

Far-sightedness

Far-sightedness, also known as **hypermetropia**, is a condition of the eye in which light is focused behind, instead of on, the retina.^[2] This results in close objects appearing blurry, while far objects may appear normal.^[2] As the condition worsens, objects at all distances may be blurry.^[2] Other symptoms may include headaches and eye strain.^[2] People may also experience accommodative dysfunction, binocular dysfunction, amblyopia, and strabismus.^[3]

The cause is an imperfection of the eyes.^[2] Often it occurs when the eyeball is too short, or the lens or cornea is misshapen.^[2] Risk factors include a family history of the condition, diabetes, certain medications, and tumors around the eye.^{[2][4]} It is a type of refractive error.^[2] Diagnosis is based on an eye exam.^[2]

Management can occur with eyeglasses, contact lenses, or surgery.^[2] Glasses are easiest while contact lenses can provide a wider field of vision.^[2] Surgery works by changing the shape of the cornea.^[2] Far-sightedness primarily affects young children, with rates of 8% at 6 years and 1% at 15 years.^[5] It then becomes more common again after the age of 40, affecting about half of people.^[4]

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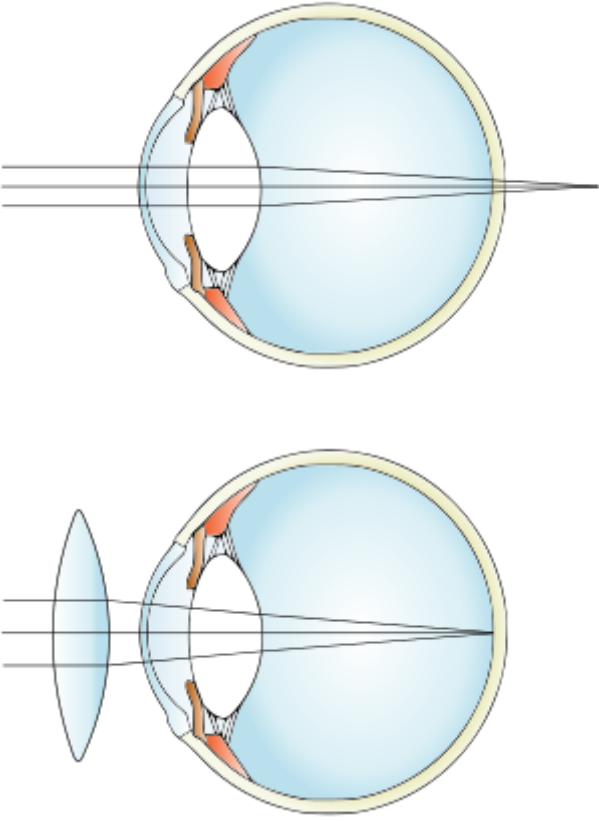
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Far-sightedness	
Other names	Hypermetropia, hyperopia, longsightedness, long-sightedness ^[1]
	
Far-sightedness without (top) and with lens correction (bottom)	
Specialty	Ophthalmology
Symptoms	Close objects appear blurry ^[2]
Complications	Accommodative dysfunction, binocular dysfunction, amblyopia, strabismus ^[3]
Causes	Too short an eyeball, misshapen lens or cornea ^[2]
Risk factors	Family history ^[2]
Diagnostic method	Eye exam ^[2]
Differential diagnosis	Amblyopia, retrobulbar optic neuropathy, retinitis pigmentosa sine pigmento ^[4]
Treatment	Eyeglasses, contact lenses,

Signs and symptoms

The signs and symptoms of far-sightedness are blurry vision, headaches, and eye strain.^[2] The common symptom is eye strain. Difficulty seeing with both eyes (binocular vision) may occur, as well as difficulty with depth perception.^[1]

Complications

Far-sightedness can have rare complications such as strabismus and amblyopia. At a young age, severe far-sightedness can cause the child to have double vision as a result of "over-focusing".^[6]

Causes

As hyperopia results from the visual image being focused behind the retina, it has two main causes:^[2]

- Low converging power of eye lens because of weak action of ciliary muscles
- Abnormal shape of the cornea

Far-sightedness is often present from birth, but children have a very flexible eye lens, which helps to compensate.^[7] In rare instances hyperopia can be due to diabetes, and problems with the blood vessels in the retina.^[1]

Diagnosis

A diagnosis of far-sightedness is made by utilizing either a retinoscope or an automated refractor-objective refraction; or trial lenses in a trial frame or a phoropter to obtain a subjective examination. Ancillary tests for abnormal structures and physiology can be made via a slit lamp test, which examines the cornea, conjunctiva, anterior chamber, and iris.^{[8][9]}

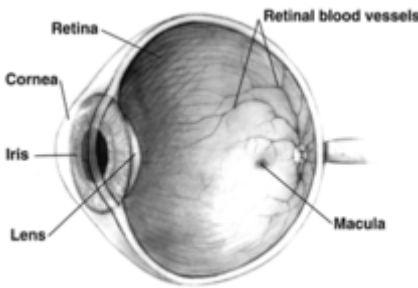
In severe cases of hyperopia from birth, the brain has difficulty in merging the images that each individual eye sees. This is because the images the brain receives from each eye are always blurred. A child with severe hyperopia can never see objects in detail. If the brain never learns to see objects in detail, then there is a high chance of one eye becoming dominant. The result is that the brain will block the impulses of the non-dominant eye. In contrast, the child with myopia can see objects close to the eye in detail and does learn at an early age to see objects in detail.

Classification

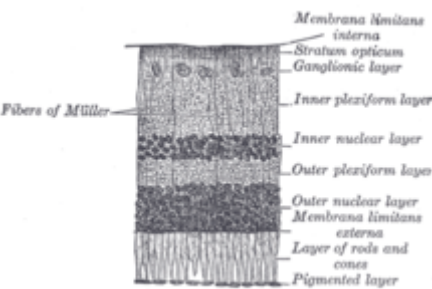
	surgery ^[2]
Frequency	~7.5% (US) ^[2]



Far-sighted vision on left, normal vision on right



Human eye cross-section



Retina section

Hyperopia is typically classified according to clinical appearance, its severity, or how it relates to the eye's accommodative status.

There are three clinical categories of hyperopia.^[3]

Simple hyperopia

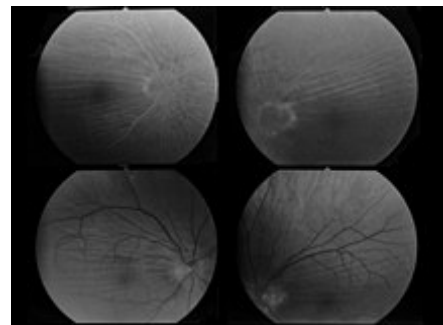
Occurs naturally due to biological diversity.

Pathological hyperopia

Caused by disease, trauma, or abnormal development.

Functional hyperopia

Caused by paralysis that interferes eye's ability to accommodate.



Choroid folds in high hyperopia
(fluorescein angiography)

There are also three categories severity:^[3]

Low

Refractive error less than or equal to +2.00 diopters (D).

Moderate

Refractive error greater than +2.00 D up to +5.00 D.

High

Refractive error greater than +5.00 D.

Other common types of refractive errors are near-sightedness, astigmatism, and presbyopia.^[10]

Treatment

Corrective lenses

The simplest form of treatment for far-sightedness is the use of corrective lenses, eyeglasses or contact lenses.^{[11][12]} Eyeglasses used to correct far-sightedness have convex lenses.^[13]

Surgery

There are also surgical treatments for far-sightedness:

- Photorefractive keratectomy (PRK)

Removal of a minimal amount of the corneal surface^{[13][14]}

- Laser assisted in situ keratomileusis (LASIK)

Laser eye surgery to reshape the cornea, so that glasses or contact lenses are no longer needed.^{[14][15]}

- Refractive lens exchange (RLE)

A variation of cataract surgery where the natural crystalline lens is replaced with an artificial intraocular lens; the difference is the existence of abnormal ocular anatomy which causes a high refractive error.^[16]

- Laser epithelial keratomileusis (LASEK)


Resembles PRK, but uses alcohol to loosen the corneal surface.^[13]

Etymology

The term *hyperopia* comes from Greek ὑπέρ *hyper* "over" and ὤψ *ōps* "sight" (GEN ὥπος *ōpos*).^[17]

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External links

<p>Classification ICD-10: H52.0 (http://apps.who.int/classifications/icd10/browse/2016/en#/H52.0) • ICD-9-CM: 367.0 (http://www.icd9data.com/getICD9Code.ashx?icd9=367.0) • MeSH: D006956 (https://www.nlm.nih.gov/cgi/mesh/2015/MB_cgi?field=uid&term=D006956)</p>

	006956) • DiseasesDB: 29644 (http://www.diseasesdatabase.com/ddb29644.htm)
External resources	MedlinePlus: 001020 (https://www.nlm.nih.gov/medlineplus/ency/article/001020.htm)

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