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Abstract:

New varieties of the tests for binocular vision assessment

Introduction:

Unfortunately, up to date there is no commonly accepted set of tests for integrative assessment of binocular functions and, therefore the task of novel test elaboration remains of current interest.

Methods:

Two novel varieties of tests for stereovision assessment were elaborated. One of them, like the Lang-test, combined the principles of raster separation and random dot stereogram but, in our version, it was multicolored and had 12 disparity gradations – much more than in Lang-test. The second stereotest was based on the principle of chromostereopsis and implied using ChromaDepth glasses. These tests, along with the widely known Lang-test and Worth-test, were employed for binocular vision assessment in 59 normal subjects, 45 patients with ametropia, and 31 patients with concomitant strabismus accompanying by ametropia.

Results:

In all 59 subjects without ophthalmopathology, the results of all the employed tests were positive. In the group of 45 patients with ametropia, the results of the Worth-test and both raster tests were also positive in all cases. However, some difficulties with the chromostereotests were observed in 9 patients of this group having impaired accommodation joined with myopic refraction. The remained 36 patients (including 3 patients with impaired color vision) were able to perceive depth in all the images of the chromostereotest. In the group of 31 patients with strabismus and ametropia, the results of the raster tests were negative in all the cases. The Worth-test demonstrated normal retinal correspondence only in 5 patients who had proper positions of visual axes after strabismus surgery. These 5 patients were also able to see depth in some images of chromostereotest.

Conclusion:

The results obtained have indicated that our new variants of stereotests could be promising for a comprehensive assessment of binocular functions.

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