Local Anaesthetic Effect on the Eye - Simulation

Experiment 7 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To interpret a virtual local-anaesthetic response.

Principle

A local anaesthetic reduces sensory nerve conduction through sodium-channel effects. A virtual corneal-response model represents local loss of sensation without demonstrating a pupil effect.

Hypothetical Dataset

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

Virtual record	Response score
Baseline	3
After treatment	1
Recovery record	3

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 reduced corneal-response score supports the simulated local sensory effect. Distinguish this endpoint from pupil diameter or systemic sedation.

Observations and Record

Group / run	Endpoint: Corneal-response score	Student record
Control	Baseline response	_____
Treatment	Assigned local anaesthetic	_____
Software / setting	Assigned virtual exercise	_____

Worked Example

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

- Report the ordered score change; an ordinal score is not a linear measure of nerve activity.

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 the primary mechanism?

Reduced voltage-gated sodium-channel function in the model.

2. Does loss of response prove mydriasis?

No; sensory response and pupil diameter are different endpoints.

3. Why identify the data as simulated?

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

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