

Retinomax Autorefractometer

What Are You Testing?

The Nikon Retinomax autorefractometer measures refractive error (astigmatism, farsightedness, nearsightedness).

What You Need to Do the Test:

1. The Retinomax autorefractometer.
2. Printer for the Retinomax.
3. Printer paper.
4. A model eye for calibrating the Retinomax.
5. Tape.

Getting Ready:

1. At the beginning of each day, the Retinomax must be calibrated. If the PC has not checked the calibration, measure the model eye. The procedure for calibration is included with the VIP Study van materials. If the readings do not meet the tolerance limits specified in the calibration procedure, inform the PC. A back-up Retinomax will need to be used.
2. Make sure the measurement window is clean.
3. Select the child's ID label and place it on a blank data recording form.
4. Turn on the unit. Adjust the viewfinder until the internal monitor display becomes clear.

How You Do the Test:

1. If the child is wearing glasses, remove them prior to testing.
2. Have the child sit on the bench with his/her back against the back of the seat.
3. The tester should sit on a stool facing the child.

4. Press the blue “power” button to turn on the Retinomax. Extend the forehead rest. Look at the lights on the switch panel. “Auto Mode” will light up first followed by the light for “R.” The “R” is lit up for the measurement of the right eye. If these lights are not on, turn the unit off. Press the “power” button again.
5. Make sure that “QUICK” is not lit up.
6. Look in the viewfinder. The display should show “RO/LO” in the upper right-hand corner. This shows that the Retinomax has taken 0 measurements for the right and left eye. If you don’t see this, turn the Retinomax off and on again. Adjust the viewfinder again until the image in the window is clear.
7. Hold the Retinomax in front of the child’s right eye. Tell the child to look in the center of the round hole in the front of the Retinomax and see if they can find the “white lights of an airplane in the sky.” It may help to put your thumb on the child’s forehead. Hold the child’s head in place with the other fingers. The working distance is about 40 mm.
8. Position the Retinomax in front of the child’s eye using the vertical eye position target line and the horizontal eye position target line. Alignment is easier by looking through the viewfinder after lowering the forehead rest to where it comes in contact with the child.
9. Press the green “start” button on the handle once to begin taking measurements. Look through the viewfinder. You will see a set of brackets ([]). Center the brackets over the child’s pupil. See that the center dot is focused.
10. Move the unit back and fourth until each dot image of the mire ring can be seen clearly. Adjust the distance so that the mire ring is as small and sharp as you can make it.
11. When the alignment process is complete, the measurement is automatically started. Every time a measurement is made, a beep sounds.
12. Encourage the child to keep looking at the Retinomax. Ask them if they can see the white lights. It may help to keep asking them questions about the lights. (For example, “What shape are the lights? What else could those lights be?”)
13. Once the display on the Retinomax indicates that it has taken 8 measurements of the right eye (R8/L0), remove the instrument from the child’s forehead and press the button on the top of the Retinomax to indicate that you are switching to the left eye. Perform the measurements of the left eye. When the display on the Retinomax indicates that it has taken 8 measurements of the left eye (R8/L8), remove the unit from the child’s forehead. Aim it at the printer and press the “print” button to print the child’s results.

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14. If the readings taken do not have a confidence value of 8 or greater, you must take the readings again. Dimming the lights may help in obtaining a reliable measurement. Only eyes with a confidence value of 7 or less should be read again. Up to two repeat sets of readings may be performed. **DO NOT TEAR PRINTOUT OFF OF PRINTER UNTIL TESTING IS COMPLETED.**
15. Tape the printout to the child's data collection form. For each eye, mark the reading with the highest confidence value. If multiple readings for an eye have the same confidence value, mark the first reading taken.
16. Turn off the Retinomax to clear the measurements for the next child. Rest the Retinomax in the charger in between testing children.
17. Cleanse the headrest with an antibacterial wipe.

What You Tell the Child:

1. Tell the child to stand very still.
2. Tell the child that he/she will see white lights.
3. Tell the child to keep his/her eye open as long as possible.

What You Write Down:

1. Make sure you put the ID label on the form.
2. The unit automatically records and prints the measurements for you. Tape the printout to the data form **before** the child leaves the station.
3. Indicate the number of readings taken per eye in item #2a and 2b. If the child does not allow the machine to be positioned properly for measuring an eye, or if the machine does not provide a reading for an eye, mark "None (unable)" on the data sheet for that eye.

Remember!

1. Remember that the unit must be calibrated before taking measurements.
2. Make sure the printer has enough paper to record the results.
3. Remember to tape the printouts to the form immediately after taking the reading.

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4. If multiple readings of an eye have been made, circle the measurement with the highest confidence value. If two measurements for an eye have the same confidence value, and that is the highest confidence value for the eye, circle the first measurement.

VIP Study Group