

First Application of 3D Near-Vision Test for near vision examination in pediatric patients without polarized glasses: a new clinical evaluation of stereopsis.

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Purpose: Vision screening and eye examination are vital for the detection of conditions that suppress the normal visual image and may lead to inadequate school performance and blindness in children. Sometimes, collaboration with patient younger than 6 y.o. is challenging. In this study we evaluated the new 3D-Vision System by REALVISION that doesn't need use of eye glasses.

Methods: This was a cross-sectional study evaluating the REALVISION KIT NEAR by REALVISION Srl. in acquired strabismus and normal subjects after approval from the Institutional review board of Riga Stradins University. The inclusion criteria were subjects aged six years and above, with an onset of deviation after the first year of life, best corrected visual acuity (BCVA) of 0.3 or better in each eye at the time of examination. We included children with anisometropia, divided into groups with amblyopic anisometropia (AA n = 25) and non-amblyopic anisometropia (NA n = 58)). Control group (n = 31). Main outcome measures were the level of stereopsis, sensory fusion and collaboration of the patient.

Results: The degree of anisometropia in the NA, AA, and control groups was 2.41 diopters (D), 3.59 D, and 0.20 D, respectively ($P = 0.014$). Stereopsis (arcsec) was significantly worse in the AA group than the NA and control groups (631.71, 72.25, 51.52, respectively, $P < 0.001$), while no significant difference was found between the NA and control groups. The rate of fusion was significantly lower in the AA than the NA group (14.3% vs. 65.3%, $P < 0.001$), and was significantly lower in the NA than the control group (65.3% vs. 80.6%, $P = 0.001$). In 8 patients (5 NA and 3 AA) the standard tests were not able to be performed and only 3D Airplane test got the attention of the children.



Conclusions: The levels of stereopsis and sensory fusion with anisometric glasses were significantly worse in the AA than in the NA group. The REALVISION KIT NEAR gives the possibility to improve the collaboration with patients, especially the 3D Airplane tests who extend the range of patient that can have a possible benefit from an eye consultation.



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