Aim: Study of Miotic effect on rabbit eye

Objective:

This laboratory practical aims to observe and understand the miotic effect on the rabbit eye. Miotics are substances that cause constriction of the pupil (miosis) by stimulating the muscles that control the iris. In this experiment, we will observe the effects of a miotic agent on the rabbit eye and document the changes in pupil size.

Materials:

1. Rabbits (Ensure ethical handling and use under approved animal research protocols)
2. Miotic agent (e.g., Pilocarpine)
3. Eye drops
4. Eye examination tools (e.g., ophthalmoscope, ruler)
5. Gloves
6. Cotton swabs
7. Towels
8. Notebook and pen

Procedure:

Preparation:

1. Ensure that the laboratory is set up in compliance with ethical guidelines for animal research.
2. Put on gloves to maintain sterility and handle the rabbit appropriately.
3. Calm the rabbit by handling it gently and speaking softly to reduce stress during the experiment.
4. Secure the rabbit comfortably in a restrainer to prevent sudden movements.

Experiment:

1. Baseline Measurement:

- Use an ophthalmoscope to examine the rabbit's eyes and measure the initial pupil size. Record this measurement in your notebook.

- Note any existing abnormalities or conditions in the eye.

2. Administration of Miotic Agent:

- Administer the miotic agent (e.g., Pilocarpine) into one eye of the rabbit using eye drops. Ensure that the dosage is appropriate for the size of the rabbit and the concentration of the miotic agent used.

- Wait for a few minutes to allow the miotic agent to take effect.

3. Observation:

- Use the ophthalmoscope to observe and measure the pupil size of the eye treated with the miotic agent. Record the measurement in your notebook.

- Compare the pupil size of the treated eye with the baseline measurement taken earlier.

- Observe any other changes in the eye, such as changes in iris colour or shape.

4. Washout:

- Administer saline solution or water drops to wash out the miotic agent from the treated eye.

- Wait for a few minutes to allow the pupil to return to its baseline size.

5. Post-washout Measurement:

- Re-examine and measure the pupil size of the treated eye using the ophthalmoscope.

- Record the measurement in your notebook and compare it with the baseline measurement.

6. Data Analysis:

- Analyze the recorded measurements to assess the magnitude and duration of the miotic effect.

- Note any observations or patterns observed during the experiment.

- Discuss any unexpected results or discrepancies.

Safety Precautions:

1. Handle the rabbit with care and ensure its comfort throughout the experiment.

2. Use gloves to maintain sterility and prevent contamination.

3. Avoid direct contact between the miotic agent and skin or mucous membranes.

4. Follow ethical guidelines and regulations for the ethical treatment of animals in research.

Conclusion:

This laboratory practical provides valuable insights into the miotic effect on the rabbit eye and demonstrates the use of miotic agents in ophthalmic research and clinical practice. By carefully observing and documenting the changes in pupil size, students can gain a better understanding of the physiological mechanisms involved in pupillary constriction and the pharmacological effects of miotic agents.

Rabbit	Eye Treated	Baseline Pupil Size (mm)	Pupil Size after Pilocarpine (mm)	Pupil Size after Washout (mm)	Duration of Miotic Effect
1	Right	4.5	2.0	4.0	30 minutes
2	Left	5.0	1.5	4.5	45 minutes
3	Right	4.0	1.8	4.2	20 minutes
4	Left	4.8	2.2	4.6	35 minutes