

Estimation of Serum Creatinine

Experiment 19 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To estimate creatinine in a serum teaching specimen using the assigned validated method.

Principle

A validated enzymatic or kinetic Jaffe assay estimates creatinine; the selected method determines interference control and calibration. The blank-corrected test response is compared with calibration under the method's linearity and quality-control requirements.

Method and Interpretation

Renal interpretation uses clinical context and appropriate kidney-function assessment; creatinine concentration alone is not a complete diagnosis.

Requirements

- Simulated serum, calibrator and low/high quality controls
- Assigned validated reagent kit, pipettes and photometer or analyser
- Current product method sheet

Procedure

1. Read method

Record specimen suitability, reagent volumes, wavelength, incubation/read times, calibration, linearity and interference information.

2. Prepare

Label blank, calibrator, controls and test; dispense the kit-specified quantities.

3. Develop and read

Use the kit-defined kinetic response difference or enzymatic endpoint and its corresponding calibration.

4. Check validity

Confirm controls meet their assigned limits and the response is within the method range.

5. Calculate

Use the validated calibration procedure and any documented specimen dilution.

6. Report

State result, units, method, dilution and whether the controls support a valid measurement.

Biochemistry and Clinical Pathology

Observations and Record

Field	Student record
Method / kit / wavelength	_____
Blank / standard / test response	_____
Control results / limits	_____
Standard concentration / units	_____
Dilution factor	_____
Calculated concentration	_____

Worked Example

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

- One-point teaching calculation, only when permitted by the method: $\text{concentration} = \frac{\text{corrected test response}}{\text{corrected standard response}} \times \text{standard concentration} \times \text{dilution factor}$.
- Illustrative responses: test 0.250, standard 0.500; standard 2 mg/dL; dilution factor 1.
- Calculated teaching result = 1 mg/dL.

Result

Concentration of creatinine: _____ mg/dL. Controls: _____. Dilution and limitations: _____.

Precautions

- A multi-point calibrated or kinetic method may require its own curve/equation rather than the one-point illustration.
- Do not treat a failed control or out-of-range response as reportable.
- Biological specimens require authorised collection and handling; the classroom exercise uses simulated material.

Viva Questions and Answers**1. Why subtract the blank?**

It removes the assigned reagent/background contribution.

2. Why include dilution?

The tested solution may be less concentrated than the original material.

3. Can a concentration alone diagnose disease?

Renal interpretation uses clinical context and appropriate kidney-function assessment; creatinine concentration alone is not a complete diagnosis.

Continue Learning with FirstHope

Complete Notes on the FirstHope App

Complete subject and semesters are available on FirstHope app only.

- Get complete subject and semester notes in the FirstHope app.
- Available for B.Pharm, D.Pharm, M.Pharm and Pharm.D students.

[Click here to get the FirstHope app](#)

Join the FirstHope Telegram Channel

Join FirstHope Notes and keep up with channel updates.

[Click here to join Telegram](#)

Instagram

@firsthope.official

[Click here to follow Instagram](#)

YouTube Channel

FirstHope-Pharmacy / Live streams

[Click here to watch the YouTube channel](#)

WhatsApp Channel

Follow FirstHope on WhatsApp.

[Click here to join the WhatsApp channel](#)

FirstHope Website

firsthopenotes.com

[Click here to visit the website](#)