

ABSTRACT

Purpose: Stereopsis is the ability to see depth as a result of disparities. The ability to detect fine stereopsis can be used to screen for the presence of strabismus and other visual defects. The purpose of this study was to develop the MDRS (Moving Dynamic Random dot Stereotest) for measuring stereopsis objectively for use later in the evaluation of infants, preschool children and people who cannot be evaluated with other tests. The study investigated the performance of the test in adults, e.g. validity of the test for detecting simulated anisometropia, binocular blur, amblyopia and strabismus and its correlation with other measures of visual performance e.g. clinical suppression tests. Factors affecting robustness of the test for detecting anisometropia were also investigated, e.g. the chromatic aberration of the eye.

Methods: Using analygraphic images that appear on the computer screen in the form of a duck moving across the screen. The disparity of the image is 616 seconds of arc and changes in size (not disparity) from 11 degrees to 11 minutes in 13 steps.

The observer watches the subject eye movements and makes a forced choice decision regarding the direction of eye movement of the subject. The precision of the test was evaluated by measuring repeatability and objective/subjective difference in threshold in 16 visually normal adults (V.A 6/6 or better in each eye and without any oculomotor abnormality). The validity of the test was assessed tested by measuring its sensitivity in comparison to the contour Randot test for detecting simulated anisometropia, using minus lenses from 1-3 diopters, on the same visually normal 10 subjects. The validity was also