

Study of Routes of Drug Administration - Simulation

Practical 06 | Pharmacology I

Aim

To study Routes of Drug Administration - Simulation, and interpret the recorded observations.

Principle

- The administration route influences absorption, onset and first-pass exposure. The demonstration compares route-labelled response profiles.
- This exercise uses a software/video simulation or an instructor-provided dataset.
- A response depends on the model, intervention, controls and observation period; comparisons must use the same endpoint.

Materials and Apparatus

- Assigned model/video and labelled completed pharmacology observations.
- Assigned pharmacology simulation/video and completed observation dataset.
- Computer, graphing or calculation software and a structured record sheet.

Method

1. Identify the simulated preparation, control group and response being measured.
2. Record the model settings and treatment labels supplied in the exercise.
3. Review the baseline or control trace before comparing the intervention traces.
4. Read the stated response endpoint using the same definition for every group.
5. Tabulate the completed simulation observations and calculate the assigned comparison.
6. Explain the mechanism, control response and any limitation of the model.

Observation Record

Complete this record using actual laboratory findings or the provided teaching data.

Observation / parameter	Record / finding
Route label	_____
Onset	_____
Response profile	_____
Model limitation	_____

Calculations and Interpretation

- Compare onset and response using the supplied time scale; do not infer a patient dose from the model.

Result

Report the supplied simulated response, its defined comparison and the mechanism supported by the model. Label the observations as simulated.

Finding: _____

Conclusion: _____

Precautions

- Keep software units, treatment labels and endpoint definitions consistent.
- Use supplied simulation data and distinguish an illustration from an observed outcome.
- A model demonstrates an experimental principle; it does not establish an individual patient treatment.

Viva Questions

1. Why use a control response?

It separates the intervention effect from baseline variation in the simulated model.

2. Why define the endpoint before comparison?

Changing the endpoint after reviewing results can bias the interpretation.

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