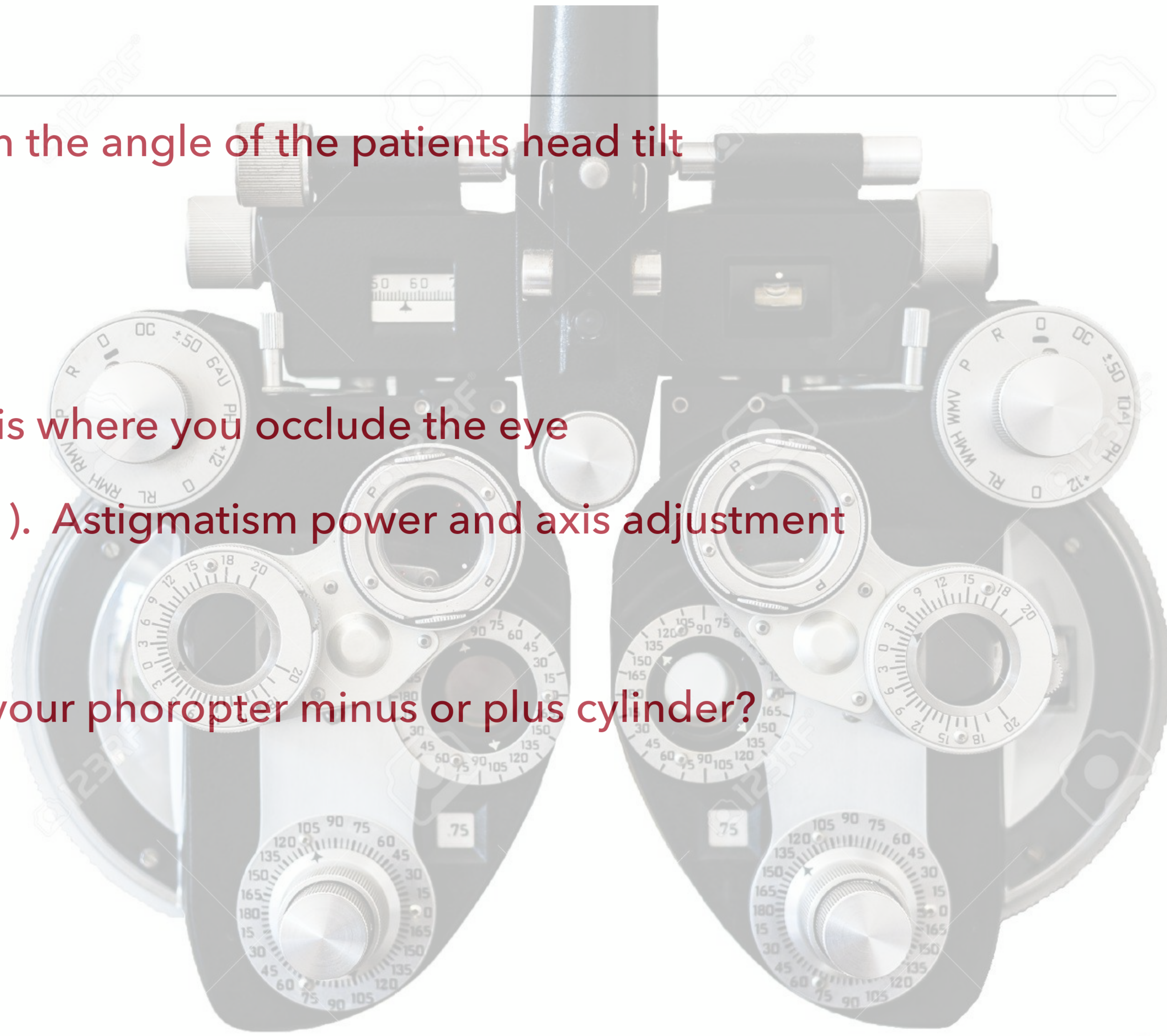


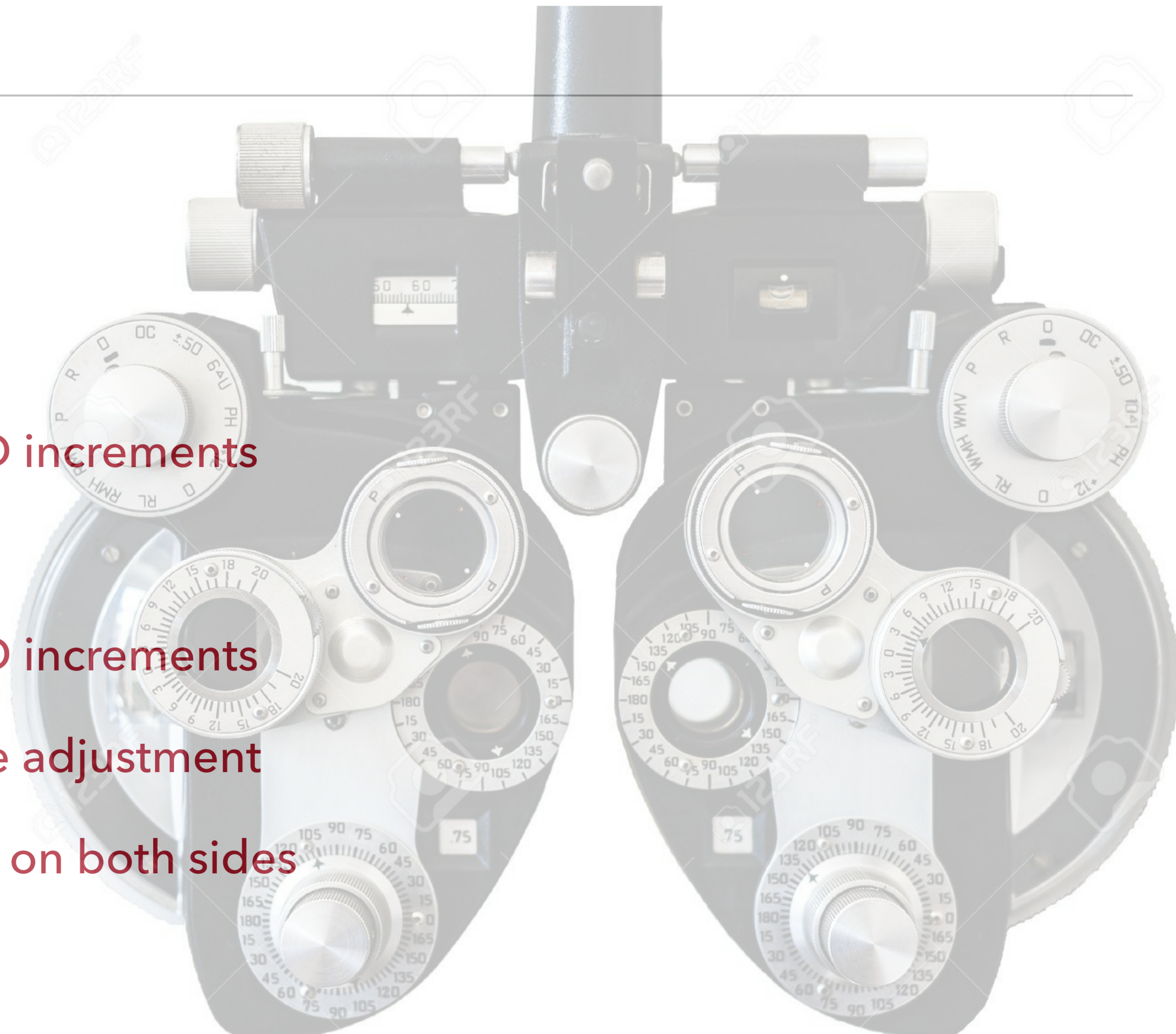
1. Patient's window: Patients have to peep from the back side.
2. Near point rod clamp screw: To insert the near point rod into the holder and tighten the near point rod.
3. P.D. Scale: To display the P.D.
4. Cross cylinder: To compensate cylinder powers, accurate detection of axis and power are made.
5. Cross cylinder knob: To change the cross cylinder axis and powers.
6. Vertex distance watching window: To confirm the distance between corneal vertex and refractor lens surface.
7. Rotary prism: To be used of measurement of heterophoria and binocular balance.
8. Rotary prism knob: Prism dioptors can be changed by this knob.
9. Cylinder axis knob: Cylinder axis can be changed by this knob.
10. Cylinder power knob: Cylinder powers can be changed by this power knob.
11. Cylinder axis angles: This scale represents cylinder axis angles.
12. Near point rod holder: Insert the neat point rod here.
13. Level: This is to set up a standard of the horizontal adjustment.
14. Spherical disk: Sphere powers are changed with a step of 0.25D.
15. Sphere power scale: There dioptors represent the sphere power scales.
16. Index: These dioptors represent auxiliary lenses inside the patient's window.
17. Auxiliary lens knob: Auxiliary lenses are changed by this knob.
18. Auxiliary lens scale: Descriptions of auxiliary lenses are represented.
19. Spherical power quick forwarding dial: Spherical lenses can be changed with 3.00D step's interval.
20. Cylinder power scale: Cylinder powers are shown here.
21. Set pin: Cylinder auxiliary lenses(-2.00D, -0.12D) as the standard accessories are set here by this set pin.
22. Forehead rest knob: To adjust the forehead back and forth position.
23. Cylinder axis reference scale angle: This scale represents the cylinder axis angle.



- ▶ Horizontal adjustment. Match the angle of the patients head tilt
- ▶ Horizontal indicator
- ▶ Pupillary (PD) adjustment.
- ▶ Auxiliary lens selection. This is where you occlude the eye
- ▶ Jackson Cross Cylinder (JCC). Astigmatism power and axis adjustment
- ▶ Prism Dial
- ▶ Cylinder diopter window. Is your phoropter minus or plus cylinder?
- ▶ Cylinder axis dial gauge
- ▶ Cylinder axis arrow indicator



- ▶ Cylinder diopter knob
- ▶ Cylinder axis knob
- ▶ Sphere adjustment. 0.25D increments
- ▶ Sphere diopter window
- ▶ Sphere adjustment. 3.00D increments
- ▶ Forehead / vertex distance adjustment
- ▶ Near point PD adjustment on both sides







I go in for the eye test, and I don't know about you, but I concentrate like crazy during the eye exam. You don't want to get no 'D' on that thing and end up with these big thick Coke bottle glasses.

— *Brian Regan* —

CARDINAL RULES OF REFRACTION

- ▶ Our ultimate goal is to make both images look the same, yet we continually are asking the patient to determine which is better, knowing that the decision gets harder as we get closer to our goal of equality. The principles below will help avoid frustration for both the clinician and the patient
- ▶ Refraction is both an art and a science. Given this, it is important to know that patients do not always respond accurately during the testing with Jackson cross cylinder and during duo-chrome/red green testing. This is why starting with an objective assessment of the patient's refractive error will help you stay on target with your refraction.
- ▶ Keep it simple/avoid needless detail or jargon when describing what you're doing.

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- ▶ Maintain your patience to avoid frustration, go slowly when needed and try to make the choices as easy as possible
 - ▶ Provide encouragement, particularly when working with patients who are hard to refract.
 - ▶ Proceed with a purpose, do not offer more choices that are necessary to establish your endpoint. Boredom and fatigue can result in poor subjective responses
 - ▶ Strive to refine your technique to no more than 12 choices per eye
 - ▶ Proceed with confidence. If it's not going well it's ok to ask the patient to relax and let you guide them through the process. Let them know that their responses are important but they really can't make a mistake. You will double check the results several different ways during the refraction.

PREPARE YOUR PATIENT AND PHOROPTER FOR TESTING



I didn't take it seriously