

Healthy Steps to Healthy Vision

Vision impairment is one of the most feared disabilities. Although it is believed that half of all blindness can be prevented, the number of people in America who suffer vision loss continues to increase.

The leading causes of vision impairment and blindness in the United States are primarily age-related eye diseases. The number of Americans at risk for age-related eye diseases is increasing as the baby-boomer generation ages. These conditions, including age-related macular degeneration, cataract, diabetic retinopathy and glaucoma, affect more Americans than ever before. Disturbingly, the number of Americans with age-related eye disease and the vision impairment that results is expected to double within the next three decades. As of the year 2000 census, there were more than 119 million people in the United States in this age group.

Age-related Macular Degeneration (AMD) is a condition that primarily affects the part of the retina responsible for sharp central vision. More than 17,465 Arkansans and 1,651,335 Americans have the disease. There are two forms:

Dry AMD (non-exudative) is the most common form of the disease. Early AMD involves the presence of drusen, fatty deposits under the light-sensing cells in the retina. Late cases of dry AMD may also involve atrophy of the supportive layer under the light-sensing cells in the retina that helps keep those cells healthy. Vision loss in early dry AMD is usually moderate and only slowly progressive. Atrophy in late cases of dry AMD can result in more significant vision loss.

Wet AMD (exudative) is less common, but is more threatening to vision. It's called wet AMD because of the growth of tiny new blood vessels under the retina that leak fluid or break open. This distorts vision and causes scar tissue to form. All cases of the wet form are considered late AMD.

The exact cause of AMD is unknown, but risk factors for the disease include age (rarely affecting those under age 50), race (Caucasians are most at risk) and smoking. Research also suggests that long-term diets low in certain antioxidant nutrients may increase the risk of AMD. Because AMD often damages central vision, it is likely the most common cause of legal blindness and vision impairment in older Americans.

Unfortunately, there is no generally-accepted treatment for dry AMD. Laser therapies to destroy leaking blood vessels can help reduce the risk of advancing vision loss in many cases of wet AMD. Research has recently shown that certain doses of zinc, vitamins A

and C, and beta-carotene can help control the advance of late AMD, but appear to have no effect in preventing the disease in otherwise healthy individuals.

Cataract is a clouding of the eye's naturally clear lens and affects 215,348 Arkansans and 20,476,040 nationwide. Most cataracts appear with advancing age. The exact cause of cataract is unclear, but it may be the result of a lifetime of exposure to ultraviolet radiation contained in sunlight, or may be related to other lifestyle factors such as cigarette smoking, diet, and alcohol consumption.

Cataract can also occur at any age as a result of other causes such as eye injury, exposure to toxic substances or radiation, or as a result of other diseases such as diabetes. Congenital cataracts may even be present at birth due to genetic defects or developmental problems. Cataracts in infants may also result from exposure to diseases such as rubella during pregnancy.

Treatment of cataract involves removal of the clouded natural lens. The lens is usually replaced with an artificial intraocular lens (IOL) implant. Cataract removal is now one of the most commonly performed surgical procedures with more than a million such surgeries performed each year. Surgery is not truly a cure for cataract, however, and its success in controlling vision loss comes with a price. It is estimated that the federal government spends more than \$3.4 billion each year treating cataract through the Medicare program.

Diabetic retinopathy is a common complication of diabetes. More than 52,278 Arkansans and 5,353,233 Americans suffer from the disease. It affects the tiny blood vessels of the retina. Retinal blood vessels can break down, leak, or become blocked - affecting and impairing vision over time. In some people with diabetic retinopathy, serious damage to the eye can occur when abnormal new blood vessels grow on the surface of the retina.

In general, the longer someone has diabetes, the greater the risk of developing diabetic retinopathy. Eventually, almost everyone with juvenile-onset diabetes will develop some signs of diabetic retinopathy. Those who develop diabetes later in life are also at risk of diabetic retinopathy, although they are somewhat less likely to develop advanced diabetic retinopathy. Research suggests that the risk of diabetic retinopathy can be reduced through careful control of blood sugar. Laser treatment, called photocoagulation, has been shown to reduce the risk of sight loss in advanced cases of diabetic retinopathy.

Glaucoma, which affects some 22,925 Arkansans and 2,227,485 Americans, is a disease that causes a gradual degeneration of cells that make up the optic nerve which carries visual information from the eye to the brain. As the nerve cells die, vision is slowly lost, usually beginning in the periphery. Often, the loss of vision is unnoticeable until a

significant amount of nerve damage has occurred, for this reason, as many as half of all people with glaucoma may be unaware of their disease.

The exact cause of primary open-angle glaucoma, the most common form of the disease, is uncertain. Elevated fluid pressure within the eye (intraocular pressure) seems related in some way to all cases of glaucoma. The majority of cases of glaucoma exhibit intraocular pressure outside normal limits at some time. However, even those cases with apparently normal pressure seem to benefit from treatment aimed at lowering pressure.

Most cases of glaucoma can be controlled and vision loss slowed or halted by treatment. Medications, laser treatments and surgery can be used to lower intraocular pressure. However, any vision lost to glaucoma cannot be restored. Unfortunately, glaucoma cannot be prevented. Factors that increase the risk of glaucoma include age, race, diabetes, eye trauma, and long-term use of steroid medications.

Refractive errors are the most frequent eye problems in the United States. They are optical defects that result in light not being properly focused on the eye's retina. Nearsightedness (myopia) and farsightedness (hyperopia) are the most common refractive errors. People with myopia see near objects clearly, while distant ones are blurred. People with hyperopia experience just the opposite – distant objects are clear while near ones are blurred.

Other common refractive errors include astigmatism (uneven focus) and presbyopia (age-related problem with near focus). Fortunately, almost all refractive errors can be corrected by eyeglasses or contact lenses. Refractive surgery is now another alternative for correcting problems such as myopia, hyperopia and astigmatism. However, the surgical procedures are not without some risk and the long-term effects of many of these procedures are still unknown.

How Often To Have an Eye Exam – The American Academy of Ophthalmologists recommend the following exam schedules:

Children- Screening for eye disease by trained personnel (Pediatrician, Ophthalmologist, etc).

- Newborn to 3 months
- 6 months to 1 year
- 3 years (approximately)
- 5 years (approximately)

Adults- Comprehensive (includes dilatation, glaucoma pressure test, etc.) medical eye exam by an ophthalmologist.

- Once a year between ages 20 and 39
- Ages 40 to 64, every two to four years

- Ages 65 and older, every one to two years

Some factors may put you at increased risk for eye disease. If any of these factors applies to you, check with your Ophthalmologist to see how often you should have a medical eye exam:

- Developmental delay
- Premature birth
- Personal or family history of eye disease
- African-American heritage (African-Americans are at increased risk for glaucoma)
- Previous serious eye injury
- Use of certain medications
- Certain diseases that affect the whole body (such as diabetes or HIV infection)

Eye Injury Prevention

More than one million people suffer from eye injuries each year in the United States. Ninety percent of these injuries could have been prevented if the individual had been wearing appropriate protective eyewear (with "ANSI Z87.1" marked on the lens or frame).

- **In the house.** When using household chemicals, read instructions and labels carefully, work in a well-ventilated area and make sure to point spray nozzles away from you. Many chemicals are extremely hazardous and can permanently destroy the surface of your eyes, resulting in blindness.
- **In the workshop.** Think about the work you will be doing and wear protective eyewear to shield your eyes from flying fragments, fumes, dust particles, sparks and splashing chemicals. Many objects can fly into your eyes unexpectedly and cause injury.
- **In the garden.** Put on protective eyewear before you use a lawnmower, power trimmer or edger and be sure to check for rocks and stones because they can become dangerous projectiles as they shoot from these machines.
- **In the workplace.** Wear appropriate safety eyewear for your job. Many of the thousands injured each day didn't think they needed eye protection or were wearing eyewear inappropriate for the job.
- **Around the car.** Battery acid, sparks and debris from damaged or improperly jump-started auto batteries can severely damage your eyes. Keep protective goggles in the trunk of your car to use for those emergencies and everyday repairs.

Prevention is the first and most important step in protecting your eyes from injuries, so be sure to protect your eyes with appropriate protective eyewear. If you do experience an eye injury, seek medical attention promptly.

What To Do If an Eye Injury Occurs

If you do sustain an eye injury, immediately see an Ophthalmologist or visit the nearest emergency room right away. A serious eye injury is not always immediately obvious, even if the injury seems minor at first. Delaying medical attention can cause the damaged areas to worsen and could result in permanent vision loss or blindness.

- Do not rub the eye. If any tissue is torn, rubbing may cause more damage.
- Shield the eye from pressure or rubbing action by taping or securing the bottom of a foam cup or similar type of shield against the bones surrounding the eye (brow, cheek and bridge of nose).
- Do not apply ointment or medication to the eye. These medications may not be sterile and could make the eye area slippery, which could slow the physician's examination.
- To treat cuts or punctures to the eye, bandage the eye without any pressure and seek emergency medical care immediately. Do not attempt to wash the eye or remove any object stuck in the eye. A paper cup held over the injured eye can help protect it until you can get to your doctor or emergency room.
- In case of a chemical burn to the eye, immediately flush the eye with clean water and seek emergency medical treatment right away.
- To treat a blow to the eye until professional help is available, gently apply small cold compresses to reduce pain and swelling. Don't apply any pressure. Remember that even a light blow can cause a significant eye injury. If a black eye, pain or visual disturbance occurs even after a light blow, immediately seek medical attention.
- To treat sand or small debris in the eye, use eyewash to flush your eye out. Do not rub the eye. If the debris does not come out, lightly bandage the eye and seek medical attention.
- Avoid giving aspirin, ibuprofen or other non-steroidal, anti-inflammatory drugs. These drugs thin the blood and may increase bleeding. Also, the pain associated with an eye injury is often excruciating and a non-prescription medication may not help. Do not delay help by waiting for a painkiller to take hold.

Source: National Eye Institute, National Institutes of Health American Academy of Ophthalmologists

University of Arkansas, United States Department of Agriculture, County Governments Cooperating

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