

Miotic Effect on the Eye - Simulation

Experiment 9 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To interpret simulated pupil constriction.

Principle

A muscarinic agonist example such as pilocarpine increases sphincter-pupillae activity in the model, reducing pupil diameter.

Hypothetical Dataset

These original figures illustrate analysis only. They are not live observations or dosing instructions.

Virtual record	Diameter, mm
Baseline	4.0
Treatment	2.0

Requirements

- Institution-approved pharmacology simulation such as ExPharm
- Predefined virtual control and treatment records
- Worksheet or spreadsheet for graphing and calculation

Procedure

1. Open the exercise

Select the named virtual model and read its endpoint and default settings.

2. Review controls

Record the baseline, vehicle/control and comparator entries supplied by the software.

3. Run the simulation

Use the instructor-assigned virtual treatment option; record the output and units.

4. Compare

Compare the defined endpoint between control and treatment; repeat a virtual run only if the exercise requires it.

5. Analyse

Use the supplied calculation or response trend and state possible confounders.

6. Record

Save the virtual results and write an interpretation that identifies them as simulated.

Interpretation Guide

A decrease in diameter supports the simulated miotic response; lighting and baseline measurements must be comparable.

Observations and Record

Group / run	Endpoint: Pupil diameter, mm	Student record
Control	Matched baseline	_____
Treatment	Assigned miotic	_____
Software / setting	Assigned virtual exercise	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Change = $2.0 - 4.0 = -2.0$ mm.
- Percentage reduction = $(4.0 - 2.0) / 4.0 \times 100 = 50\%$.

Result

In the software exercise, _____ changed from _____ to _____. The result _____ supports the stated model effect. Confounders/limits: _____.

Precautions

- Use software only; no live animal, tissue collection or drug administration is performed.
- Do not alter safety or validity settings to make a desired result.
- A virtual output demonstrates the model's programmed response and is not a patient treatment recommendation.

Viva Questions and Answers

1. What is miosis?

Pupil constriction.

2. What class is pilocarpine?

A muscarinic receptor agonist.

3. Why identify the data as simulated?

It prevents a programmed result from being represented as a real experimental observation.

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