[A new method to test vertical ocular deviations using perilimbal light reflexes]

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BACKGROUND: To develop a new diagnostic technique to determine vertical ocular deviations when the center of the pupil is covered by swollen eyelids in up- and downgaze. PATIENTS AND METHODS: In upgaze (downgaze) the reflex of a diagnostic lamp held at about 50 cm distance from the patient is observed on the lower (upper) limbus. In the case of an asymmetric reflex, prisms are used to obtain symmetrical reflexes. The amount of prisms indicates the size of the vertical misalignment. In five healthy volunteers, the angles of vertical changes of gaze position were plotted against the prism size needed to recenter the perilimbal reflex. RESULTS: There was a linear correlation between the amount of upgaze changes in degrees and the strength of prisms used for compensation in degrees. This linear correlation was also found in downgaze. For both the correlation coefficient was $r = 0.98 +/-.01$. In upgaze the slope of the average regression line was $0.55 +/-.2.3$ degrees, in downgaze $-4.1 +/-.0.8$ degrees. A prism of 1 degrees corresponds in upgaze to a vertical deviation of about $1.3 +/-.0.14$ degrees, in downgaze to a deviation of about $1.1 +/-.0.07$ degrees. CONCLUSIONS: These results demonstrate that the perilimbal light reflex test is suitable for measuring simulated vertical ocular deviations. Therefore, the test may also be used in patients with vertical deviations who cannot be measured with classical methods. The method is more exact for measurements in upgaze.