

Refractive Errors, Eye Exams, Eye Diseases and the Optical Shop

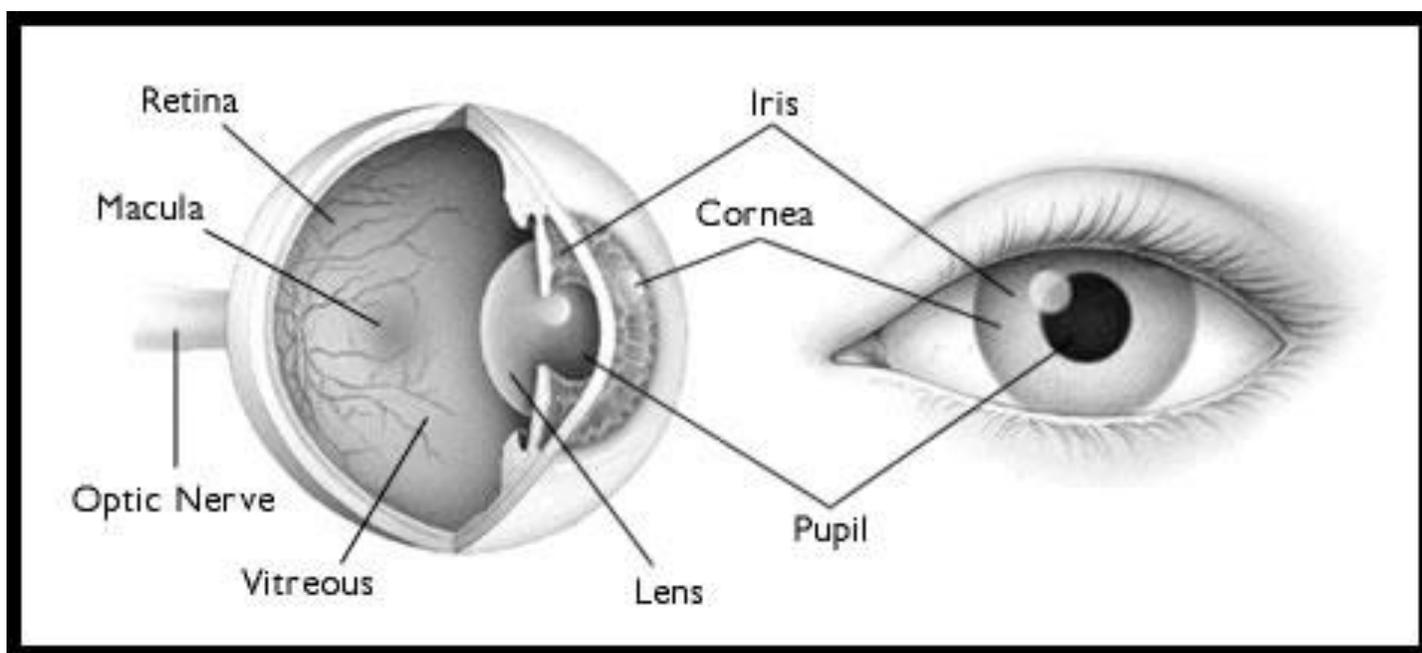


TABLE OF CONTENTS

| | |
|--|-----------|
| Table of Contents | 2 |
| Refractive Error | 3 |
| Myopia | 4 |
| Hyperopia | 4 |
| Astigmatism | 5 |
| Routine Eye Exams | 6 |
| Refraction Test | 6 |
| Phoropter | 6 |
| Contact Lens Eye Exam | 6 |
| Children’s Eye Exam | 6 |
| Comprehensive Eye Exam | 6 |
| Glaucoma | 7 |
| Open-angle Glaucoma | 7 |
| Primary Open-angle glaucoma | 7 |
| Normal-tension glaucoma | 7 |
| Pigmentary glaucoma | 7 |
| Secondary glaucoma | 7 |
| Congenital glaucoma | 8 |
| Narrow-angle Glaucoma | 8 |
| Age-related Macular Degeneration | 8 |
| Dry Macular Degeneration | 8 |
| Wet Macular Degeneration | 8 |
| Diabetic Retinopathy | 8 |
| New Optical Shop Technologies | 9 |
| Tech 40 or 60 lenses | 9 |
| EX3 non-glare treatments / Recharge EX3 | 9 |
| Blu-tech lenses | 9 |
| Progressive dual surface digital lenses | 9 |
| Sync single vision lenses | 9 |
| Phoenix lens material | 10 |
| Contacts Lens Types & Materials | 10 |
| Risks Associated With Contact Lens Wear | 11 |
| Contact Lens Symptoms & Referral Situations | 11 |
| Contact Lens Tips for your Patients | 11 |
| References | 12 |

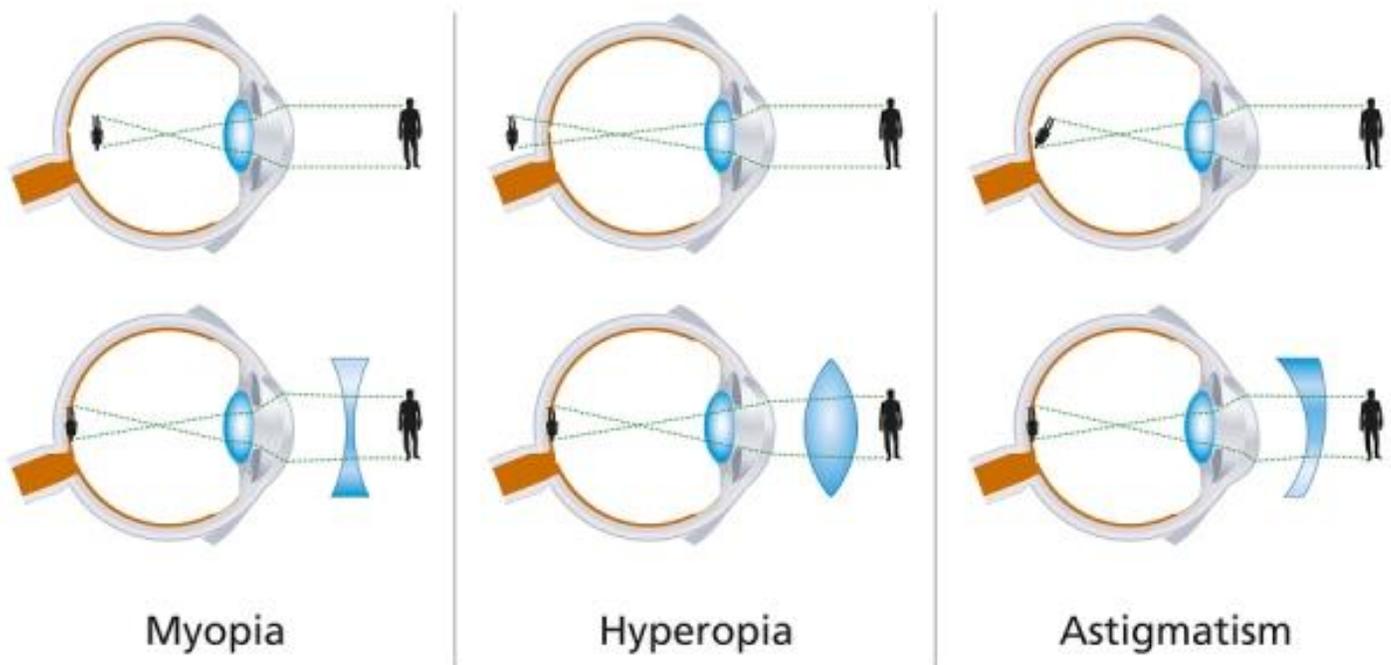
Refractive Error

Refractive errors often are the main reason a person seeks the services of an optometrist or ophthalmologist. We see the world around us because of the way our eyes bend (refract) light. Refractive errors are optical imperfections that prevent the eye from properly focusing light, causing blurred vision.

The eye's ability to refract or focus light sharply on the retina primarily is based on three eye anatomy features:

- 1.) **Eye length.** If the eye is too long, light is focused before it reaches the retina, causing nearsightedness. If the eye is too short, light is not focused by the time it reaches the retina. This causes farsightedness or hyperopia.
- 2.) **Curvature of the cornea.** If the cornea is not perfectly spherical, then the image is refracted or focused irregularly to create a condition called astigmatism. A person can be nearsighted or farsighted with or without astigmatism.
- 3.) **Curvature of the lens.** If the lens is too steeply curved in relation to the length of the eye and the curvature of the cornea, this causes nearsightedness. If the lens is too flat, the result is farsightedness.

The primary refractive errors that occur from any of the anatomy abnormalities listed above are Myopia (nearsightedness), Hyperopia (farsightedness) and astigmatism.



Myopia (nearsightedness)

Myopia is the most common refractive error of the eye, and it has become more prevalent in recent years. In fact, a recent study by the National Eye Institute (NEI) shows the prevalence of myopia grew from 25 percent of the U.S. population (ages 12 to 54) in 1971-1972 to a whopping 41.6 percent in 1999-2004.

Though the exact cause for this increase in nearsightedness among Americans is unknown, many eye doctors feel it has something to do with eye fatigue from computer use and other extended near vision tasks, coupled with a genetic predisposition for myopia.

If you are nearsighted, you typically will have difficulty seeing distant objects clearly, but will be able to see well for close-up tasks such as reading and computer use.

Signs and Symptoms:

- Difficulty reading road signs and seeing distant objects clearly
- Squinting
- Eye strain
- Headaches

Myopia occurs when the eyeball is too long, relative to the focusing power of the cornea and lens of the eye.

This causes light rays to focus at a point in front of the retina, rather than directly on its surface.

Nearsightedness also can be caused by the cornea and/or lens being too curved for the length of the eyeball. In some cases, myopia is due to a combination of these factors. Myopia typically begins in childhood and you may have a higher risk if your parents are nearsighted. In most cases, nearsightedness stabilizes in early adulthood but sometimes it continues to progress with age.

Hyperopia (farsightedness)

Hyperopia a common vision problem, affecting about a fourth of the population. People with hyperopia can see distant objects very well, but have difficulty focusing on objects that are up close.

Signs and symptoms:

- Difficulty reading near objects clearly
- Squinting when reading or performing work up close
- Eye strain
- Headaches

Hyperopia occurs when light rays entering the eye focus behind the retina, rather than directly on it. The eyeball of a farsighted person is shorter than normal. Many children are born with hyperopia, and some of them "outgrow" it as the eyeball lengthens with normal growth. Sometimes people confuse hyperopia with presbyopia, which also causes near vision problems but for different reasons.

A glasses or contact lens prescription begins with plus numbers, like +2.50, if you are farsighted. Conversely, if you are nearsighted, the prescription will begin with negative numbers, like -2.50.

Astigmatism

Astigmatism is a common problem where light fails to come to a single focus on the retina to produce clear vision. Instead, multiple focus points occur, either in front of the retina or behind it (or both). Astigmatism often occurs early in life. In a recent study of 2,523 American children ages 5 to 17 years, more than 28 percent had astigmatism of 1.0diopter (D) or greater. Also, there were significant differences in astigmatism prevalence based on ethnicity. Asian and Hispanic children had the highest prevalence (33.6 and 36.9%, respectively), followed by whites (26.4%) and African-Americans (20%).

Astigmatism is probably the most misunderstood vision problem. It is a refractive error, so it is not an eye disease or eye health problem, like many people tend to believe. It is simply a problem with how the eye focuses light.

Astigmatism usually causes vision to be blurred or distorted at all distances, to some degree. Similar to myopia and hyperopia, other symptoms include squinting, eye strain or headaches, especially after reading or other prolonged visual tasks.

Astigmatism usually is caused by an irregularly shaped cornea. Instead of the cornea having a symmetrically round shape (like a baseball), it is shaped more like a football, with one meridian being significantly more curved than the meridian perpendicular to it. The steepest and flattest meridians of an eye with astigmatism are called the principal meridians.

There are three primary types of astigmatism:

- **Myopic astigmatism.** One or both principal meridians of the eye are nearsighted. (If both meridians are nearsighted, they are myopic in differing degree.)
- **Hyperopic astigmatism.** One or both principal meridians are farsighted. (If both are farsighted, they are hyperopic in differing degree.)
- **Mixed astigmatism.** One principal meridian is nearsighted, and the other is farsighted.

Astigmatism also is classified as regular or irregular. In regular astigmatism, the principal meridians are 90 degrees apart (perpendicular to each other). In irregular astigmatism, the principal meridians are not perpendicular. Most astigmatism is regular corneal astigmatism, which gives the front surface of the eye a football shape.

Irregular astigmatism can result from an eye injury that has caused scarring on the cornea, from certain types of eye surgery or from keratoconus, a disease that causes a gradual thinning of the cornea.

In addition to the spherical lens power used to correct nearsightedness or farsightedness, astigmatism requires an additional "cylinder" lens power to correct the difference between the powers of the two principal meridians of the eye. So an eyeglasses prescription for the correction of myopic astigmatism, for example, could look like this: -2.50 -1.00 x 90.

Routine Eye Exams

All eye doctors perform a refraction test and use a phoropter to correct a patient's refractive error during a routine eye examination.

Refraction Test tells the doctor what prescription you should use in order to have 20/20 vision. This test tells your eye doctor exactly what prescription you need in your glasses or contact lenses. Normally, a value of 20/20 is considered to be optimum, or perfect vision. Individuals who have 20/20 vision are able to read letters that are 3/8 of an inch tall from 20 feet away. During the test an eye doctor will first assess how light bends as it moves through your cornea and the lens of your eyes. This test will help your eye doctor to know what type of prescription you need, or it might determine that you do not need corrective lens.

Phoropter – an important piece of equipment used to determine what prescription a patient needs. For this part of the test, you will be seated in front of a piece of equipment that looks like a large mask with holes for your eyes to look through. On a wall about 20 feet in front of you will be a chart of letters (or small pictures for children). Testing one eye at a time, your eye doctor will ask you to read the smallest row of letters that you can see. Your doctor will change out the lenses on the phoropter, asking you each time which lens is clearer. If you are unsure, ask your doctor to repeat the choices. When your eye doctor is finished testing one eye, he or she will repeat the procedure for the other eye. Finally, he or she will come up with the combination that most closely gives you 20/20 vision.

Contact Lens Eye Exam

A contact lens eye exams requires slightly more tests than a routine eye exam. These additional tests include cornea measurements, pupil and iris measurements, a tear film evaluation, and a test of your eye's surface to determine if there are any changes caused by the contact lenses.

Children's Eye Exam

Eye exams for children play an important role in ensuring normal vision development. Vision is closely linked to the learning process.

Children with undetected vision problems often will have trouble with their schoolwork. Many times, children will not complain of vision problems simply because they don't know what "normal" vision looks like. If a child is performing poorly at school, be sure to have his or her eyes examined by an eye doctor who specializes in children's vision to rule out an underlying visual cause.

Comprehensive Eye Exam (CEE)

This important full service exam does not just detect vision problems, but can also signal, or help prevent, future health problems. From a CEE your eye doctor may be able to tell you if you are developing high blood pressure, high cholesterol or other problems. Doctors generally recommend that you have your eyes examined every one to two years, depending on your age and eye health. A comprehensive eye exam can take an hour or more, depending on the doctor and the number and complexity of tests required to fully evaluate your vision and the health of your eyes. The eye exam can detect many serious eye problems, many of which do not have other warning signs. A few of these conditions include Glaucoma, AMD and Diabetic Retinopathy.

Glaucoma

A group of related eye disorders that all cause damage to the optic nerve. Glaucoma usually has few or no initial symptoms, which is why it is often called the "silent thief of sight". In most cases, glaucoma is associated with ocular hypertension or higher-than-normal pressure inside the eye. But it also can occur when intraocular pressure (IOP) is normal. If untreated or uncontrolled, glaucoma first causes peripheral vision loss and eventually can lead to blindness. To detect glaucoma, besides the standard eye pressure test, your doctor will test for optic nerve damage, looking for slight changes that may reveal the beginnings of the eye disease.

There are two major categories of glaucoma. These categories are defined by the drainage angle inside the eye that controls the outflow of the aqueous that is continually being produced inside the eye.

1. **Open-angle glaucoma** – When the aqueous can access the drainage angle.
 - a. **Primary open-angle glaucoma** -This common type of glaucoma gradually reduces your peripheral vision without other symptoms. By the time you notice it, permanent damage already has occurred. If your IOP remains high, the destruction caused by POAG can progress until tunnel vision develops, and you will be able to see only objects that are straight ahead. Ultimately, all vision can be lost, causing blindness.
 - b. **Normal-tension glaucoma**- Like POAG, normal-tension glaucoma (also called normal-pressure glaucoma, low-tension glaucoma or low-pressure glaucoma) is a type of open-angle glaucoma that can cause visual field loss due to optic nerve damage. But in normal-tension glaucoma, the eye's IOP remains in the normal range. Also, pain is unlikely and permanent damage to the eye's optic nerve may not be noticed until symptoms such as tunnel vision occur. The cause of normal-tension glaucoma is not known. But many doctors believe it is related to poor blood flow to the optic nerve. Normal-tension glaucoma is more common in those who are Japanese, are female and/or have a history of vascular disease.
 - c. **Pigmentary glaucoma**- This rare form of glaucoma is caused by clogging of the drainage angle of the eye by pigment that has broken loose from the iris, reducing the rate of aqueous outflow from the eye. Over time, an inflammatory response to the blocked angle damages the drainage system. You are unlikely to notice any symptoms with pigmentary glaucoma, though some pain and blurry vision may occur after exercise. Pigmentary glaucoma most frequently affects white males in their mid-30s to mid-40s.
 - d. **Secondary glaucoma**- Symptoms of chronic glaucoma following an eye injury could indicate secondary glaucoma, which also may develop with presence of eye infection, inflammation, a tumor or enlargement of the lens due to a cataract.
 - e. **Congenital glaucoma**- This inherited form of glaucoma is present at birth, with 80 percent of cases diagnosed by age one. These children are born with narrow angles or some other defect in the drainage system of the eye. It's difficult to spot signs of congenital glaucoma, because

children are too young to understand what is happening to them. If you notice a cloudy, white, hazy, enlarged or protruding eye in your child, consult your eye doctor. Congenital glaucoma typically occurs more in boys than in girls.

2. **Narrow angle glaucoma** - when the drainage angle is blocked and the aqueous cannot reach it. Also called acute angle-closure glaucoma, this glaucoma produces sudden symptoms such as eye pain, headaches, halos around lights, dilated pupils, vision loss, red eyes, nausea and vomiting. These signs constitute a medical emergency. The attack may last for a few hours, and then return again for another round, or it may be continuous without relief. Each attack can cause progressively more vision loss.

Age-Related Macular Degeneration (AMD)

Degeneration of the macula, the part of the retina responsible for the sharp, central vision needed to read or drive. There are two forms of AMD:

1. **Dry Macular Degeneration** - Dry AMD is an early stage of the disease and may result from the aging and thinning of macular tissues, depositing of pigment in the macula or a combination of the two processes. Dry macular degeneration is diagnosed when yellowish spots known as drusen begin to accumulate in and around the macula. It is believed these spots are deposits or debris from deteriorating tissue. Gradual central vision loss may occur with dry macular degeneration but usually is not nearly as severe as wet AMD symptoms. The dry form is most common with about 85 to 90 percent of AMD patients diagnosed with dry AMD.
2. **Wet Macular Degeneration** - In about 10 percent of cases, dry AMD progresses to the more advanced and damaging form of the eye disease. With wet macular degeneration, new blood vessels grow beneath the retina and leak blood and fluid. This leakage causes permanent damage to light-sensitive retinal cells, which die off and create blind spots in central vision. Wet macular degeneration falls into two categories:
 - a. **Occult** - New blood vessel growth beneath the retina is not as pronounced, and leakage is less evident in the occult CNV form of wet macular degeneration, which typically produces less severe vision loss.
 - b. **Classic** - When blood vessel growth and scarring have very clear, delineated outlines observed beneath the retina, this type of wet AMD is known as classic CNV, usually producing more severe vision loss.

Diabetic Retinopathy

Eye disease caused by diabetes that damages the small blood vessels in your retina, eventually leading to blindness if left untreated. Symptoms of diabetic retinopathy include:

- Seeing spots or floaters in your field of vision
- Blurred vision
- Having a dark or empty spot in the center of your vision
- Difficulty seeing well at night

New Optical Shop Technologies

Shopping for your new eyeglasses is no different than shopping for a new car or a new pair of shoes. The right optical shops have the tools to properly and safely adjust and repair your eyewear and they offer education and information about new products that can provide you with better vision and protect the long term health of your eyes. It's also important to see a board certified optician that can take accurate measurements for the proper alignment of your eyeglass lenses. Your optician will take the time and care to assure you are getting the proper prescription by doing a final inspection of the eyeglasses.

The correct optical dispensary will also be able to provide an abundance of vision solutions that are new to the optical industry, including:

Tact 40 or 60 lenses - are made to reduce eye strain associated with computer use, a good quality computer lenses gives you generous computer distance vision and reduces the likeliness of eye dryness, double vision, headaches and will make your life easier.

EX3 non-glare treatments - allow more light to reach your eyes, which optimizes your sight. But the most impressive aspects of EX3 are things you won't even notice. EX3 eliminates reflections on the front of your lenses, so others can see you as well as you see them. EX3 literally repels dirt and dust, so you can make cleaning your glasses a lot less of a habit. EX3 AR treatment; is super scratch resistant and has a Bayer rating higher than glass.

Recharge EX3 - a non-glare lens treatment that reflects the harmful blue light away from the eyes. The hazards associated with the high energy visible (HEV) blue light portion of the light spectrum are well documented. Blue light, including HEV Blue Light, is emitted from digital devices such as TV's, smart phones and tablets. Symptoms include sleep disorders, headaches, blurred vision, and fatigue and can be due to exposure to blue light radiating from digital equipment.

BluTech Lenses - will give maximum protection for your eyes from the dangers of high levels of UV rays and harmful, high-energy blue light for a lifetime of vision preservation. With the upsurge in electronic devices, your eyes are exposed to increasing levels of harmful light spectrums. You encounter blue light in everyday activities. Fluorescent lighting, electronic screens (phones, tablets, computers, TVs, etc.), and the sun emits damaging high-energy blue light. Macular degeneration is hastened by blue light exposure, making these new lenses important for the reduction of this disease.

Progressive dual surfaced digital lenses - uses a patented integrated double surface design process (IDS) to shape no line bifocal lenses exclusively for the way you view the world. It's the first technology to shape your lens design on both the front and back surface, which results in more comfortable transitions between near and far distances, noticeably wider viewing zones, and the virtual elimination of blurring and swaying sensations in your peripheral vision.

Sync single vision lenses - designed to allow you to focus in all directions and distances – while your eyes remain relaxed – all day long. So now when we are texting, tweeting, surfing, blogging, emailing, or playing, we have visual solutions to alleviate the stress of focusing at all the different viewing ranges from distant horizons, to intermediate zones, to now primarily focusing on near-tasks.

Phoenix lens material - the lightest eyeglass lens material in the world, offering unparalleled comfort for the wearer. Phoenix lenses meet or exceed all international standards for impact resistance, and provide 100% UVA and UVB protection.

Contact Lens Types and Materials

Contacts are made from many different kinds of plastic, but there are basically two types of lenses:

Hard contact lenses - The most common type of hard contact lens is a rigid gas-permeable (RGP) lens. These lenses are usually made from plastic combined with other materials. They hold their shape firmly, yet they let oxygen flow through the lens to your eye. RGP lenses are especially helpful for people with high astigmatism or irregular corneas due to scarring, surgery, or ectatic corneal disorders such as keratoconus. This is because they provide sharper vision than soft lenses when the cornea is unevenly curved. People who have allergies or tend to get protein deposits on their contacts may also prefer RGP lenses.

Traditionally, most RGP lenses that have been fit are approximately 9mm in diameter and rest entirely on the cornea. Recently, we have been fitting more and more patients with irregular corneal surfaces with scleral lenses. Most of these lenses are between 15-18mm in size, vault the entire corneal surface and rest entirely on the conjunctiva/sclera. The advantages of this type of rigid lens are improved comfort, better optical stability, and less corneal dryness/irritation.

Soft contact lenses - most people choose to wear soft contact lenses. This is because they tend to be more comfortable and there are many options. Here are some types of soft lenses.

- **Daily wear contacts:** These lenses are worn while awake and removed them before bed. Many are now daily disposable lenses, meaning that you wear a new pair of contacts each day. Or you might choose contacts that last longer and only need to be replaced every 2 weeks, monthly, or quarterly. The FDA has classified lenses as to whether they are approved for daily, two-week, monthly, or quarterly replacement.
- **Extended wear contacts:** These have been approved for overnight use, but they need to be removed for cleaning at least once a week. Fewer eye doctors recommend these contacts because they increase the chance of developing a serious eye infection.
- **Toric contacts:** These lenses can correct vision for people with astigmatism, though often not as well as hard contact lenses. Toric lenses are available as daily or extended wear.
- **Colored (tinted) contacts:** Vision-correcting contact lenses can be tinted to change the color of an eye. They are also available as daily wear, extended wear, and toric lenses in some prescriptions.
- **Decorative (cosmetic) contacts:** These lenses change the look of the eye but do not correct vision. They include colored contacts and lenses that can make your eyes look like vampires, animals or other characters. Even though they do not correct vision, a prescription is required by law for decorative contacts. Because there are many illegally marketed lenses that have not been FDA cleared for daily wear, many teenagers who have never worn or been examined and fit for contact lenses obtain them from nonmedical sources, such as street vendors, beauty supply stores, flea markets, novelty stores, or the Internet. Wearing any kind of contact lenses, including decorative ones, can cause serious damage to your eyes if the lenses are not used correctly.

Decorative lenses have been a topic in the news over the past few years because of serious sight-threatening complications, which in some cases resulted in corneal transplant surgery. The take-away

message is that contact lenses should only be purchased from a licensed eye care provider who has performed a thorough eye examination and a contact lens fitting examination.

- **Contacts for presbyopia:** These are designed to correct the normal vision problems people develop after age 40, when it becomes difficult to see close objects clearly. There are different options for these corrective lenses. They are available in both soft and rigid lenses modalities.
- **Bandage lenses:** These contacts usually do not have a prescription built into them. Instead, they are used to cover the surface of the cornea for comfort and healing following an injury or surgery.

Risks Associated With Contact Lens Wear

Wearing contact lenses increases the risk for several serious conditions, including eye infections and corneal ulcers. These conditions can develop quickly; in rare cases, they can even result in blindness. The degree of risk is different for daily wear vs extended/overnight wear, as well as for different types of lens materials.

Vision loss from microbial keratitis may be permanent. It all depends on when the diagnosis is made. If it is caught early and diagnosed properly followed by treatment, there may be no ulceration or scarring. (The scarring that develops from the corneal ulcer can cause permanent vision loss.) If the ulcer is centrally located in the cornea, permanent vision loss may occur, depending on how deep and invasive the ulcer is. The risk of developing microbial keratitis increases with overnight contact lens wear. Microbial keratitis can occur as soon as the first night of wearing an extended-wear lens. It depends on the individual, the immune system, the natural flora in the tear film, and personal hygiene habits. All of those factors could come into play. So while it's not common that microbial keratitis occurs due to contact lens wear, the potential exists. Diligence regarding proper care and hygiene and regular follow-up with an eye care provider is critical to reduce the risk for any serious adverse event.

Contact Lens Symptoms & Referral Situations

The first symptoms that clinicians should be aware of is discomfort or light sensitivity. Patients may also experience decreased vision, itching, burning, or a gritty sensation in the eye.

Marked redness -- or any redness for that matter, but especially if it's marked redness -- is definitely a flag. Red eyes are often misdiagnosed. For example, one may think it is a simple case of pink eye when, in fact, it could be something more serious, such as the early stages of a corneal ulcer resulting from microbial keratitis. Blurred vision and any swelling in and around the eye, including the eyelids, warrant attention and could indicate a serious infection. For a primary care provider or an emergency department physician with no ophthalmic backup, any one or more of these signs or symptoms warrant referral to an eye care professional. Eye care professionals use a biomicroscope (slit lamp) to examine the anterior segment, cornea, and conjunctiva. Biomicroscopic examination is absolutely necessary to make an accurate diagnosis and to establish an early, effective treatment regimen.

- Non-eye care professionals should use the following steps:
- If the contact lenses are still in the patient's eyes, remove them immediately. Do not put them back in the eye.
- Do not throw away the contact lenses. Store them in the case and have the patient take them to his or her eye care professional. The eye care professional may want to use the lenses to determine the cause of the symptoms by examining or culturing them to identify a potential microorganism causing an infection. This is critical for timely and accurate treatment.

- Consult an eye care provider or refer the patient to see an eye care provider the same day or by the next day.

Contact Lens Tips for Your Patients

- Follow the schedule your eye doctor gives you for wearing and replacing your lenses. Do not wear daily wear lenses while you sleep.
- Remove contact lenses before taking a shower, using a hot tub, swimming, or doing anything where water gets in your eyes.
- Before touching your contact lenses, wash your hands with soap and water and dry them with a lint-free towel.
- Never put contacts in your mouth to wet them. Saliva (spit) is not a sterile solution.
- Do not rinse or store contacts in water (tap or sterile water). Also, never use a homemade saline solution.
- Do not use saline solution or rewetting drops to disinfect your lenses. They are not disinfectants.
- Follow directions from your doctor and from the lens cleaning solution manufacturer to clean and store your lenses.
- No matter what type of lens cleaning solution you buy, use a "rub and rinse" cleaning method. Rub your contact lenses with clean fingers, then rinse the lenses with solution before soaking them. Use this method even if the solution you are using is a "no-rub" type.
- Use new solution each time you clean and disinfect your contact lenses. Never reuse or "top off" with old solution. Also, do not pour contact lens solution into a different bottle. The solution will no longer be sterile.
- Make sure the tip of the solution bottle does not touch any surface. Keep the bottle tightly closed when you are not using it.
- Rinse your contact lens case with sterile contact lens solution (not tap water). Then leave the empty case open to air dry.
- Keep your contact lens case clean. Replace the case at least every 3 months, or right away if it gets cracked or damaged.
- If you store your lenses in the case for a long time, check the contact lens instructions or the lens solution directions to see if you should re-disinfect them before wearing them. Never wear your contact lenses if they have been stored for 30 days or longer without re-disinfecting.
- Contact lenses can warp over time, and your cornea can change shape. To make sure your lenses fit properly and the prescription is right for you, see your eye doctor regularly.

Contact lens wearers should undergo an eye examination every year unless their practitioner recommends a different examination schedule for them. An examination is important to see whether any abnormal changes have occurred in the cornea. The lens material might need to be changed, or the fit may need to be adjusted to improve the comfort level and, subsequently, the vision. Allergies/sensitivity associated with the contact lenses or the contact lens care products can develop at any time. There is a high noncompliance rate among contact lens wearers, and the best way to get around the problems that come from noncompliance with care and hygiene is continual reinforcement by their eye care practitioners, but reinforcement from you would certainly be beneficial as well.

References:

Nweyeclinic.com

Allaboutvision.com

American Academy of Ophthalmology (www.aao.org)

Contact Lenses: The Risks You Need to Know. Medscape. Oct 24, 2012.

³<http://www.aao.org/eye-health/glasses-contacts/contact-lens-types>

⁴http://www.medscape.com/viewarticle/773026_3