Altered Vision and Hearing

What is sensory perception? Ability to perceive and interpret sensory input into one or more responses

Risk factors of the eyes? Diabetes mellitus (microvascular changes that lead to retinal damage), prolonged sun exposure (contributes to retinal damage), tobacco use (alters blood flow that can lead to retinal damage)

Abnormal findings of the eye? Eyelids are droopy or asymmetrical (extraocular muscle dysfunction), one eye tracks, or follows, a pen or finger (extraocular muscle dysfunction), cloudy drainage from a single eye (infection), eyelid lesions (infection; integumentary alteration), pupil abnormalities (glaucoma; intraocular muscle dysfunction), cloudy appearance of the pupil (glaucoma)

Review Feedback

Close & Continue

✓ Your response is correct!

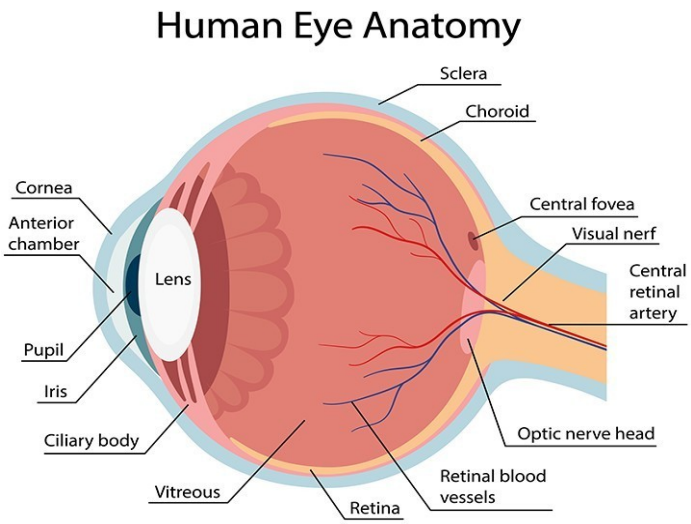
Normal vison - click the image for a larger view

Macular degeneration - click the image for a larger view

Cataract - click the image for a larger view

Normal vision is clear throughout all visual fields and aligns with normal eye health. Macular degeneration, an age-related alteration in eye health, causes the center of the visual field to be dark without impacting the outer areas of the visual field causing the client to turn their heads to be able to see what is directly in front of them. Cataracts can be related to water collecting in the lens with aging and causes opacity of the lens, leading to blurred vision.

Understanding the visual changes associated with eye disorders provides the nurse with the knowledge to identify risk factors to client safety and plan education to promote client adaptation to treatment and long-term changes to their vision.



What is vision? Light is changed into nerve impulses in the eye and then the nerve impulses are sent on to the brain to fully perceive it

UV rays: Protect your eyes by wearing sunglasses
> Eye exposure creates increased risk for cataracts

Eye protection: Always cover eyes when working with fluid, blood, particulate matter, sparks, or eye temps

Hygiene: Washing hands is important
> Do not share eyedrops and if one eye has discharge, avoid contamination

Diabetes: Dm and HTN can affect vision if not controlled

Eye exams: Age 40, should have an eye exam every 2 years

> Annual exams recommended for 65 ~ should assess visual acuity, intraocular pressure, and visual field

Altered Vision - Risk Factors

Aging: Central and peripheral vision may diminish and eye structure changes **[more at risk for cataracts, macular degeneration, and glaucoma]**
> Loss of elasticity around eyes and ptosis can lead to decreased tear production [burning and dryness as well]

Chronic disease: Diabetes hypertension, RA, lupus, thyroid dysfunction, myasthenia gravis, multiple sclerosis, and stroke

Drug therapy: Antihistamines, anticholinergics, corticosteroids, opioids, and beta blockers can all affect vision

Misc: Chemical trauma, mechanical, genetics, and or optic nerve damage

Lifestyle: Smoking or drug/alcohol use

Common Vision Terms

Hyperopia [Farsightedness] - occurs when the eye does not refract enough light. Distant vision is normal but near vision is poor

Myopia [Nearsightedness] - Occurs when the eye overbends the light. Near vision is normal but distance vision is poor

Miosis - Pupillary constriction controls the amount of light that enters the eye. If the level of light to one or both eyes increases, the pupils constrict. Certain drugs can cause miosis

Mydriasis - Pupillary dilation controls the amount of light that enters the eye. If the light to one or both eyes decreases, the pupils dilate **[certain drugs can cause mydriasis]**
> Causes photophobia and blurred vision so wear sunglasses and avoid driving

Accommodation - The process of maintaining a clear visual image when the gaze is shifted from a distant to a near object is called accommodation. The healthy eye can adjust its focus by changing the curve of the lens

Presbyopia - Presbyopia occurs when near objects, especially reading material, must be placed farther from the eye to be seen clearly

Photophobia - Photophobia occurs when the eyes are especially sensitive to light

Ptosis - Drooping of the eyelids

Exophthalmos & enophthalmos - Exophthalmos is protrusion of the eye ~ Enophthalmos is the sunken appearance of the eye

Strabismus - Eyes are not lined up properly and they point in different directions

Diplopia - Double vision occurs when you see two images of the same thing

Amblyopia - Lazy eye is reduced vision in one eye only caused by abnormal visual development early in life

***Precautions for altered vision include reducing clutter, planning how to identify meds, keeping environments well lit, and avoiding driving

Recognizing Cues

Subjective:

> When did you first notice the visual changes?

> Did the change occur quickly or slowly over time?

> Are both eyes affected equally? Or is one eye worse than the other?

> If a traumatic event occurred...

- > How long ago did the injury occur?
- > What were you doing when the injury happened?
- > Was any first aid attempted at the scene?

Objective: Observe for head tilting, squinting, or other actions that indicate the client is trying to obtain clear vision

> Assess for symmetry of the eyes on the face

> Examine the eyebrows, eyelashes, and eyelids

- > Eyelids should close completely and only cover a small portion of the iris when open and sclera should be white

> No sclera should be visible between the eyelid and the iris

> Assess blink reflex, which should be present

- > Conjunctiva should be pink and without drainage... the eyes should appear moist

*Penlight, direct light into each eye!

- > Cornea should be smooth, transparent, shiny, and bright
- > Pupils should be round and of equal size (between 3 and 5 mm)
- > Should constrict briskly and equally in response to light

> Removing the light should cause equal dilation

***PERRLA

> Pupils should dilate when looking at an object far away and constrict when focusing on an object that's close

Vision Testing

> Snellen Chart to assess distance vision
> Rosenbaum Chart to assess near vision
> Extraocular movements in the six cardinal positions
> Visual field to assess for peripheral vision
> Ishihara color plates to assess for color vision

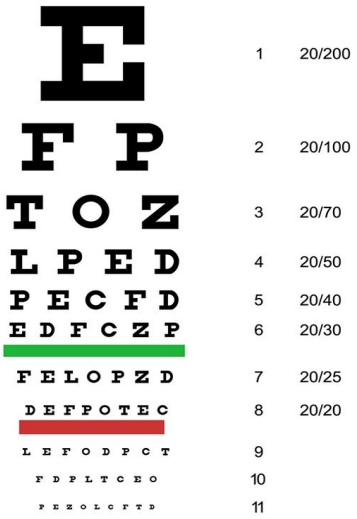
Snellen Chart: Stand 20 feet away from the chart and read letters that get progressively smaller with each line read

> Right eye is tested first, then the left eye, then both eyes together

> When the 2nd number is larger, eyesight is not as sharp

Example: 20/30 [client is 20 feet away and can read a line that people with 20/20 vision can make out at 30 feet]
> When the 2nd number is smaller, above-average eyesight

Example: 20/10 [20 feet away the client can read a line that people with 20/20 vision would have to move up to 10 feet to see clearly]

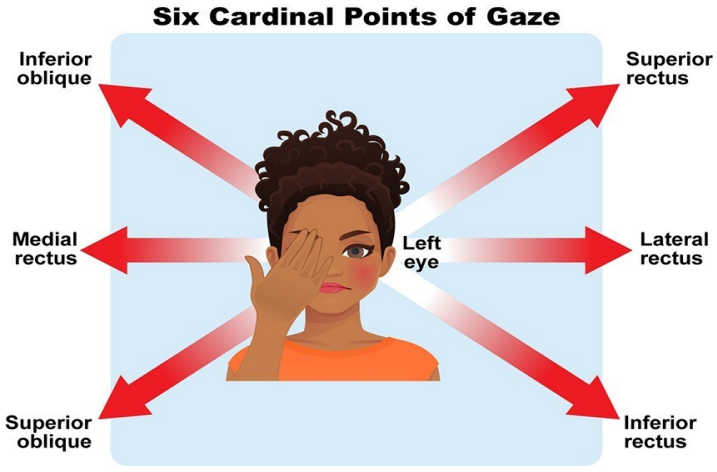


Rosenbaum Chart: Hold the card 14 inches away from the eyes

> Right eye is examined first, and the left eye is covered... client should read the smallest legible line... then repeat with the left eye

Extraocular Movements: Six cardinal positions of the eye gaze isolate the individual extraocular muscles

> Normal eye should easily move in each direction



Peripheral Vision: Client should look directly at an object in front of them while one eye is covered