Summary

Pilocarpine	Anticholinergic Drugs	Adrenergic Drugs
Cholinergic drug	Atropine/ Homatropine	Epinephrine
Miosis	Mydriasis	Mydriasis
Decrease IOP	Increases IOP	decreases IOP
Cyclopsams (Fixation for near vision)	Cycloplegia Fixation for far vision Paralysis of accommodation	No effect on accommodation
Light reflex present	Light reflex absent	Light reflex present
Uses: R_x of glaucoma Break adhesions Post synechial	Uses: For fundus exam Break adhesions bet iris and lens	Uses: Treatment of glaucoma Eye surgery

Observations (Tabular form)

Sr. No.	Time (min)	Condition of conjunctiva	Size of pupils (mm)	Corneal reflex	Light Reflex
1	0	White	6	Present	Present
2	5	White	7	Present	Absent
3	10	White	8	Present	Absent
4	15	White	8	Present	Absent
5	20	White	9	Present	Absent
6	25	White	9	Present	Absent
7	30	White	9	Present	Absent

Conclusion: Drug is Tropicamide 1.0% (Parasympatholytic)

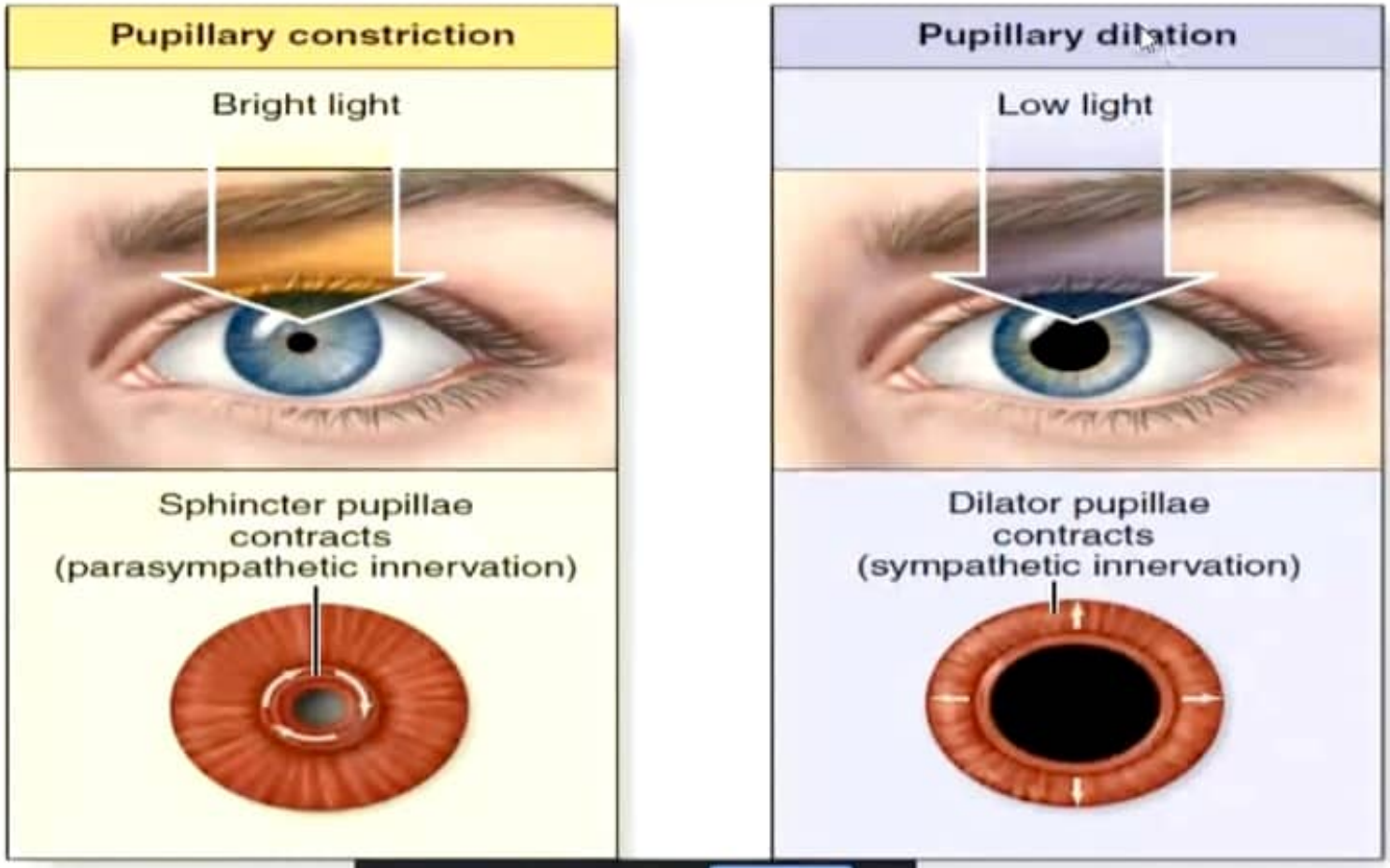
Precautions:

- Take care while trimming eye lashes, so that the eye is not injured. This is done because lashes may interfere with cornel reflex
- After using a drug sufficient time should be allowed before applying the next drug so the eye recovers from actions of previous drug.

Effects of drug on eye

Uses:

1. Ophthalmoscopy
2. To lower IOP
3. For R_x viral and bacterial infections
4. Post op to give rest to eye



Corneal & Conjunctural Sensation

- These are innervated by ophthalmic division of trigeminal nerve
- Abolished by surface anesthetics like lignocaine, oxybuproprocaine and cocaine
- Cocaine is unique in among local anesthetics in that it also possesses sympathetic activity and produces mydriasis and pallor of conjuctiva

Corneal Reflex

This is protective reflex. When cornea is touched with a wisp of cotton, there is blinking of eyes

Corneal reflex pathway:

Receptors are sensory nerve endings in cornea → ophthalmic division of trigeminal nerve → trigeminal ganglion → trigeminal nucleus → motor nucleus of facial nerve → facial nerve → orbicularis oculi muscles of eye

Miotics belonging to parasympathomimetics

Miotics belonging to parasympathomimetics e.g., pilocarpine, physostigmine etc., that act directly or indirectly on muscarinic receptors located on circular muscle fibers.

They produce:

- Miosis
- Spasm of accommodation
- Reduce intra ocular pressure

ASSIGNMENT

- Q 1. What are different classes of mydriatics & miotics ? Give examples.
- Q 2. What is difference between mydriasis produced by Atropine & Epinephrine. Write in tabulated form.
- Q 3. What is reflex arc for light reflex ?
- Submit Handwritten Assignments with Names & roll numbers on top.
- Before 2.30 pm

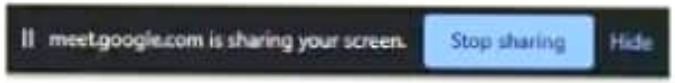
To study the effects of drugs on rabbit's eye

Materials:

- *Rabbit*
- *Rabbit holder*
- *Torch*
- *Drugs*
- *Dropper*
- *Cotton wool*
- *Transparent ruler/scale*

Drugs:

- *Tropicamide 1%*
- *Pilocarpine 1%*
- *Adrenaline 1:1000*



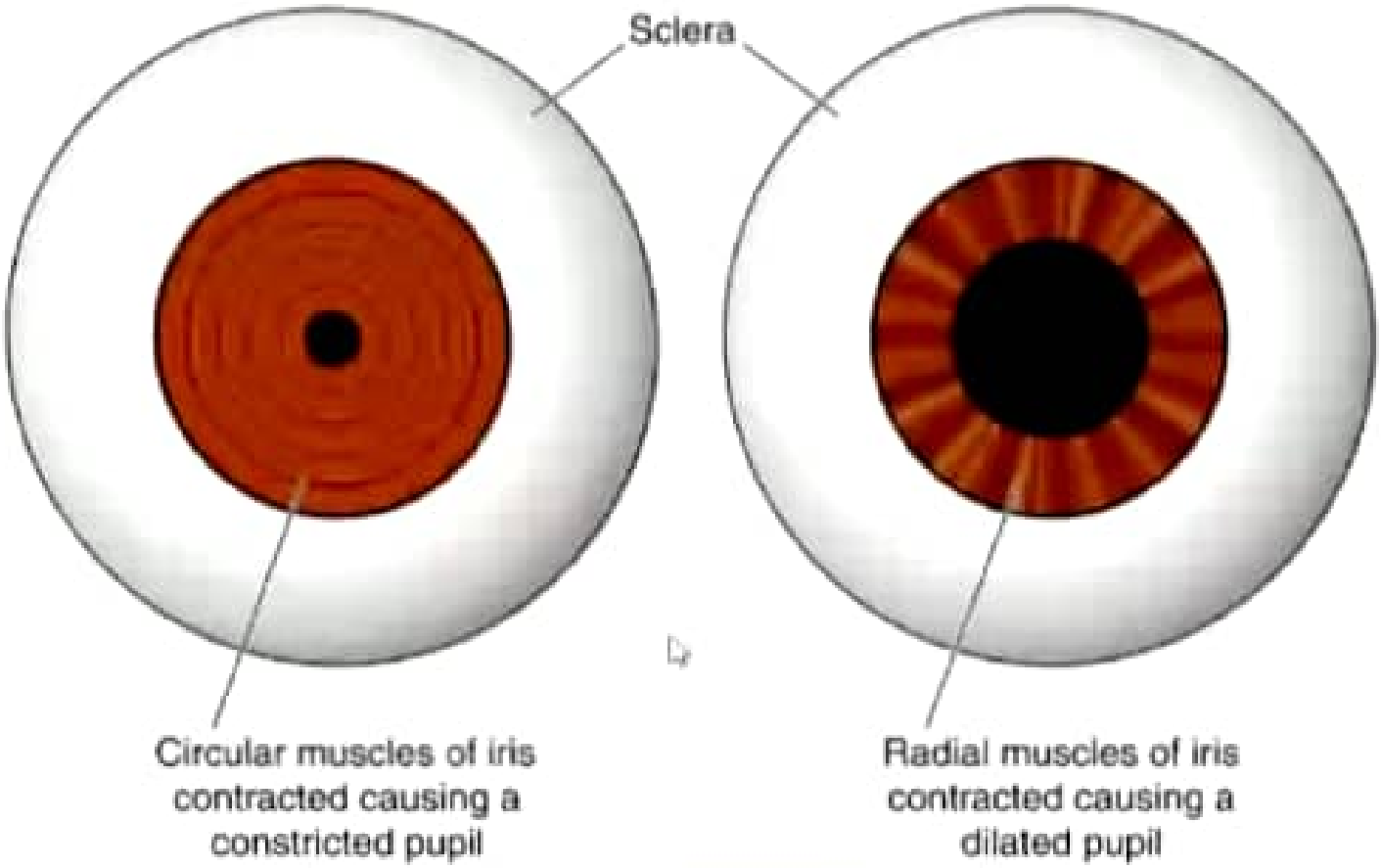
ASSIGNMENT

- Q 1. What is corneal reflex pathway?
- Q 2. What are actions of Atropine on
- - pupil
- -intra ocular pressure
- Q 3. What are uses of Miotics & Mydriatics?
- Submit Handwritten Assignments with Names & roll numbers on top.
- Before 2.30 pm

Differences

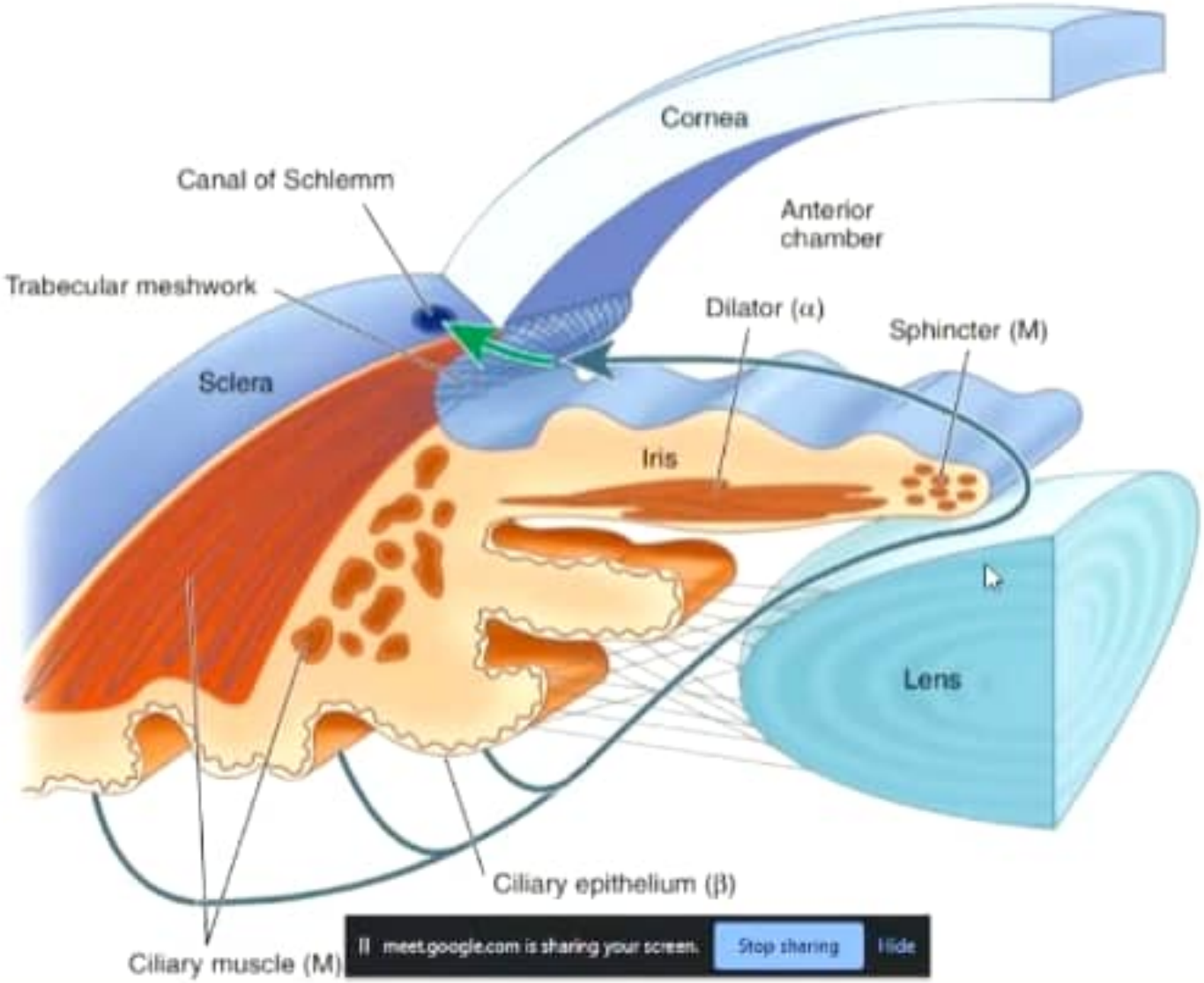
- Mydriasis produced by atropine like drugs is complete
- Is associated with loss of light and accommodation reflex

- Mydriasis produced by alpha stimulating sympathomimetic drugs is incomplete
- And without any effect on light and accommodation reflex
- However they cause vasoconstriction resulting in blanching of conjunctiva.



Iris contains 2 types of fibers

1. Circular fibers
   - *Innervated by parasympathetic nervous system through oculomotor nerve*
   - *Far more prominent*
   - *Produce pupillary constriction or contraction*
2. Radial fibers
   - *Radially arranged fibers*
   - *Few in number*
   - *Innervated by sympathetic nerves*
   - *Contains Alpha-1 receptors on them*
   - *On stimulation produce incomplete pupillary dilation*



Receptors in eye

M3= Iris -circular muscle

-ciliary muscle

Alpha-1 receptors – Iris radial muscle

Beta receptors – on ciliary epithelium

(Blockers cause less production of aqueous humor – less IOP)