A review of the classification of nonstrabismic binocular vision anomalies

DOI https://doi.org/10.4081/optometry.2016.5626

Published: Jun 17, 2016

Keywords
Nonstrabismic binocular dysfunctions, Accommodative anomalies, Vergence anomalies

Statistics

Abstract Views: 1631
PDF: 772

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Abstract

There are conflicting and confusing ideas in literature on the different types of accommodative and vergence anomalies as different authors turn to classify them differently. This paper sought to review literature on the different classifications and types of nonstrabismic binocular vision anomalies and harmonize these classifications. Search engines, namely Google scholar, Medline, Cinahl and Francis databases, were used to review literature on the classification of accommodative and vergence dysfunctions using keywords like binocular vision dysfunctions, classification of nonstrabismic binocular vision disorders or anomalies, accommodative disorders/anomalies classification and vergence disorders/anomalies classifications, and included works that described these anomalies. Nonstrabismic binocular vision anomalies are classified as accommodative and vergence anomalies. There are three different major types of accommodative anomalies, namely accommodative insufficiency, accommodative infacility (accommodative inertia), and accommodative excess (accommodative spasm), and seven different types of vergence anomalies (convergence insufficiency, convergence excess, divergence insufficiency, divergence excess, basic esophoria, basic exophoria and fusional vergence dysfunctions), which are functional in origin. Functionally, there is a commonly reported interaction between accommodative and convergence insufficiency referred to as pseudoconvergence insufficiency. Accommodative paralysis (subtype of accommodative insufficiency) and vergence anomalies – i.e., convergence paralysis, convergence spasm and divergence paralysis – are non-functional in origin with underlying systemic disease etiologies. Systemic convergence insufficiency, associated with subnormal accommodation, is a non-functional interaction between the accommodative and convergence insufficiency. The classification of nonstrabismic binocular vision anomalies is based on the description of the clinical signs and the underlying etiology either functional or non-functional in origin. Proper diagnosis and management involves investigation of the underlying etiology in addition to the battery of binocular vision test procedures.
Assessment of Nonstrabismic Binocular Vision Disorders

GENERAL CONSIDERATIONS
The evaluation of binocular vision involves several distinct steps (Table 1.1). The first phase of testing is the measurement of the magnitude and direction of the phoria at a distance and near, along with the accommodative convergence to accommodation (AC/A) ratio. Conventional procedures to accomplish this include tests such as cover testing, the von Graefe phoria test, and the modified Thorington test. Fixation disparity testing represents a more recent method of assessing binocular vision and provides additional of Binocular Vision in Anomalous Correspondence.

Prevalence
Theories
Review and Summary

Examination of the Patient—

Voluntary and Involuntary Eye Movements.