3 Spectacle lens vertex distance measurement

3.1 Introduction

Vertex distance is measured from rear side of spectacle lens to front part of the cornea. Vertex distance is important parameter which can change vertex power of the spectacle lens. We have to respect this fact especially in change from spectacle lens to contact lens.

3.2 Goals

Measure vertex distance of spectacle lens in frame with handy PD meter

Measure vertex distance of spectacle lens in frame with special prismatic meter

Measure vertex distance of spectacle lens in frame with centration instrument

3.3 Equipment

Spectacle lens, handy PD ruler or PD meter, writing staff, calculator, centration instrument

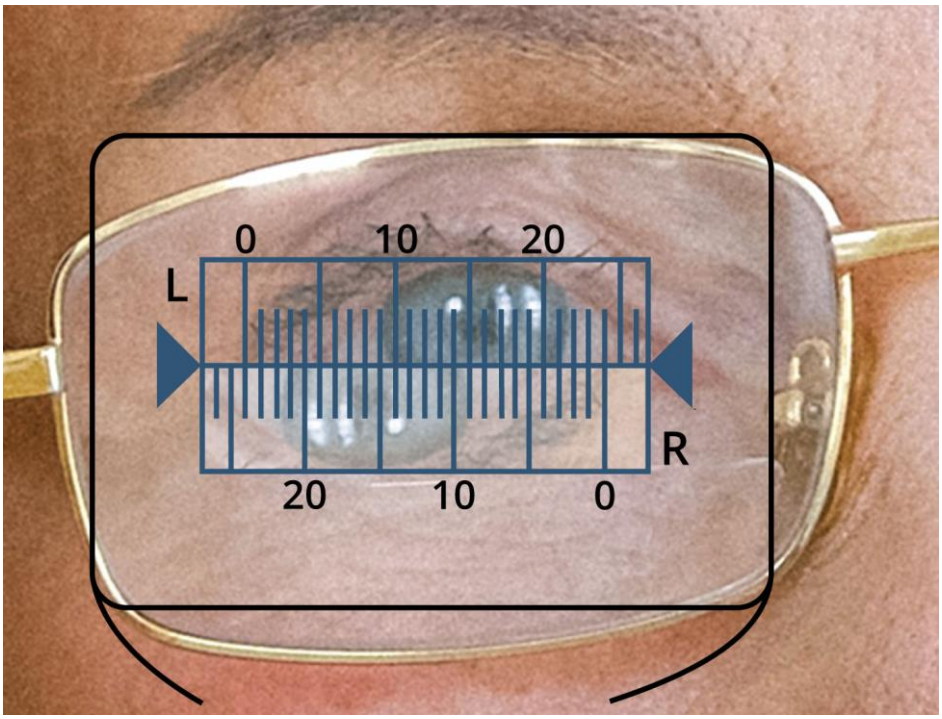
3.4 Methods

Measure vertex distance of spectacle lens in frame with handy PD meter

Put the frame on examined person. With handy PD meter measure distance from back side of the lens to front side of the cornea. You should measure it if the patient looks in infinity with perpendicular view. Fixation axis should go through eye's rotation center and center of the spectacle lens.

Measure vertex distance of spectacle lens in frame with special prismatic meter

Use bellow listed picture and put the prismatic ruler right on the spectacle frame. Put the beginning of the upper part of the scale on limbus and read the value in millimeters from the lower part of the scale. Here you can see deviated image from the same side of the corneal limbus. From the bellow listed picture we can read vertex distance 11 mm.



Picture 3.1: Vertex distance measured with prismatic ruler (inspired by Optiboard 2013)

Measure vertex distance of spectacle lens in frame with centration instrument

Put the centration instrument right on the spectacle frame. On the side of the centration instrument you can find the scale. From this scale you can read the distance from the back side of the spectacle lens to the front part of the cornea.

3.5 Results

Measure vertex distance of spectacle lens in frame with handy PD meter

d_1 =

Measure vertex distance of spectacle lens in frame with special prismatic meter

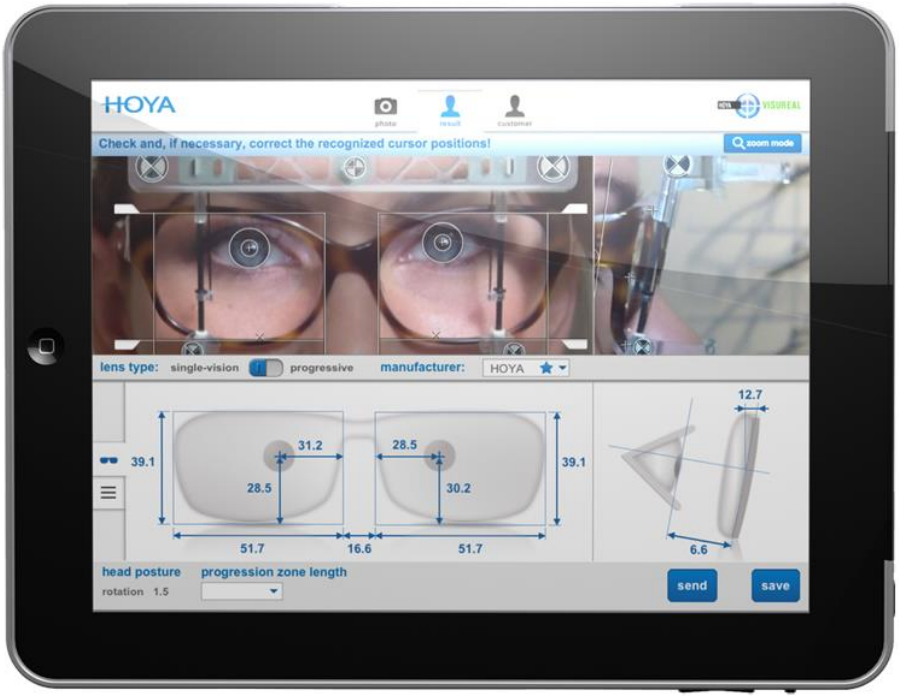
D_2 =

Measure vertex distance of spectacle lens in frame with centration instrument

D_3 =

3.6 Discussion

Currently we can measure vertex distance together with other important centration parameters as is pantoscopic angle, wrap angle, spectacle frame size etc. with help of digital video centration system. These centration systems contain camera and special software. For example, Hoya offer centration system called VisuReal Portable, which can be a part of iPad. Essilor use centration system called Visioffice etc.



Picture 3.2: VisuReal Portable offers by Hoya (Hoya 2013)

3.7 Conclusion, notes, comments

Which one from used technique for measurement of vertex distance is the most exact?

Which one from used techniques for measurement of vertex distance is fastest?

For which purpose is measurement of vertex distance important?