

VISION



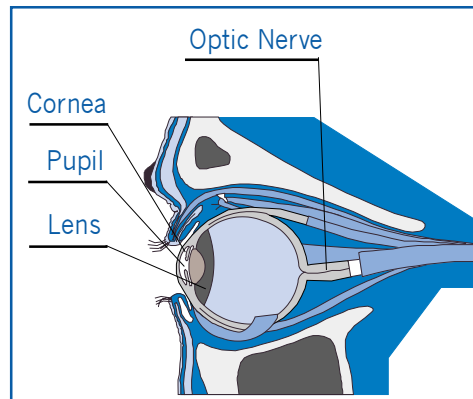
The human body has five senses — vision being the most specialized. The eyes are complex, intricate, and fairly delicate structures. Light rays enter the pupils and register on the retina at the back of the eye creating two-dimensional images. The images are converted into electrical impulses that travel through each eye to the brain. The occipital lobe in the brain is where these impulses are interpreted. All of this is done thousands of times a day — and done instantaneously.

Each eyeball is a sphere about one inch in diameter and has three layers (tunics). The outer tunic consists of the transparent curved cornea and the white sclera that preserves the shape of the eye. The middle tunic contains the iris, ciliary body, and choroid whose blood vessels supply all three of the tunics. The third tunic (back of the eye) consists of the retina where the light reaches and forms images. The movement of the eye is controlled by six muscles attached to the outside covering (sclera) of the eye. The eyes are protected by the eyelids which open and close involuntarily, shielding the eyes from intense light, impact, and foreign particles. Tears serve to lubricate, clean, and nourish the eye.



PROTECTING THE EYES

Often, the eyes are taken for granted. Eye examinations, on a regular basis, are the best method of prevention. If under 40 years of age, have your eyes examined every three years. Between 40 and 60 years of age, have your eyes examined every two years. After the age of 60, yearly examinations should be done to detect signs of glaucoma, cataracts, and other diseases that tend to occur with aging.



ACCIDENTAL INJURIES

According to the National Society to Prevent Blindness, nearly 90 percent of all impact injuries to the eye could have been prevented by using proper eye protection. Sports and recreational activities, particularly baseball, squash, tennis, and racquetball cause the most eye injuries. If you are involved in any hazardous sports, use the best possible eye protection. The material for the protective lenses should be polycarbonate plastic, and the frames should be special safety material and designed specifically for the sport in question. These protective glasses can be obtained through opticians, eye specialists, and sporting goods stores.

- ◆ Swimming can lead to eye irritation and infections. Chlorine in pools can be irritating. Infections can also be contracted if swimming in fresh water. If you are a swimmer, use watertight swimming goggles. Watertight goggles may be worn over contact lenses.
- ◆ At home, while cleaning, gardening, cooking or working in the yard, injuries can occur. Grease can spatter, hazardous chemicals can splash, or wood chips can fly into the eye. Household cleaners containing ammonia and chlorine are particularly dangerous. If a chemical splashes into the eye, use large amounts of water to rinse the chemical out of the eye and seek medical care. Damage caused by acid is immediate, while alkali continues to do harm long after it makes contact with the eye. Always use safety goggles when engaged in any activity that involves tools or dangerous chemicals.
- ◆ The sun should be avoided during peak hours. If this is not possible, use proper sunglasses to block ultraviolet rays. Such safety precautions are especially important when it comes to your eyes. Permanent eye damage can result from routinely staring at the sun on reflected water while sailing or surfing. High quality sun glasses can prevent these problems. Make sure your sunglasses are dark enough and have ultraviolet protection.
- ◆ Sunlamp or commercial tanning lights are especially hazardous. Always use special safety goggles when exposed to artificial sunlight. Ultraviolet light (UV) has been associated with the development of pterygium (thickened growth on the lining of the eye) and cataracts. Wind and sun may also worsen cases of dry eyes.



COSMETICS

Eyes are our most expressive feature and it is only natural to want to emphasize them. There is no harm in using eye makeup, as long as you observe some common sense rules about the use of eye cosmetics.

- ◆ Never use anyone else's cosmetics. Infections may be transmitted and you may find you are allergic to that brand.
- ◆ Avoid using old eye cosmetics. If you wear makeup often, this is probably no problem. But, if you use eye cosmetics infrequently, the material can become contaminated. Throw away old eye makeup.
- ◆ Try to test new cosmetics before using them. Initially, purchase a small amount for testing.
- ◆ Apply makeup carefully and properly. Take care to keep the makeup out of the eye itself.
- ◆ Avoid getting shampoos, hair sprays, and other hair products in the eye.

EYE SPECIALISTS

■ OPHTHALMOLOGISTS

For total eye care, seek the advice of an ophthalmologist, a medical doctor with specialized education in the diagnosis and treatment of eye diseases and conditions. Ophthalmologists can prescribe corrective lenses, conduct eye examinations, treat eye diseases and perform surgery on the eyes. In addition, some ophthalmologists subspecialize in the treatment of retinal or cornea diseases of children's eyes. The family doctor is a very good resource to refer patients for specialized eye treatment.

■ OPTOMETRISTS

Optometrists are not medical doctors but are graduates of a school of optometry and earn a doctor of optometry (OD). They are trained to test the eyes for nonmedical defects of vision and prescribe and dispense corrective lenses. Optometrists can diagnose diseases of the eye.

■ OPTICIANS

Opticians are specialists trained to fill prescriptions for lenses, as written by ophthalmologists and optometrists. They grind lenses, as written in the prescription, and fit the lenses. They do not examine the eyes.



PROBLEMS OF THE EYES

The most common eye disorders involve refractive errors, such as nearsightedness (myopia). Other types of vision impairment usually come with aging and include presbyopia, glaucoma, and cataracts. Inflammation of the eyes or surrounding tissues, trauma to the eye, and problems resulting from a systemic disease, such as diabetes, are other common problems of the eyes.

REFRACTIVE ERRORS

When light strikes the eye, it is refracted, or bent by the cornea and lens so that the rays converge and are in focus when they reach the retina. Unfortunately, for a large number of people, the visual image may be blurred or unfocused, causing nearsightedness and farsightedness.

■ NEARSIGHTEDNESS (MYOPIA)

Nearsightedness is usually caused because the eyes are too long in shape from front to back, causing the light to be focused before the image can reach the retina.

SIGNS AND SYMPTOMS

Blurred vision of distant objects.

TREATMENT

Corrective lenses. The prescription can be for glasses or contact lenses, although contact lenses are not suitable for preteen children.

SURGICAL TREATMENT

Radial keratotomy involves making a series of delicate incisions partway through the outer sections of the cornea in a radial or spoke-like fashion. Eximer laser treatment (PKT) is a newer surgical correction for myopia. This procedure removes microscopic layers of the anterior cornea. These procedures can be done in a doctor's office or ambulatory surgical center (ASC) under local anesthesia. These surgeries may not be covered by your health insurance or HMO.

■ FARSIGHTEDNESS (HYPEROPIA)

Farsightedness occurs when the eyeball is too short from the front to the back. The rays of light are focused behind the retina instead of on it, so the object at close range appears blurry. Hyperopia is generally congenital but another cause can be the inability of the lenses to focus. As we age, our lenses lose their elasticity.

SIGNS AND SYMPTOMS

Blurred vision at close distance; eye strain, including aching eyes and headache.

TREATMENT

Eyeglasses or contact lenses.

SURGICAL TREATMENT

New laser surgical procedures may be able to treat farsightedness.



■ PRESBYOPIA

Presbyopia or “old sight” is not really a refractive error but is caused by hardening or loss of elasticity of the crystalline lens of the eyes. Presbyopia is part of the natural process of aging, and it happens to everyone.

SIGNS AND SYMPTOMS

Decreased ability to focus on objects at close range; eyestrain and headache.

TREATMENT

Corrective reading glasses. If you already wear glasses to correct nearsightedness or farsightedness, you may need a bifocal lens or another pair of glasses, one for distance and one for reading. Because this is a progressive problem, you may gradually need several changes in prescriptions as your ability to focus lessens. Ultimately, the presbyopia may stabilize. Contact lens wearers may need to start wearing glasses to read. Some contact lens wearers choose to use one eye for distance and the other for near (monovision).

■ ASTIGMATISM

This is a common disorder. It is a refractive abnormality caused by the uneven curvature of the cornea. Frequently, it is an additional complication of farsightedness or nearsightedness. Astigmatism may be congenital or develop due to trauma, scarring, or surgery.

SIGNS AND SYMPTOMS

Mild cases – Blurriness of the visual field; sometimes, no symptoms.

More severe cases – Headaches or eye fatigue when focusing at a short distance; blurred vision.

TREATMENT

Correction with eye glasses or contact lenses.

SURGICAL TREATMENT

Surgery can be done for correction of astigmatism. These procedures are new and often are done by excimer laser surgery of the cornea. Surgery similar to radial keratotomy (RK) called astigmatic keratotomy (AK) may be helpful in some cases.



EYEGASSES

Eyeglasses are specially ground lenses that are tailored to the needs of the individual eye. Most glasses are single-vision lenses, which means there is only one set of optical corrections in the lens. Bifocals, on the other hand, contain two sets of optical corrections – a prescription for reading (the bottom part of the lens), and one for distance (the top part). Occasionally, trifocals, which carry prescriptive lenses for near, middle, and far distances may be necessary.

Sunglasses are important if time is spent in the sun. Be careful when purchasing sunglasses – buying them "off the rack" does not necessarily guarantee that they are coated for ultraviolet rays. Also, check for visual distractions in the lenses when you look through them. Always keep the glasses protected in a case, especially if you carry them in a purse or pocket. See your optician if they become loose or wobbly.

CONTACT LENSES

Contact lenses are small curved plastic discs that fit over the cornea of the eye and provide correction for nearsightedness, farsightedness, and astigmatism. There are two types of lenses, hard and soft. Hard lenses are sturdy, last a long time, are easy to care for, and usually provide excellent visual correction.

Soft contact lenses are usually much more comfortable to wear than hard lenses. However, soft lenses are not as sturdy and wear out more rapidly. They may become uncomfortably dry in windy weather conditions or while using a hair dryer. They are available as both daily and extended wear lenses. Disposable soft lenses are also available.

The best type of contact lens for a given patient depends on a thorough eye examination and careful fitting of the lenses to the eyes.



SURGICAL VISION CORRECTION

Surgical procedures for vision correction offer alternatives to the use of glasses or contact lenses. As of the time this health guide was written, there are several types of procedures that are available, and we describe them for you below. Whether you choose surgery, contact lenses, or eyeglasses for vision correction, however, you should know that each have their individual benefits and drawbacks. The best method for correcting your vision should be decided after a thorough examination and discussion with your ophthalmologist. The main types of laser procedures currently being performed are:

■ ASTIGMATIC KERATOTOMY (AK)

A form of Radial Keratotomy which is used to correct astigmatism (for information about astigmatism, see the section entitled “Problems of the Eyes” in this chapter). To treat astigmatism, the cornea must be made spherical, like a round ball. This is accomplished by making multiple incisions (cuts) in the steepest part of the cornea, causing it to relax and become more round. This procedure is usually performed in conjunction with other procedures that correct nearsightedness and/or farsightedness.

■ LAMELLAR KERATOPLASTY (LK)

LK treats high levels of nearsightedness and moderate degrees of farsightedness. Although this procedure has been used since 1949, LK has recently been improved with the use of an instrument called an automated microkeratome. For nearsightedness (to flatten the cornea), a thin layer of the cornea is cut and flapped (hinged) back with the microkeratome, and a measured amount of corneal tissue is removed from the center of the cornea below. The flap is then folded back into place (stitches are not needed — the cornea has a natural suction bond). For farsightedness, a lightly wider layer of cornea is folded back. This flap is then folded back into position. In correcting farsightedness, no corneal tissue is removed.

■ PHOTO-REFRACTIVE KERATECTOMY (PRK)

PRK is a method of surgically reshaping the cornea that is used to treat low to moderate degrees of nearsightedness using the excimer laser (a “cold” laser beam). A computer controls the laser, which precisely destroys microscopic amounts of corneal tissue on the surface of the cornea. The procedure itself takes less than 30 minutes.



■ RADIAL KERATOTOMY (RK)

RK is most often used to treat low to moderate levels of nearsightedness. The surgeon will make several tiny cuts in a radial pattern (from the cent of the cornea outward). As in all the corrective procedures for nearsightedness, this causes the central cornea to flatten.

■ LASER ASSISTED IN-SITU KERATOMILEUSIS (LASIK)

LASIK is used to treat high degrees of nearsightedness and moderate degrees of farsightedness and astigmatism. Using the microkeratome, the surgeon slices the cornea from the side, which produces a flap (as in the LK procedure described above). The microkeratome flattens the corneal during the slice, and creates the flap that is an even thickness. The corneal flap is then rolled back to expose the inner layers of the cornea. Then the surgeon uses the excimer laser to remove tissue form the inner layer of the cornea, similar to the PRK procedure. The flap is then returned to its original position. The eye has a natural suction bond that keeps the flap firmly in place, and prevents the need for stitches.

GLAUCOMA

This is a group of diseases characterized by increased intraocular pressure in the eye. The pressure can cause damage to the nerve of the eye and decreased vision. The disease can be detected by eye examinations and a screening test for glaucoma is readily available. In most cases, it has no symptoms until extensive damage has already occurred. Twenty per cent of people with glaucoma have close relatives with the disease, suggesting it may be inherited. There are two types, acute and chronic.

■ ACUTE GLAUCOMA

Acute (closed angle) glaucoma is less common than chronic glaucoma and usually occurs in elderly persons who are farsighted. Acute glaucoma runs in families, as does farsightedness. The pressure in the eye increases suddenly because the passage of the fluid is blocked.

SIGNS AND SYMPTOMS

Blurred vision, usually in one eye; halos appearing around lights; pain and redness in the eye.

TREATMENT

Acute glaucoma is usually treated with immediate surgery (iridectomy) that creates a small opening in the eye. An iridectomy can be done in the doctor's office under local anesthesia, using a laser, or done surgically in an operating room.



■ CHRONIC GLAUCOMA

This is the most common form of glaucoma and is called open angle glaucoma. The onset is painless. Peripheral vision is gradually lost but the central vision is unaffected until the disease is far advanced. Glaucoma occurs when the eye fluid is blocked from draining normally and pressure builds up in the eye. When this happens, it affects the optic nerve, destroying fibers that cannot be regenerated or replaced.

SIGNS AND SYMPTOMS

Gradual loss of peripheral vision in advanced cases.

TREATMENT

Eye drops are given to help decrease the pressure in the eye.

SURGICAL TREATMENT

If not responsive or controlled with eye drops, laser surgery can often help control the disease.

■ CATARACTS

Cataracts are a major cause of vision loss worldwide — almost 20 million people are blind because of this condition. In the United States, more than one-half million cataract operations are performed each year. A cataract is a clouding of the normally clear lens of the eye. The lens, one of the two main focusing mechanisms of the eye, lies just behind the pupil. The clouding of the lens blocks the passage of light needed for sight. Although a cataract may begin in just one eye, they often affect both eyes. Aging, exposure to UV light, diabetes, users of corticosteroids, trauma, infection, and occasional congenital cataracts in newborns cause this condition.

SIGNS AND SYMPTOMS

Blurred vision; impaired vision at night or in very bright light; halos around lights; second sight (the ability to read without glasses) often occurs in advanced aging.

TREATMENT

Although the mainstay of treatment of cataracts is surgery, there are some simple approaches before this major step is taken. Repositioning a light to avoid glare on the clouded lens may also help. Keeping the prescription lenses up to date is also important.

SURGICAL TREATMENT

Cataract removal is now common and is usually a successful operation performed under local anesthesia. The lens is removed and an artificial lens is implanted to reduce the need for thick eyeglass lenses.



■ MACULAR DEGENERATION

This is a common cause of visual loss in people over 60 years of age and usually occurs in both eyes. The macula is the area of the retina that is used for direct, central vision, which is the area of visual loss. Damage to this area does not cause total blindness, since the peripheral vision still functions. The macula gets its nutrition from blood vessels in the choroid (membrane covering the white of the eye). Any condition that restricts blood flow will damage the macula. There are two forms — the dry form, which occurs with aging and associated atherosclerosis, and the wet form where abnormal blood vessels grow under the retina, causing retinal bleeding and a gradual loss of vision. Early diagnosis of macular degeneration is essential to successful treatment.

SIGNS AND SYMPTOMS	Increasingly blurred central vision, or distortion of vision, especially distortion of things you know should be straight.
TREATMENT	Laser therapy is the only treatment to coagulate abnormal (leaking) blood vessels in order to prevent or slow further loss of vision. Such therapy is useful only during the early stages of the disease.

RETINA AND OPTIC NERVE DISORDERS

■ RETINAL DETACHMENT

This is a serious medical emergency that occurs when the retina, the thin transparent membrane in the back portion of the eye, peels away from the wall of the eye. The retina detaches when a hole or tear allows fluid to collect between the retina and the layer of the wall behind it.

SIGNS AND SYMPTOMS	Sensation of flashing lights; floaters in the eye; blurred vision; shadow over a portion of the field of vision.
SURGICAL TREATMENT	Immediate laser surgery to repair the damage is necessary. If the detachment is too large, a scleral buckling procedure may be needed.

■ RETINAL VESSEL OCCLUSION

Cells of the retina are nourished by tiny blood vessels. On rare occasions these retinal arteries and veins can become blocked by a blood clot or fatty deposit causing the retina to stop functioning, resulting in blindness in part or all of the eye. It is more commonly found in elderly people resulting from hypertension and diabetes.

SIGNS AND SYMPTOMS	Sudden blurring or loss of vision in a portion or all of the visual fields of one eye.
TREATMENT	Anticoagulant treatment to prevent further clotting may be helpful. If the carotid arteries are blocked (atherosclerosis), they may be opened to improve circulation but vision is usually not improved.



■ RETINITIS PIGMENTOSA

This rare disorder involves the gradual degeneration of the retina in both eyes, beginning with defective night vision. In many cases, the disease will eventually lead to legal blindness. Difficulty seeing at night and loss of peripheral vision over a period of several months are the most typical symptoms. As the disease progresses, peripheral vision may be lost as well, leading to tunnel vision. Most cases are inherited.

■ OPTIC NEURITIS

This is an inflammation of the optic nerve and may be the result of a viral illness or of multiple sclerosis. In the elderly, it may be a condition known as temporal or cranial arthritis.

SIGNS AND SYMPTOMS

Acute loss of vision in one eye; pain on movement of the eye.

TREATMENT

Corticosteroids when temporal arteritis is present. Sometimes the condition clears up on its own. There may be no treatment possible.

DISORDERS OF THE CORNEA

The cornea is the curved transparent covering at the front of the eye. It works with the lens to focus images on the retina which in turn transmit “pictures” to the brain where they are interpreted. The cornea is subject to injuries and infection.

■ CORNEAL INJURY AND ABRASION

Injuries to the cornea are fairly common. A speck of sand or sawdust can scratch the cornea, or wearing hard contact lenses for too long can result in problems. The cornea can also be irritated and painful from exposure to ultraviolet radiation after sitting in the sun or under a sunlamp for too long without proper eye protection. Corneal abrasions usually heal without scarring after several days. If a foreign object cannot be removed with irrigation, see a physician.

SIGNS AND SYMPTOMS

Some pain with tearing or watering of the eye; sensitivity to light; pain with motion of the eyeball or blinking.

TREATMENT

Antibiotic drops or ointment to prevent infection is used.

An eye patch or a bandage contact lens to keep the eyelid from rubbing against the injured cornea is also helpful.

SURGICAL TREATMENT

A more serious injury may require surgery.



■ CORNEAL SCARRING

Corneal scars may be congenital or, more commonly, develop as the result of trauma to the eye. A deep scratch on the cornea, for example, may involve deeper layers of the cornea and leave a scar that obscures vision. Depending on the location and severity of the scarring, treatment may consist of a new prescription for eyeglasses or the use of hard contact lenses. Hard lenses provide a “new” smooth surface to the eye and help correct any astigmatism caused by the corneal scar. If the scar is too deep, however, it may require a corneal transplant.

■ CORNEAL TRANSPLANT

In this operation, a healthy cornea from a deceased donor is transplanted into the eye and is usually performed under a local anesthetic. The central part of the injured cornea is removed using a circular cutting instrument called a trephine. A graft is then fashioned from the donor cornea and placed in the hole in the recipient’s cornea where it is sutured into place. The eye is patched for about one day. When the patch is removed, drops are used to prevent infection or rejection of the transplanted cornea. Vision may improve in several weeks, but it takes up to six months before a complete improvement is observed.

OTHER EYE INFLAMMATIONS AND INFECTIONS

Inflammation and infection do not mean the same thing. Inflammation occurs when the body attempts to defend itself against an invading organism or other foreign substance. Infection occurs when the body, or part of it, is invaded by a bacteria, virus, or fungus that multiplies and spreads to other areas.

■ CONJUNCTIVITIS

This is also known as “pink eye” and is a superficial inflammation of the conjunctiva (tissue that covers the eyeball). The cause can be viral, bacterial, or allergic. Viral conjunctivitis is sometimes associated with a cold or upper respiratory infection and usually produces a watery discharge. Bacterial conjunctivitis causes a much thicker discharge. The presence of conjunctivitis is a reason to see a doctor as soon as possible.

SIGNS AND SYMPTOMS

Redness of the eye; itching and burning sensation of the eye; a discharge that may cause the eyelids to stick together, especially on awakening.

TREATMENT

For immediate relief, apply cool, clean compresses to the eyes. Eye drops may be prescribed — for an allergic type, an antihistamine; for a bacterial type, an antibiotic; for a viral type, there is no treatment, but is often short-lived.



■ UVEITIS AND IRITIS

Uveitis is an inflammation of the uveal tract, the layer of the eye immediately behind the sclera. The uvea is composed of the iris (the colored part of the eye), the ciliary body, and the choroid. When only the iris is inflamed, it is called iritis. The cause may be a virus (herpes zoster) or it may occur with a systemic disease such as rheumatoid arthritis (bones and joints) and Crohn's disease (digestive system disease). Many cases are treated successfully without finding a specific cause. Prompt treatment is important to prevent complications such as glaucoma or cataracts, that can develop from the infection.

SIGNS AND SYMPTOMS	Reddened eyes; blurry vision; eyes become very sensitive to light.
TREATMENT	Topical and systemic steroids, antibiotics, or antiviral drugs are prescribed.

■ ORBITAL CELLULITIS

Cellulitis is an acute infection of the eye socket that often affects children. This is a serious condition and usually requires hospitalization.

SIGNS AND SYMPTOMS	Swelling and redness of the eyelids; eye socket pain; decreased vision; the socket can protrude as a result of the swelling. Emergency treatment is required.
TREATMENT	Antibiotics are used to treat the infection. If an abscess forms, surgical drainage may be necessary.

■ DACRYOCYSTITIS

Inflammation and infection of the tear sac, dacryocystitis, is found most commonly in babies and elderly women where tears accumulated in the sac of the eye become infected. It results from prolonged obstruction of the tear drainage system, often due to narrowness of the tear sac in babies, or the results of aging in the elderly.

SIGNS AND SYMPTOMS	The eye waters profusely; a milky-white discharge; usually with redness and swelling of the tear duct, which may extend to the eyelids and the conjunctiva.
TREATMENT	Warm compresses and topical or oral antibiotics will soothe and clear up the inflammation. Older women may require surgery to relieve the obstruction to the tear duct, allowing tears to drain from the eye.



■ TOXOPLASMOSIS

This is an infection transmitted by a parasite that can affect the central nervous system and the eye. The infection may be congenital (transmitted to the fetus during pregnancy) or acquired. Early symptoms are vague. Toxoplasmosis can also be transmitted by inadequately cooked meat or cat feces. To prevent this condition, avoid uncooked meat and pregnant women should avoid contact with cat feces. If you have a cat, let someone else empty the litter box. This is a serious condition and usually leaves a scar on the damaged retinal tissue.

SIGNS AND SYMPTOMS

Intense eye inflammation; redness of the eyes; pain; sensitivity to light; decreased vision. The active lesion appears on the retina.

TREATMENT

Oral antibiotics and/or oral and topical corticosteroids may be necessary, depending on the degree of inflammation and location of the lesions.

■ DISORDERS OF THE EYELID

The eyelids are vital to the functioning of the eyes. First, they protect vision by the quick reflex of blinking. When the nerves in the cornea sense even the slightest disturbance, the first signal is to close the eyelids. Second, the eyelids clean and lubricate the eyes by distributing tears. Last, but not least, the eyelids shut out the light and allow the eyes to rest, even for the short time it takes to blink.

■ STYES

This is the most common of all eyelid infections. A sty feels and looks like a pimple. The cause is usually a bacterial infection of an eyelid hair follicle. These are usually harmless to the sight and can be treated at home.

SIGNS AND SYMPTOMS

A painful red lump on the edge of the eyelid that develops into a whitehead, becomes painful.

TREATMENT

Warm compress to the sore area for 10 minutes, four times a day. Do not squeeze the sty, but let it drain on its own. An antibiotic eyedrop may be prescribed.



■ CHALAZION

This is a type of internal sty that appears as a lump on the eyelid. Chalazia are larger than styes and usually are not painful, just unsightly. It feels like a tiny pea and may be tender to touch. A chalazion occurs when a gland in the eyelid becomes plugged. If the nodule is small, treatment may not be necessary. Most chalazion disappear on their own in a few months without medical attention.

SIGNS AND SYMPTOMS	Red lump on the eyelid, usually not painful but may be tender to touch.
TREATMENT	If a chalazion continues to enlarge and fails to disappear, it may be removed under local anesthesia.

■ BLEPHARITIS

This is an inflammation and infection of the edges of the eyelids. It is not contagious, rarely threatens sight, and is usually easy to treat, but may be chronic. Often, conjunctivitis, styes, and chalazia accompany this condition. In severe cases, corneal ulcers may occur. Blepharitis is usually caused by a bacterial infection that affects the tiny glands and hair follicles on the surface of the eyelids. It can also be the result of an allergic reaction (usually from eye cosmetics) and exposure to dust, smoke, and irritating chemicals.

SIGNS AND SYMPTOMS	Sticky, crusty, and reddened eyelids.
TREATMENT	Topical antibiotics are given. At home, it can be treated by scrubbing the eyelids with a special over the counter solution made for that purpose. This is a chronic condition, so continue to bathe the eyelids on a regular basis, using a clean washcloth and warm to hot water – even after the infection has disappeared.

■ BLEPHAROSPASM

This is an involuntary closure of the eyelids, either intermittently or continuously, which usually affects both eyes. In severe cases, the blinking of the eyes and the squeezing closure of the lids may become so severe it could interfere with daily activities and functioning. The cause of the spasm is unknown. In some cases, blepharospasm may be linked to a neurological disorder, such as Parkinson's disease. Treatment depends on any associated eye problem, such as dry eyes or blepharitis.

SIGNS AND SYMPTOMS	Constant blinking or squeezing the eyelids closed (made worse by stress, fatigue, prolonged driving, and bright lights).
TREATMENT	Surgery is available for those people who do not respond to medication. Severe cases may require injection of botulism toxin to partially paralyze the muscles and relieve the intense spasms. The effects of the toxin last about three months.



■ ENTROPION AND ECTROPION

Sometimes the upper or lower eyelids turn in, causing the eyelashes to scratch the cornea (entropion). The reverse situation is ectropion, when the lower lid turns out, causing tears to flow out of the eye instead of lubricating the eye. In entropion, the turned-in lashes may irritate the eyes and cause scratching of the cornea, while most cases of ectropion are related to aging, atopic dermatitis, or lupus erythematosus.

SIGNS AND SYMPTOMS

Entropion — Red and crusty eyes, especially in the morning. Severe cases may lead to the formation of corneal ulcers.

Ectropion — Excessive tearing and eye irritation. The lower lid may also become loose, pulling away from the eye.

SURGICAL TREATMENT

Entropion and ectropion can be corrected surgically. The procedure is simple and can be performed under a local anesthetic.

■ DROOPING EYELIDS (PTOSIS)

This is a common effect of aging. The muscles that support the eye gradually lose their tone. There are no significant problems with ptosis, unless the drooping eyelid interferes with vision because it blocks the pupil. Sometimes ptosis is an inherited condition, but if the onset is sudden, see an ophthalmologist.

SIGNS AND SYMPTOMS

Drooping eyelids.

SURGICAL TREATMENT

Cosmetic surgery (blepharoplasty) is available to tighten up the muscles that control the lid position.

■ FOREIGN PARTICLES IN THE EYE

Occasionally, specks of dust or sand will blow into the eyes causing discomfort and irritation. Normally these small particles will wash out on their own. Sometimes, however, the particle is more difficult to dislodge. In that case, try to find a well-lighted mirror. Do not rub the eye or try to remove the debris with your fingers. If the particle is easily visible, you can try to remove it using the corner of a clean handkerchief. This may be difficult to do on your own because of reflex blinking. If you have no one to help you, try using an eye cup to flush out the foreign body. The solution should be one teaspoon of salt mixed in one pint of sterile water (normal saline). Never attempt to remove a foreign body that is embedded on the white of the eye or on the cornea — go to the emergency room for assistance. If you do remove the object, but pain, redness, and irritation persist, see your doctor.



■ DRY EYES

Whenever you blink, tears clean and lubricate your eyes. Tears, in fact, are essential for the proper functioning of the eyes, because the cornea must stay wet to be healthy. If there aren't enough tears, or the blink reflex is decreased, you suffer from a condition known as "dry eyes." This occurs most commonly in women after menopause, following cosmetic eye surgery, in contact lens wearers, and some people with rheumatoid arthritis.

SIGNS AND SYMPTOMS

Eyes feel gritty, irritable, burn and are uncomfortable. The vision may be affected.

TREATMENT

Lubricating eye drops can give some relief. Lubricating ointments may be helpful during sleep.

MUSCLE DISORDERS OF THE EYE

These conditions are usually first observed during early childhood. Strabismus is the general term for crossed or misaligned eyes. Amblyopia is commonly called "lazy eye" and can result from a strabismus. Normal vision depends on the eyes focusing together, producing what is known as binocular vision. When the eyes do not function in tandem, double vision results. In amblyopia (literally a dull eye), the non dominant eye's vision is poor. It also can be caused by farsightedness, nearsightedness, or astigmatism in one eye. The affected eye is then turned off by the brain, and the stronger eye becomes dominant and retains good vision. No one knows why some children's eyes are misaligned, although it has been known to run in families.

TREATMENT

Corrective lenses, a patch over the normal eye to force the use of the weak eye, and surgical treatment, which repositions the eye muscles to allow proper alignment.



OTHER CONCERNS

■ BLACK EYE

A “black eye” is simply a bruise around the eye socket which usually appears on the rim of the eye socket, below the eye. It may start out as a bluish purple in color; and gradually fades over a two week period. Contrary to popular belief, a steak applied to the eye won’t help the bruise to vanish any faster, but ice and cold compresses can help control the initial swelling. If you sustain a hard blow to the eye, sustain extensive cuts and lacerations around the eye, or notice changes in vision, pain on eye movement or double vision, see your ophthalmologist for a complete examination. Sometimes a black eye will indicate a more serious injury to the eye or even a skull fracture.

■ RED EYES

Exhaustion, lack of sleep, and the use of alcohol can all contribute to making your eyes red. If the redness is only occasional and clears up quickly, there is nothing to worry about. However, persistent redness with pain, may indicate problems that need immediate medical attention. For this reason, it is not recommended that you use over the counter eye drops to clear up persistent redness in the eye. The drops may mask a more serious condition. Look carefully for foreign objects and avoid rubbing the eyes. See an ophthalmologist if red eye persists.

■ HERPES VIRUSES

Herpes simplex virus commonly causes fever blisters (cold sores) around the mouth. This virus can also cause serious infections in the eye, which can result in loss of vision if untreated. The symptoms are redness and burning in the eyes, decreased vision, and sensitivity to light. See an ophthalmologist without delay. Antiviral, anti-inflammatory, and/or antibiotic drops may be necessary.

Herpes zoster virus can cause a painful skin inflammation, known as “shingles.” This can effect the face, including the area around the eyes. To avoid eye involvement, consult your ophthalmologist.



■ TWITCHES, RED SPOTS, AND FLOATERS

Twitches Occasionally, the eyelid quivers involuntarily for a short period several times a day. The cause is unknown. They are harmless and usually nothing to worry about, although they may be distracting. Some people find that gentle massage can decrease the problem.

Red Spots The sudden appearance of blood in the white of the eye is common. This is called subconjunctival hemorrhage. It develops when a tiny blood vessel in the eye bursts. While unsightly, it is usually harmless (if hypertension and blood clotting diseases are ruled out). The blood usually reabsorbs within two weeks and there is no way to speed up the process. If there is any change in vision, promptly notify a physician.

Floaters These are tiny dots, squiggles, and strands that float across the vision and then vanish. These are usually bits of debris and are harmless. However, if you suddenly experience many of these floaters accompanied by flashes of light, check with an ophthalmologist as soon as possible since this is a sign of possible retinal detachment.



THE EYE AND SYSTEMIC DISEASES

Any disease that affects the body as a whole is likely to have some effect on the eyes and vision. The most important of these diseases are:

Diabetes Diabetes is associated as a leading cause of blindness in the United States due to diabetic retinopathy (changes in the blood vessels of the eye). It is a long-term complication stemming from the disease and involves damage to the blood vessels of the retina and may lead to hemorrhage and retinal detachment. When the macula is affected, vision decreases regardless of the stage of the systemic disease. Proper and “tight management” of the disease (See Diabetes chapter) is extremely important in preventing this complication. A dilated examination of the retina should be done annually.

Multiple Sclerosis This disease can affect the optic nerve (causing poor vision and blind spots), or the muscles that coordinate eye movements (causing double vision). The signs and symptoms may respond to steroid treatment. (See Nervous System chapter.)

Aids This immunodeficiency disorder makes the eyes susceptible to infections of all kinds. (See HIV/AIDS in Immune System chapter.) The complications include corneal disease, hemorrhages of the retina, and lesions on the conjunctiva. Antibiotics can usually control the infections. Those persons with AIDS who experience eye pain, inflammation, or difficulty in seeing, should see an ophthalmologist immediately.



Melanoma Most often, these are skin cancers, but can occur within the eye. Melanoma is a fast growing and deadly form of cancer. (See Skin chapter.) Early detection is essential. Unfortunately, the signs of melanoma are not always obvious. If you notice a brown or black spot on your iris, experience a red, painful eye, or have problems with your vision in one eye, see your ophthalmologist without delay. These small tumors can be treated with radiation and chemotherapy.

Hypertension Hypertension can effect the whole body and particularly the eye. In severe hypertension, the tiny arteries in the retina become narrow and constricted. In some cases, retinal hemorrhages occur, leading to scar formation. The only way to prevent eye complications is to treat the hypertension. (See Heart chapter.)

Thyroid When the thyroid is overactive, Grave’s disease develops (protruding eyes). There may also be double vision and a dry, gritty feeling in the eyes. Primary treatment consists of controlling the overactive thyroid gland. Eye ointments and steroids are used and in severe cases, surgery is recommended.



WHAT TO DO

SEVERITY LEVEL	SYMPTOM	POSSIBLE DIAGNOSIS
 <p>Seek Medical Help Immediately!</p>	<p>Sensation of flashing lights, floaters in the eye, blurred vision, shadow over portion of vision</p> <p>Swelling and redness of eyelid, eye socket pain, decreased vision, occasionally protruding socket</p> <p>Hemorrhage and retinal detachment</p> <p>Poor vision and blind spots, double vision</p> <p>Eye pain, inflammation, hemorrhage of the retina, lesions on the eye</p> <p>Brown or black spot on iris, red and painful eye, visual problems in one eye</p> <p>Retinal hemorrhage resulting in scar formation</p> <p>Protruding eyes, double vision, dry gritty eyes</p>	<p>Retinal detachment</p> <p>Orbital cellulitis</p> <p>Caused from diabetes (See Diabetes chapter)</p> <p>Caused from multiple sclerosis (See Nervous System chapter)</p> <p>Caused from AIDS (See Immune chapter)</p> <p>Melanoma (See Skin or Cancer chapter)</p> <p>Hypertension (See Heart chapter)</p> <p>Thyroid disorder (See Endocrine chapter)</p>
 <p>Make an appointment to see your doctor</p>	<p>Blurred vision of distant objects</p> <p>Blurred vision at close distance, eyestrain, aching eyes and headache</p> <p>Blurred vision, mostly in one eye, halos around light, pain and redness in eye</p> <p>Gradual loss of peripheral vision</p>	<p>Myopia (nearsightedness)</p> <p>Hyperopia (farsightedness) or presbyopia</p> <p>Acute glaucoma</p> <p>Chronic glaucoma</p>



Make an appointment to see your doctor

Blurred vision, impaired vision at night or in bright light, halos around light, requiring eyeglasses Increasingly blurred central vision	Cataracts Macular degeneration
Sudden blurring or loss of vision in a portion or all of the visual fields of one eye	Retinal vessel occlusion
Acute loss of vision in one eye, pain on moving the eye	Optic neuritis
Some pain with tearing or watering of eye, or sensitive to light, pain with motion or blinking	Corneal injury/abrasion
Redness of eye, itching and burning, discharge	Conjunctivitis
Reddened eyes, blurry vision, eyes sensitive to light	Uveitis and iritis
Watery eyes, milky discharge, redness and swelling tear duct	Dacryocystitis
Intense eye inflammation, pain, sensitivity to light	Toxoplasmosis
Sticky, crusty and reddened eyelids	Blepharitis
Constant blinking or squeezing the eyelids (made worse by stress, fatigue, bright lights or long driving)	Blepharospasm
Red and crusty eyes, especially in the morning	Entropion
Excessive tearing and eye irritation, lower lid may pull away from the eye	Ectropion
Drooping eyelids	Ptosis
Red and burning eyes, decreased vision, sensitive to light	Herpes virus



Try the home treatment outlined in this chapter

Painful red lump on the eyelid	Stye or chalazion
Eyes feel gritty, uncomfortable, may affect vision	Dry eyes