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Modified device for investigation of accommodation; irregular accommodation

A device for studying the volume of absolute accommodation (VAA) of the eye is known - the two-point diaphragm of Scheiner (1619), based on the principle of monocular diplopia, that allows to study this index quite accurately. However, it has some drawbacks: reduced illumination of the pupil; narrow field of view; if one of the holes is not projected onto the pupil, then the phenomenon of monocular diplopia is not caused. The aim of the work was to make a device that would eliminate the existing shortcomings of the Scheiner diaphragm. The modified device is a disk with a diameter of 38 mm from an opaque material, in the center of which there is a depression with the bottom. The bottom is a lattice with parallel slots and bridges of the same width. Advantages of this device in comparison with the diaphragm of Scheiner are the following: the illumination of the pupil increases; the field of view is widened to 80-90 degrees; when the lattice is shifted, its function does not disappear, because in the projection of the pupil there are 2 or 3 slots, which allows provoking the phenomenon of monocular diplopia. The test-object is a thin line on a light background. Using this device, VAA was studied in preschool and schoolchildren. It is shown that from 3 to 7 years the VAA increases (from 7.4 ± 0.1 dptr to 10.3 ± 0.06 dptr), and then (to 15 years) gradually decreases (to 7.3 ± 0.05 dptr). The installation of slots and test-object in this or that meridian allowed proving the possibility of irregular accommodation of the eye. The modified device is an accurate and convenient device for investigating VAA.

Recent Publications

1. Serdiuchenko V I and Viasovsky I A (1987) The new device for determination of absolute accommodation volume of the eye. *Ophthalmol.* 1:12-15.
2. Kliuka I V, Serdiuchenko V I and Boychuk I M (1993) The main indices of accommodative-convergent system in pre-schoolchildren with hypermetropia without strabismus and with accommodative convergent strabismus. *Ophthalmol.* 285-288.
3. Pavlichenko N A, Serdiuchenko V I and Danilenko N I (1999) Biorhythms of absolute accommodation and visual productiveness of schoolchildren during the day and school week *Ophthalmol.* 3:174-178.
4. Serdiuchenko V I and Boubaker Hafedh B A (1998) The results of complex treatment of disbinocular amblyopia with inclusion of exercises as development of accommodative ability. *Ophthalmol.* 2:112-116

Biography

Serdiuchenko Vira is a Doctor of Medical Science, Professor and, Chief of Laboratory of Disturbance of Binocular Vision at Filatov Institute of Eye Diseases and Tissue Therapy of National Academy of Medical Science of Ukraine. In 1985, with co-author I Viazovsky, the new device for investigation of accommodation in different meridians of the eye was proposed. With help of this device the possibility of irregular accommodation was demonstrated. In 1995, she has completed Doctoral dissertation entitled "New dynamic methods of investigation of visual functions in children with anomalies of refraction and disturbance of binocular vision". She has authored 200 scientific works, two monographs (in 2014, 2015). Main direction of her scientific activities include: diagnostic and treatment of complicated forms of strabismus; creation of devices for treatment of accommodative disturbances and; studying of visual functions in children living in radioactively contaminated regions. She is member of European and International Associations.

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