

Vision Unit

Activity 4A: Living with Vision Impairment

Common Eye Disorders:

To better understand the nature of visual impairments, follow your teacher's directions as you read through the following brief descriptions of common eye disorders.



CATARACTS (CAT-ah-racks) – a “clouding” of the lenses of the eyes (usually formed in the back layers of the lenses) that blocks or changes the amount of light that is needed for clear vision. Cataract development is related to increasing age, diabetes, ultraviolet radiation, and chemical changes within the lens. The “hazy effect” of cataracts varies depending upon the location of the clouded area. When in bright light, people with cataracts may experience a worsening of the “ haziness” or may complain of a glare or “blurred vision.” Some may experience a constant haziness even in average or dim light or may say that it is like “looking through dirty windows.” Others may experience “double vision” or see “spots.”

- Individuals with cataracts may have “milky” or “yellowish” spots in the pupil. Advise someone with cataracts to have “more light on their work and less light near the eyes”
- Cataracts are the third leading cause of blindness among the elderly. They are very common and account for 40 percent of all eye surgery
- Removal of cataracts is successful in most of the cases and can lead to greater independence for elderly patients. Nearly all patients become more interested in personal grooming, cleaning, socializing, reading, and can find their way without the assistance of others
- Cataract removal and intraocular lens implants are recommended if the visual difficulty caused by the cataract interferes with everyday activities

Note: Without cataracts, normal lenses are clear. This results in a “**red reflex**” when a flash photographs taken, hence the red eyes seen on many photographs. The “**red reflex**” is the light of the flash reflecting off of the retina. When cataracts are present, the light is blocked and never makes it to the retina and thus, there is not a “**red reflex.**”



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GLAUCOMA (glah-COH-mah) –is an abnormal condition of elevated pressure within the eye (intraocular pressure) because of an obstruction of the outflow of aqueous humor.

The eye is filled with fluid (the aqueous humor) which helps the eye keep its round shape. The aqueous humor is continually replaced (“old” fluid flows out and is replaced by new fluid flowing into the eye ball). However, with glaucoma, new aqueous fluid flow in but the old aqueous humor cannot flow out because the route is blocked.

Ophthalmologists detect the disease with eye pressure measurements using a *tonometer* (toe-NOM-eter) examination of the optic nerve, and measurements of the central field of vision. Pressure from the blocked aqueous humor may be between the iris and the lens, or against the optic nerve. If the pressure is against the optic nerve, the nerve can *atrophy* (AT-trow-fee) which means the nerve will wither or waste away. Sometimes is called the “silent disease” because it may produce no symptoms except for gradual loss of *peripheral* (per-IF-er-ul) vision, also known as “side vision”, over a period of years. Symptoms sometimes include:

- Headaches
- Blurred vision
- Dull eye pain
- “Halos” or “rainbow-colored rings” around lights

In the later stages of the disease, central blindness may occur, causing people to bump into things or “lose words” on the printed page. Glaucoma patients may have extreme difficulty adjusting to a darkened room (such as a theater). Glaucoma is usually controlled with eye drops designed to reduce the flow of aqueous humor and lower intraocular pressure.



MACULAR DEGENERATION (MACK-u-ler) – is a progressive deterioration of the macula of the retina and choroid of the eye. A common eye disease, it is a leading cause of blindness

in persons over the age of 80. Macular degeneration is associated with an area of the eye called the macula lutea (Mack-u-lah lu-TEE-yah). It is a small area in the retina, about 1/16 inch in diameter, that is the area for central vision (or straight ahead vision and daylight vision). The macula lutea is the area for seeing great distances, reading fine print, sewing fine stitches, perceiving color, and identifying people’s features at a distance.

- Central vision is reduced to 20/70 in moderate cases, and can be 20/200 or less in advanced cases
- Side vision is usually maintained
- Persons can get around and take care of themselves, but do have difficulty recognizing friends and family members
- Frequently must give up reading, writing, and handicrafts



DIABETIC RETINOPATHY (reh-tin-OP-ah-thee) – a disorder of retinal blood vessels, diabetic retinopathy is characterized by capillary microaneurysms, hemorrhages, exudates, and the formation of new vessels and connective tissue. The disorder occurs most frequently in patients with long-standing, poorly controlled diabetes. Repeated hemorrhages may cause permanent opacity (light cannot penetrate) of the vitreous humor, and blindness results. The retinopathy starts with the forming of a small dilation of a capillary (microaneurysm) which results in blood seeping out of the capillaries; the hemorrhaging may become so severe that the vitreous cavity becomes completely filled and vision is totally blocked.

- Diabetic retinopathy is treated with an argon laser beam used to obliterate the bleeding retinal blood vessels or coagulate damaged vessels
- A reminder: it is strongly recommended that all persons with diabetes have their eyes checked by an ophthalmologist once a year
- Treating the retinopathy with laser therapy preserves sight



HEMIANOPSIA (hemi-an-OP-see-ah) – vision is lost in half of the visual field. Hemianopsia is usually caused by a cerebro-vascular accident (stroke) creating a defect in the optic pathways between the eye and the brain.

- May occur in the right or left field, lower or upper field, in one or both eyes
- May cause reading impairment
- When a left hemianopsia occurs, patients can improve their reading by simply marking a dark black line down the left-hand edge of the print of a page



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