



المرحلة الثانية 2023-2024

Medical Terminology denote **Special senses**

Lecture Eight

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Special senses

refer to the sensory systems that are more specialized and distinct in their functions

Vision (Sight): Vision is the special sense associated with the eyes, allowing the perception of light, color, and shapes.

The eyes contain photoreceptor cells called rods and cones, which detect light and color, respectively.

Hearing (Audition): Hearing is the special sense associated with the ears.

Sound waves are captured by the ear, converted into electrical signals, and transmitted to the brain for interpretation.

Smell (Olfaction): Smell is the special sense associated with the nasal cavity.

Olfactory receptors in the nose detect various odors, sending signals to the brain for interpretation.

Taste (Gustation): Taste is the special sense associated with the tongue and taste buds.

Taste receptors detect different flavors—sweet, sour, salty, bitter.

Touch (Somatosensation):

Touch is the special sense associated with the skin and other tactile receptors throughout the body. It includes sensations of pressure, temperature, and pain.

Equilibrium (Vestibular Sense):

Equilibrium is the special sense associated with balance and spatial orientation. It involves the detection of head position and movement, helping maintain posture and stability.

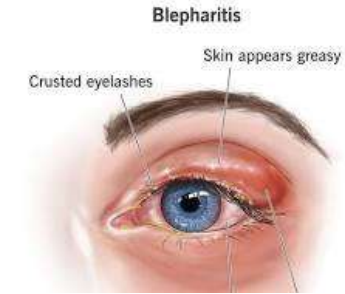
Vision

Conjunctivitis (pink eye): An inflammation of the conjunctiva, the thin membrane that lines the eyelids and covers the whites of the eyes. It can be caused by a variety of factors, including bacteria, viruses, allergies, and irritants.

Blepharitis: An inflammation of the eyelids. It can be caused by a variety of factors, including bacteria, dandruff, and rosacea.

Dry eyes: A condition in which the eyes do not produce enough tears or the tears evaporate too quickly. This can cause a variety of symptoms, including dryness, burning, and irritation.

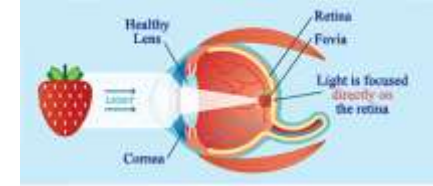
Uveitis: An inflammation of the uvea, the middle layer of the eye. It can be caused by a variety of factors, including infections, autoimmune diseases, and trauma.



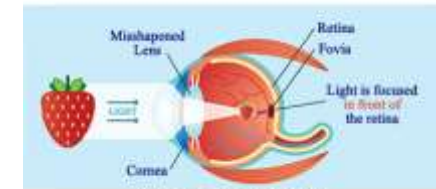
Myopia (nearsightedness):

distant objects appear blurry,
while near objects are clear.

This is due to an elongated eyeball or
a cornea that is too curved.



Normal Vision



Nearsightedness
Myopia

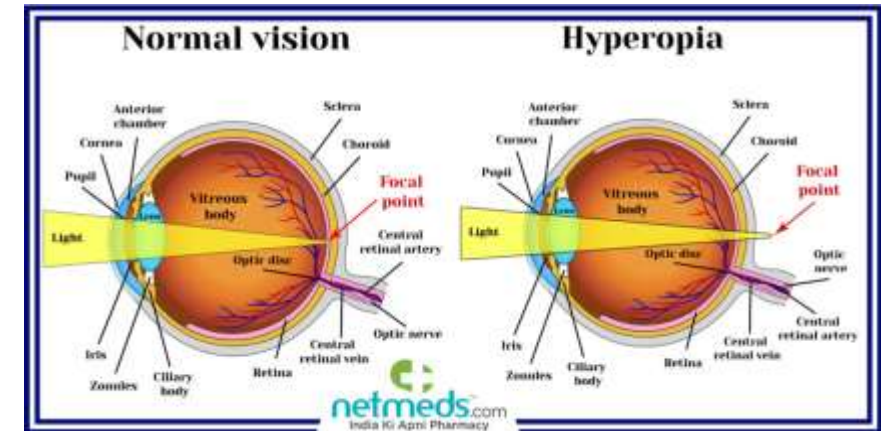
Hyperopia or hypermetropia, farsightedness

is a very common

further distance clearly

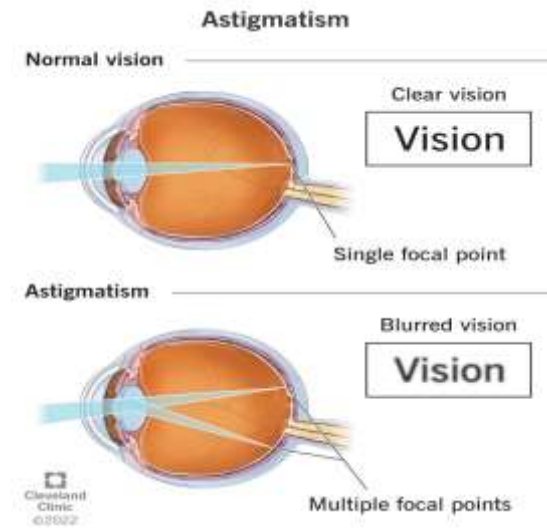
but blurry with near sight

This is due to a shortened eyeball or
a cornea that is not curved enough.



Astigmatism:

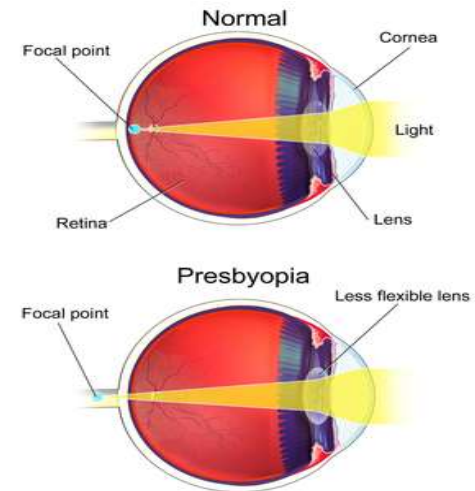
A common type of refractive error. the cornea is irregularly shaped, causing blurred vision at both near and far distances.



Presbyopia:

difficulty focusing on near objects, typically beginning around age 40.

This is due to a gradual loss of flexibility in the lens of the eye.



The lens ages and stiffens, bringing the focal point behind the retina and causing blurry vision

Hearing, or audition : is one of the five special senses, allowing the perception of sound.

Anatomy of the Ear:

The ear is divided into three main parts: the outer ear, middle ear, and inner ear.

The outer ear captures sound waves, the middle ear amplifies them, and the inner ear converts them into electrical signals for the brain.

Sound Transmission:

Sound travels in waves and enters the ear canal, reaching the eardrum in the middle ear.

The vibrations of the eardrum are transmitted to the three small bones (ossicles) in the middle ear: the malleus, incus, and stapes. **Cochlea and Auditory Nerve:**

The vibrations are then transferred to the fluid-filled cochlea in the inner ear.

Hair cells in the cochlea convert the mechanical energy into electrical signals that are transmitted to the brain via the auditory nerve.

Frequency and Pitch:

The pitch of a sound is determined by its frequency, with high frequencies perceived as high-pitched and low frequencies as low-pitched.

Intensity and Volume:

The intensity of a sound, or its amplitude, determines its volume. Louder sounds have higher amplitudes.

Localization of Sound:

The brain uses differences in the time it takes for a sound to reach each ear to determine the direction of the sound source.

Balance and Hearing:

The inner ear **vestibular system**, responsible for detecting head movements and maintaining equilibrium.

Balance

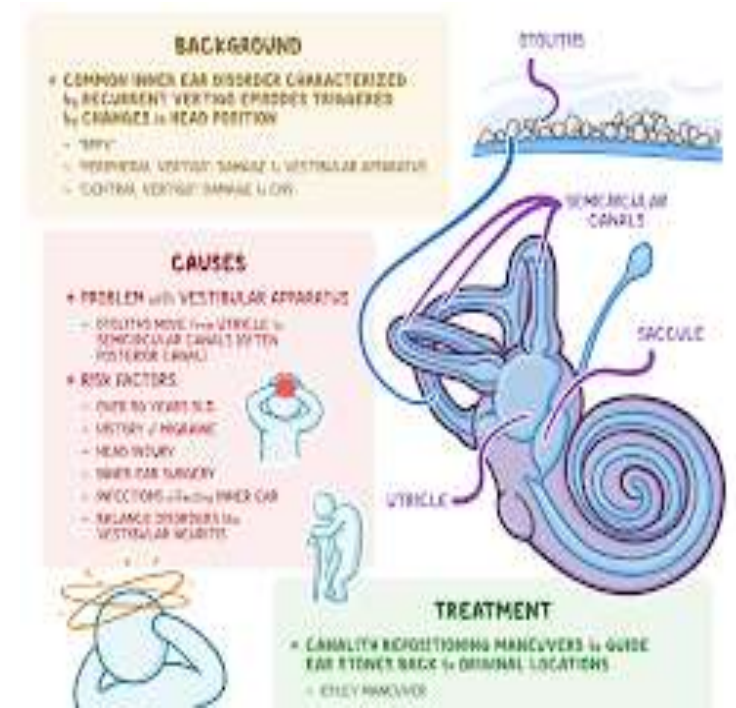
Vertigo: A sensation of spinning or dizziness. caused by inner ear problems, neurological disorders, and medications.

BPPV (benign paroxysmal positional vertigo): A sudden episodes of vertigo caused by tiny crystals dislodging from their normal position in the inner ear.

Meniere's disease: A combination of vertigo, tinnitus, hearing loss, and a feeling of fullness in the ear. caused by an abnormal buildup of fluid in the inner ear.

Labyrinthitis: An inflammation of the labyrinth, the part of the inner ear. caused by, infections, viruses, and allergies.

Superior canal dehiscence syndrome (SCDS): A thin bone covering the superior canal of the inner ear is missing or eroded. This can cause dizziness, vertigo, and balance problems. .



Hearing loss (deafness): A partial or complete loss of hearing. caused by noise exposure, aging, certain medications, and genetic factors.

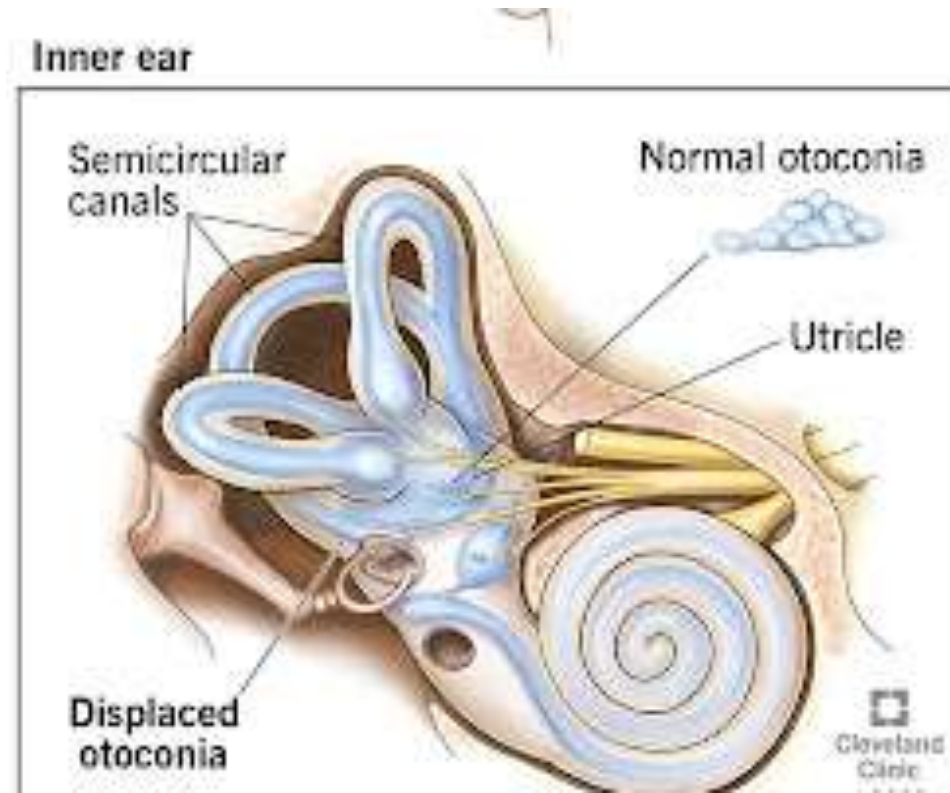
Tinnitus: A ringing or buzzing sound in the ears. caused by **noise exposure, earwax buildup, and certain medications.**

Vertigo: A sensation of spinning or dizziness. caused by inner ear problems, neurological disorders, and medications.

Neuritis vestibularis: An inflammation of the vestibular nerve, the nerve that carries information about balance from the inner ear to the brain. caused by infections, viruses, and autoimmune diseases.

Noise-induced hearing loss (NIHL):
A permanent hearing loss caused by exposure to loud noise. It is a common cause of hearing loss in adults.

Otosclerosis: A buildup of bone in the middle ear, which can interfere with hearing. It is typically inherited.



Smell and Taste

Anosmia: A complete loss of the sense of smell.

It can be caused by nasal infections, head trauma, and certain medications.

Ageusia: A complete loss of the sense of taste.

It is rare and can be caused by nerve damage, medications, and zinc deficiency.

Gustatory rhinitis: A condition that causes a **temporary** loss of smell and taste.

It is most common during a cold or the flu.

Dysgeusia: A distortion or impairment of the sense of taste.

It can be caused by zinc deficiency, medications, and nerve damage.

There are four main types of touch receptors:

Mechanical receptors: These receptors respond to pressure, touch, and vibration.

Thermoreceptors: These receptors respond to temperature changes.

Nociceptors: These receptors respond to pain.

Proprioceptors: These receptors of position and movement of the body.

Disorders of Touch

These are caused by injuries, diseases, and genetic conditions.

Hyperesthesia:

touch is abnormally sensitive.

pain or discomfort from light touch.

Hypesthesia:

Abnormally dull.

difficulty feeling light touch.

Paresthesia: (Abnormal)tingling, burning, or numbness.

Dysesthesia: unpleasant sensations, such as pain or burning.

Phantom limb pain: pain in a limb that has been amputated.

Formication: sensation of insects crawling on their skin.

Restless legs syndrome (RLS): an irresistible urge to move their legs, especially at night.

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you