

Care of the Patient with Hyperopia



American Optometric Association

A. DESCRIPTION AND CLASSIFICATION

Hyperopia, also known as hypermetropia or “farsightedness,” is a refractive condition in which the light entering the nonaccommodated eye is focused behind the retina.

Classification of hyperopia, described in Table 1, includes:

- Physiologic (functional) hyperopia
- Pathologic hyperopia

Hyperopia may also be classified by:

- Structure (correlational and component hyperopia)
- Degree of refractive error (low [<2.00 D], moderate [2.25 D to 4.75 D], and high hyperopia [>5.00 D])
- Role of accommodation (facultative and absolute hyperopia)
- Outcome of noncycloplegic and cycloplegic refractions (manifest and latent hyperopia)
- Presence or absence of symptoms (significant hyperopia)

B. RISK FACTORS

The risk of developing clinically significant physiologic hyperopia is determined by a combination of hereditary factors and biologic variation. Risk factors may include:

- Short axial length of the eye
- Relatively flat corneal curvature

- Insufficient crystalline lens power
- Increased lens thickness
- Variance of the normal separation of the optical components
- Astigmatism

Risk factors for the development of pathologic hyperopia may include:

- Anterior segment malformations (corneal plana, sclerocornea, anterior chamber cleavage syndrome, limbal dermoids)
- Acquired disorders (corneal distortion or trauma, chalazion, chemical or thermal burns, retinal vascular problems, diabetes mellitus, cataract, contact lens wear, ectopia lentis, orbital tumors, idiopathic choroidal folds, edema, Adie’s pupil)
- Pharmaceutical agents (cycloplegic agents inadvertently instilled in the eye, variety of other drugs)
- Congenital anomalies (albinism, achromatopsia, aniridia, Down’s syndrome, fragile X, microphthalmia or nanophthalmia)
- Early retinal degeneration (Leber’s congenital amaurosis)

C. COMMON SIGNS, SYMPTOMS, AND COMPLICATIONS

Active accommodation mitigates some or all of hyperopia’s adverse effects on vision. The impact of accommodation is highly dependent on age, degree of hyperopia and astigmatism, status of the

NOTE: This [Quick Reference Guide](#) should be used in conjunction with the [Optometric Clinical Practice Guideline on Care of the Patient with Hyperopia](#) (2006). It provides summary information and is not intended to stand alone in assisting the clinician in making patient care decisions.

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accommodative and vergence systems and demands placed on the visual system. Younger persons with lower degrees of hyperopia and moderate visual demands are less adversely affected than older persons with higher degrees of hyperopia or more demanding visual needs. Table 1 summarizes the common signs, symptoms and complications of hyperopia.

D. EARLY DETECTION AND PREVENTION

Early detection and treatment of hyperopia, may reduce the incidence and severity of complications. Moderate and high hyperopia can be detected by effective vision screening of young children. Screening by visual acuity testing and stereopsis screening alone are of limited value in identifying hyperopia.

Because physiologic hyperopia exists during infancy, prevention of the condition is not possible. Pathologic hyperopia is usually detected only after significant visual problems have developed and the patient receives a comprehensive eye examination.

E. EVALUATION

The evaluation of patients with signs and symptoms suggestive of hyperopia includes all areas of a comprehensive adult or pediatric eye and vision examination with particular emphasis on the following areas:

1. Patient History

- Nature of presenting problem and chief complaint
- Visual, ocular and general health history
- Developmental and family history
- Medication usage and medication allergies
- Vocational and avocational vision requirements

2. Ocular Examination

- Visual acuity (distance and near)
- Refraction (static, nearpoint or cycloplegic retinoscopy, subjective refraction, autorefraction)

- Ocular motility, binocular vision and accommodation (versions, monocular and alternating cover test, near point of convergence, accommodative amplitude and facility, stereopsis testing)
- Ocular health assessment and systemic health screening (evaluation of anterior and posterior segments of eye and adnexa, assessment of papillary responses, visual field screening, color vision testing, measurement of intraocular pressure)

F. MANAGEMENT

There is no universal approach to the treatment of hyperopia. Specific elements of treatment should be tailored to individual patient needs. Table 2 (adapted from Figure 3 in the Guideline) provides an overview of the treatment and management of patients with hyperopia.

Factors to be considered when planning treatment and management strategies are:

- Magnitude of the hyperopia
- Presence of astigmatism and anisometropia
- Patient's age and symptoms
- Demands placed on the visual system
- State of accommodation, visual acuity and efficiency during performance of visual tasks

1. Basis for Treatment

Treatment of hyperopia is directed toward four goals:

- Reducing accommodative demand
- Providing clear, comfortable vision and normal binocularity
- Remediating symptoms
- Reducing the future risk of vision problems

2. Available Treatment Options

- Optical correction – spectacle lenses and/or contact lenses
- Vision therapy – for associated accommodative or vergence dysfunctions
- Medical (pharmaceutical) – miotics
- Modification of patient's habits and environment – visual hygiene recommendations

3. Patient Education

The clinician should educate the patient, and parents of children with hyperopia, of the diagnosis, signs, symptoms, natural history, clinical course and treatment options. All patients, regardless of age or characteristics of refractive error, should also be educated about how their visual environment and personal habits affect their visual status and that slight modification of these factors may greatly benefit their visual comfort and efficiency.

4. Prognosis and Followup

Physiologic hyperopia is not progressive; therefore, an excellent prognosis can usually be given at time of diagnosis. Appropriate optical correction almost always leads to clear and comfortable single binocular vision. The prognosis for those patients with both hyperopia and amblyopia or strabismus however, is less certain.

Patients with pathologic hyperopia require treatment of their underlying conditions and, when indicated, referral to another appropriate provider for special services.

TABLE 1

Clinical Classification of Hyperopia

Type of Hyperopia	Description	Etiology	Signs, Symptoms and Complications
Physiologic hyperopia	Hyperopia which occurs when the axial length of the eye is shorter than the refracting components the eye requires for light to focus precisely on the retina	Hereditary factors, with some environmental influence Relatively flat corneal curvature Insufficient crystalline lens power Increased lens thickness Short axial length Variance of the normal separation of the optical components of the eye	Constant to intermittent blurred vision Asthenopia Red, teary eyes Frequent blinking Decreased binocularity Difficulty reading Amblyopia Strabismus
Pathologic hyperopia	Hyperopia which results from other than normal biologic variation of the refracting components of the eye	Maldevelopment of the eye during the prenatal or early postnatal period Corneal or lenticular changes Chorioretinal or orbital inflammation or neoplasms Neurologic- or pharmacologic-based causes	Related congenital or acquired ocular or systemic disorders

TABLE 2*

Frequency and Composition of Evaluation and Management Visits for Hyperopia

Type of Patient	Number of Evaluation Visits	Treatment Options	Frequency of Followup Visits	Composition of Followup Evaluations				Management Plan
				Visual Acuity	Refraction	Accommodation/Vergence Testing	Ocular Health Evaluation	
Young child with mild to moderate hyperopia and no strabismus or amblyopia	1-2	Optical correction; modify habits and environment	3-12 mon	Each visit	Each visit	Each visit	p.r.n.	No treatment or provide refractive correction; monitor vision
Young child with high hyperopia and no strabismus or amblyopia	1-2	Optical correction; vision therapy; modify habits and environment	2-6 mon	Each visit	Each visit	Each visit	p.r.n.	Provide refractive correction; treat any accommodative or binocular vision problem; monitor vision
Young child with mild to high hyperopia and strabismus or amblyopia	2-3	Optical correction, strabismus and amblyopia therapy; modify habits and environment; pharmaceuticals	2 wk-3 mon	Each visit	Each visit	Each visit	p.r.n.	Provide refractive correction; treat any amblyopia or strabismus; monitor vision
Older child with mild to moderate hyperopia	1-2	Optical correction; modify habits and environment	6-18 mon	Each visit	Each visit	Each visit	p.r.n.	No treatment or provide refractive correction; monitor vision
Older child with high hyperopia	1-2	Optical correction; vision therapy; modify habits and environment	6-12 mon	Each visit	Each visit	Each visit	p.r.n.	Provide refractive correction; treat any accommodative or binocular vision problem; monitor vision
Pre-presbyopia adult	1	Optical correction; vision therapy; modify habits and environment	1-2 yr	Each visit	Each visit	Each visit	p.r.n.	No treatment or provide refractive correction; treat any accommodative or binocular vision problem; monitor vision
Presbyopic adult	1	Optical correction; vision therapy; modify habits and environment	1-2 yr	Each visit	Each visit	Each visit	Each visit	Provide refractive correction; treat any accommodative or binocular vision problem; monitor vision

VA = visual acuity testing, REF = refraction, A/V = accommodative/vergence testing, OH = ocular health assessment, p.r.n. = as needed

*Adapted from Figure 3 in the Optometric Clinical Practice Guideline on Care of the Patient with Hyperopia.