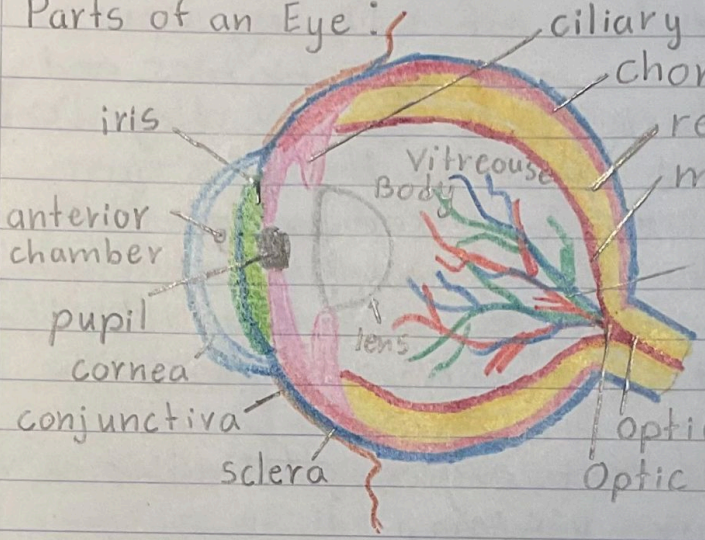
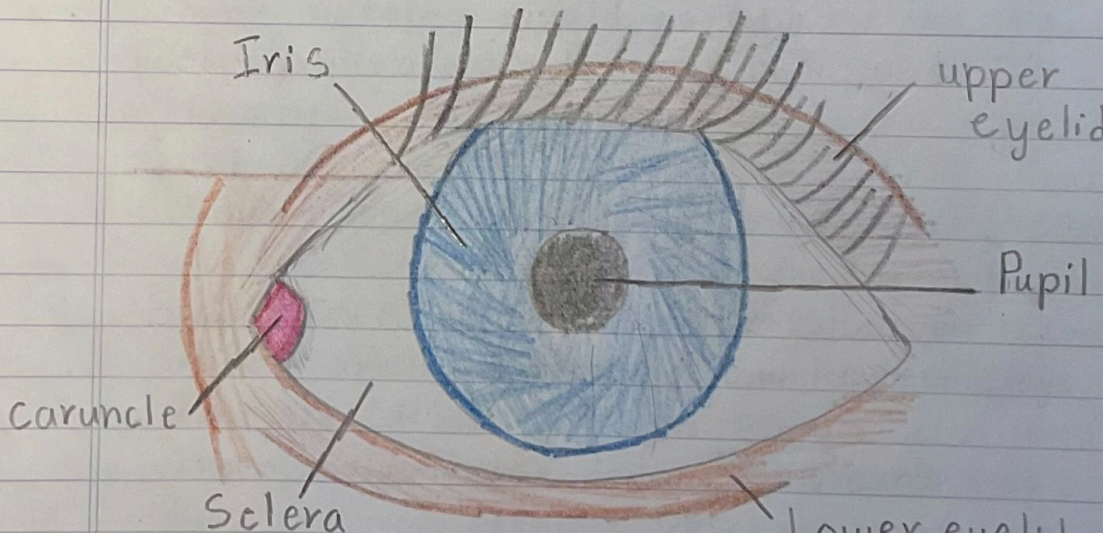
The Eye

Date Sep/11/2024

Parts of an Eye:





What are eyes

Date Sept/14/2024

Eyes are one of our key senses used in many activities and tasks, but how do they work and what are they. Our eyes work like our cameras as they have the power to focus, zoom in, blur, and many other features. the eye takes in the light

Our Eyes is an organ ~~of~~ which works for our vision.

DEFINITION

Date Sep/11/2024

Inside and Outside of Eye

Conjunctiva: keeps eye moist and opens and closes easily, protect ~~eye~~ from dust

A clear thin membrain that covers the inner and outer surfaces of the eyelid.
Bulbar conjunctive cover the sclera (the white part of eye) and stops between the sclera and cornea (it never covers the cornea).
Palpebral conjunctiva covers the inner surface of the upper and lower eyelids so that nothing would go behind the eye.

Cornea:

A clear front surface of the eye that lies in front of the iris and pupil which allows light to enter the eye. It is about 12mm in horizontal diameter and 11mm in vertical diameter. It has 5 layers.
The corneal epithelium, Bowman's layer, the corneal stroma, Descemet's membrane, and the corneal endothelium.

Pravides 65 to 75% of focus power for the eyes to see or concentrate on an object

Date Sep/11/2024

Uvea: ✓

The middle colored part of the eye that has 3 segments: the iris, ciliary body and the choroid.

Iris: ✓ A thin circulare structure made of connective tissues and muscles that goes around the pupil. The amount of pigment in the iris depends on the eye color.

Ciliary body: ✓ surrounds the iris and is found behind the sclera. Holds lens in place with fibers ciliary zonules Aqueous fluid maintain shape and pressure
Choroid is in between the outer sclera and the retina in the back of the eye.

Pupil: ✓

Center of the iris allowing light to enter the eye so that it can focuss on the retina to be able to see. Black in colour, the pupil would let light pass through then be absorbed by the retina.

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Retina: ✓

A sensory membrain that lines up on the inner surface of the eyeball back side. It has several layers which some contain special cells like photoreceptors. 2 photoreceptors. Rod photoreceptors can detect motion, provide black and white vision and in low light it works well.
Cones work for central vision and color vision in medium and bright light. Photoreceptor cells take light focused by cornea and lens into chemical ✓ Macula & utea nervouse signals transported to visual cortex ✓ optic nerve
Its a sensitive part of the retina which help with vision and colour. It helps perform tasks using central vision for reading. detail and perform tasks

Macula:
Responsible for sharp visual detail used for driving, recognizing faces, computur, and other tasks that need to be seen in detail. Photoreceptors

END of Lecture 1

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Date

↓ provide retina, macula, and optic
Choroid: nerve nuetrients. controls retina temperature. control pressure.

Is a tissue that lines the wall of the eye, and circulates 85% of blood to flow in your eyes. between scelera retina
absorbs light limit reflection that could cause harm to vision

Lens:

helps to focus on distant objects and makeing them look more sharp and clear. Since it is clear it helps absorb the light and focus on the retina

Scelera: ↓

maintains shape of the eyeball and its tough lair avoids ~~rup~~ seriouse damage and provide a strong attatchment for the muscels.

Date

Aqueous humor anatomy ✓

found in the anterior and posterior chambers ~~of their~~ located between the cornean and iris. iris and frontlense. Aqueous humor removes waste from the ~~eyes~~ and proper balance and pressure to avoid sight threatening conditions.

Optic nerve: ✓

A nerve responsible for sending information to the brain, attatched to the retina located at the very back of the eye. The optic nerves job is to send information frequently from the eye to the brain ~~to so that we can see~~ our surroundings to be prosesed int images we call our surroundings.

Date

Fovia: ✓

a small section located in the macula, at the center of the retina.

The Fovia contains millions of cones, which absorb the light entering the eye, creating sharp clear images. It is also responsible for diffrentiating colours and 3 dimensional depth.

Optic Chiasm: ↓

responsible for registering equal amounts of vision from both eyes. located in front of the hypothalamus, where the two optic nerves from each eye intersect.

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Blue Light

Date Sep/30/2024

found in Sun and devices flourecent lights.

Blue Light: a highly visable Hev (high energy visable) light sprectrum that can be seen by the eyes. Blue light have short wave lengths that give high energy.

You can be exposed to blue light by sunlight, laptops, computers, smartphones, tablet, Tv, and flourecent bulbs.

Benefits of Blue light:
When exposed to resonable amounts of blue light it Promotes alertness (our awarness is high), memory and cognitive function (ability to build learning skills memory thinking etc), brightens mood, and regulates circadian rhythm (which is the sleep/and awake cycle).

Risks of Blue Light:
Since the last 20 years screen time has increased to 13 hours per day where people experience vision or eye strain.
65% of Americans say that they had experienced digital eyestrain.
Eyestrain Blurred vision Dry irritated eyes Headaches

Date

Benefits of Blue ray light:

Sunlight is important for the growth of childrens eyes

Risks of Blue light:

Blue light exposure from devices are smaller than the sun, But due to the increase of screentime, and placeing the screen too close to the eyes, there is an concern for long-term-effects.

80% American adults use the screen more than 2 hours per day. 67% use two or more devices at once. 59% face digital eye strain after using the screen.

What Parts of the eye is effected

Date Dec (23)

The Blue Ray light effects the cornea, lens, and retina, which causes diseased like dry eyes, cataract, age related macular degeneration, stimulating the brain, inhibiting melatonin secretion, enhancing adrenocortical hormone production, which will destroy the hormon al balance and directly after sleep.

nearly all blue light would pass.

The blue light would pass through the lens and the cornea, which then travels to the retina that uses cells to convert light in images for our brain to process.

Continuose exposure to blue light could damage retinal cells, and cause vision problems. The retina is what helps prevent us from getting blind.

These problems are age related macular degeneration which is a disease that damages the central part of the retina, and causes it to swell and bend creating more

Date Dec/25/2021

problems to central vision. When disease progresses, it can make abnormal blood vessels which enter the eye and cause more problems to vision.

It contributes to cataracts eye cancer as well.

A lens disease where the lens can cause blurry, cloudy or blindness.

Eye cancer can happen in or out of your eye, and these cancer cells start to multiply forming tumors.

Uveal melanoma: where the uveal melanoma: grows ~~on~~ from a ~~mole or~~ nevus, common in adults.

Retinoblastoma: start ~~with~~ in the retina which can damage sight and found in children

Thurs/Dec/25/2024

Date

Blue Ray light Symptoms;

Some common symptoms of Blue Ray light, is eyestrain and Discomfort where the eye feels strained, and sensitive to the blue light resulting in discomfort, for a long period of time. Head aches and migraine this could increase by the blue light exposure. Insomnia and sleep ~~different~~ disturbances, when exposure to blue light in the evening or befor bed can interfere with sleep and cause insomnia. It messes up with the ~~met~~ production of a sleep hormone called melatonin. Blurred vision and sensitivity to Glare, when your eyes are sensitive to Blue light blurred vission and sensitivity to glare are potential signs to this issue.

Thu/Dec/26/2024
Date

Factors which contribute to Blue light sensitivity

There are several factors which contribute to the sensitivity you face caused by Blue light, This can make others more vulnerable to the symptoms of blue light than others.

Age: (found in the age) The lense can become ineffective when it comes to filtering out the blue light over time. This is often found in older individuals.

Screen time: extended periods of screen time, with no breaks can worsen the sensitivity to ~~screen time.~~ blue light

Pre-Existing eye conditions: When having symptoms such as dry eyes or astigmatism can contribute to light sensitivity.

Environmental factors: When haveing Bright indoor lighting, or emense exposure to suhlight, it can increase the risk of Blue light sensitivity.

How to reduce Exposure Blue light

Date Dec/26/2024

1. take eye exams and talk to eye care profesionals
2. reduce screan time
3. Bug screan protectors with advanced blue light filtering for any technology
4. Use Built in technology which monitors have that reduce blue light emmisions
5. follow the 20-20-20 Rule where people should take a 20 sec break looking at something 20 ft away every 20min spent with screen
6. Anti reflective lens can reduce the glare you face with screens and reduce Blue light from sun and digital.
7. Use Device software like night mode where the screan would display warmer temperature, downside your screen is tinted.

with yellow tinted lense

8. computer Glasses can be used to reduce blue light on screen and contrast but the colour can change.

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Who is effected by blue ray light?

Date 12/20/2024

American children who range from ages ~~we~~ 3 to 18 all have technology with them 98%.

kids under 8 years of age spend and average or more than 2 hours of screen time. 8-9 year old children spend 6 hours per day, and 11-14 year olds use 8-10 hours of screen per day.

What kids can be in risk of.

If kids continue to use the screen for long period of time eye care proffesionals fear that the child would face a risk of myopia even called (near sighted).

Date Dec/27/2024

opinion

This ~~statement~~ was proven by researchers at the eye National eye institute.

The frequency of nearsightedness among americans had increased from 25% - 41.6 percent of the population from the data collected ~~o~~ from the past 30 years. This increased by 66 percent.

From this research children world wide suffer a great risk of nearsightedness due to the significant increase of ~~fast~~ myopia, caused by the amount of ~~time~~ hours people spend in front of screens. Childhood is where myopia starts.

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Another risk children can facce is a sympton called computer vision syndrome. A condition where children face a combination of eye strain, headaches, fatigue-related discomfort, and posture problems.

To control this symptom computer glasses can releire the symptoms caused by computar vision syndrome. Computar glasses with built in filters of blue light can also reduce the amount of glare children face. long term computer use can also feel comfortable.

what to do to protect eyes:

Stretching after using technology durring 20-20-20 break can releive muscle tension in the eyes head, neck, and body. Stretching will improve blood flow and increas-eness.

Go outdoors more: If you take breaks and go outside it can relieve computare eye syndrome. can also decrease near sighted nes

 Proven by research

Date Dec/27/2024

If myopia is detected early enough in a child, myopia control strategies can help slow the progression and avoid high myopia.

★ knowing if a child has myopia isn't easy to ~~see~~, ~~figure~~ out which, is why you must go for eye exams for children.

What causes myopia:

A child can be in the risk of getting myopia acording to 3 factors. Genetics, Environmental factors, and Visual habits.

Genetics: If one parent has myopia, the childs risk for getting myopia is 3× greater, but if both parents have it, then it is 6× greater.

Date Dec/28/2024

Environmental factors:

If the child doesn't spend much time outdoors, it can increase the proggresion risk of myopia. 2 hours a day spent outdoor in natural sunlight can help reduce myopia progression risk.

Visual habits:

long periods of time using near work could lead to myopia. Near work, a task which involves close visual focus for reading, or digital devices for prolonged time can increase the risk.

20-20-20 rule important.

How to reduce risk of myopia Date Dec/28/2024

Numerous of studies prove that spending more time outdoors could prevent and reduce the progression of myopia.

Research had also shown that exposure to natural sunlight can help develope ~~and~~ the eyes. The reason to blurry distance vision is because of "the axial length of the eye. This is the length of the eye from front to back, and myopia occurs if it grows too long."

The lack of exposure to sunlight can increase the growth of this region, where more exposure to sunlight can decrease its growth.

to reduce risk of myopia doctors suggest to have

- regular eye exams starting from the age of 6 months
- 1-2 hours of outdoor activity per day
- reduce time spent on near work (is exception from schoolwork)
- the 20-20-20 rule.

Screen time

Date Dec/30/2024

2 hours of screen time for kids ranging from ages of 6-17. 2-4 hours of screen time for adults 18 and above is the actual and reasonable amount of screen time kids and adults should have.

Screen Usage in Night. Date Jan/26/2025

Can effect your sleep as it is distracting and will disturb your sleep rhythem.

The blue light emited from screen is harmful to eyes and your sleep. Studies show that due to exposure to blue light it can throw ruin your cir circadian rhythem. The circadian rhythem follows with the light so when it is dark you get tired but when there is light you feel energetic.

Screen usage day

Date Jan/26/2025

The brain would go through theta waves where the brain is in its relaxation, daydreaming, mood and is slowly starting to get to the stage where it starts to take in information. Using phone immediatly in the morning can disturb this proggress, and can make you feeled stressed.

The immediat exposure to information can overload the cognitive capacity, leading to your ability to concentrate and make decisions to reduces.

Can distance you have from screen reduce blue light damage?

Date Jan/26/2024

A Healthy distance to have from the screen and eyes ~~can~~ is 20-30 inches or 50-76 cm, because it provides a balance between relaxing your focus muscles and preventing any eyestrain or postural deviations. bad body posture.

The viewing angle you should have from the screen is having it below or exactly at eye level. from screens

To reduce glare you can position the screen to not reflect bright from windows or lights.

Quotes from doctors.

Date Jan/27/2025

"Major effect comes from game control."

"The light and dark influences, the human mental and physical energy throughout the day and night."

"At least 3 hours a day is the proper amount of screentime."

"The proper distance from the screen is in arm length."

"The increase in prevalence of myopia is from reduced outdoor time, less exposure to natural sunlight, indoors more with more nearwork, activities."

Eye Cancer and how to treat it.

Date Feb 16 2025

Points from doctors voicemail:

- family history is the strong reason why people get diagnosed by eye cancer.
- Proper medication like vitamin C and A.
- Eye cancer can be diagnosed by a person through genes, passed from parents, or grandparents, who have been diagnosed with some cancer.
- Eye cancer is not very common.
- Homoepathy is where the persons mental physical, statise and habits are checked to help control the eye cancer,
- Medicine treatment help control blood clot from growing, but remains the same.
- The symptoms of eye itching, and hands sweating gone.
- Medicatrons are limsy which is vitamin C tablets with homoepathy medicine.
- Proper maintanence and cleaning for the eye

Which age group are getting affected

Feb/6/2025

Notes taken from doctors voicemail:

- Children under the ages 8 or 6 are mostly getting the eye sight.
- Children are getting eye sight problems due to the use of cellphones and mobiles more
- Some main symptoms are dry eyes, eye itching and some patients are hareing watery eyes
- We should restrict children from watching screens for a long time
- In eyeclinics and hospitals, there are more children than elders at the hospitals due to screens.
- In the future there would be many complaints and findings on eye problems other than eye cancer.