

- ◆ The identity of the historian, relationship to child, and any language barriers that may exist
- ◆ The identity of other pertinent health care providers
- ◆ The chief complaint and reason for the eye evaluation
- ◆ Current eye problems
- ◆ Ocular history, including prior eye problems, diseases, diagnoses, and treatments
- ◆ Systemic history, birth weight, gestational age, prenatal and perinatal history that may be pertinent (e.g., history of infections or substance or drug exposure during pregnancy), past hospitalizations and operations, and general health and development
- ◆ Current medications and allergies
- ◆ Family history of ocular conditions and relevant systemic diseases
- ◆ Social history, including racial and/or ethnic heritage
- ◆ Review of systems

EXAMINATION

The pediatric eye examination consists of an assessment of the physiologic function and the anatomic status of the eye and visual system. Documentation of the child's level of cooperation in the examination can be useful in interpreting the results. The order of the examination may vary depending on the child's level of cooperation. Testing of sensory function should be performed before using any dissociating examination techniques, such as covering an eye to check visual acuity or alignment. Binocular alignment testing should be done prior to cycloplegia. The examination should include the following elements:

- ◆ Binocular red reflex (Brückner) test
- ◆ Binocularity/stereoacuity testing
- ◆ Assessment of fixation pattern and/or visual acuity
- ◆ Binocular alignment and ocular motility
- ◆ Visual field testing
- ◆ Pupillary examination
- ◆ External examination
- ◆ Anterior segment examination
- ◆ Cycloplegic retinoscopy/refraction
- ◆ Funduscopy examination

Binocular Red Reflex (Brückner) Test

To perform this test, the room is darkened and the examiner sets the ophthalmoscope lens power at "0" and directs the ophthalmoscope light toward both eyes of the child simultaneously from approximately 18 to 30 inches (45 to 75 centimeters). The Brückner test should be performed prior to pupillary dilation, because subtle differences in the red reflex are difficult to detect once the pupils are dilated.¹⁹⁴ To be considered normal, a symmetric red reflex should be observed from both eyes. Opacities within the red reflex, a markedly diminished reflex, the presence of a white or dull reflex, or asymmetry of the red reflexes are all considered abnormal. The appearance of the red reflex varies based on retinal pigmentation and, thus, varies by race/ethnicity; therefore, the emphasis is on symmetry rather than color of the reflex. Significant hyperopia will present as an inferiorly placed brighter crescent in the red reflex. Significant myopia presents as a superiorly placed brighter crescent. Screening by non-ophthalmologists using the Brückner test has also been shown to accurately identify significant refractive errors in children.¹³

Binocularity/Stereoacuity Testing

Binocularity, or binocular vision, has several different components, including sensory fusion, stereopsis, fusional vergence (motor fusion), and other coordinated binocular eye movements. Sensorimotor fusion is sensitive to disruption by amblyopia, strabismus, refractive error, and deprivation. Binocular vision may be affected to different degrees depending on the underlying diagnosis, and tests to evaluate each of these components vary accordingly. The Worth 4-Dot Test is used to evaluate sensory fusion, the Randot Stereo Test is used to evaluate stereopsis, and a prism bar or rotary prism is used to evaluate fusional motor vergence.^{33, 195} Assessment of stereoacuity is an important component of binocular alignment testing because high-grade stereoacuity is associated