معهد دسمان للسكري
Dasman Diabetes Institute
KFAS
أحد مراكز
Center

UNDERSTANDING CALCIUM IMBALANCE IN DIABETES

Calcium is essential for bone health, muscle function, nerve signaling, and heart activity. In diabetes, calcium levels can be affected due to kidney issues, hormonal imbalances, and medication effects.

In diabetes, calcium levels may drop due to kidney damage (causing calcium loss in urine), hormonal imbalances (like low vitamin D or parathyroid hormone issues), and medications (like diuretics or insulin), all affecting calcium balance.

HYPERCALCEMIA (HIGH CALCIUM IN DIABETES)

Hypercalcemia occurs when calcium levels in the blood exceed the normal range. It can be caused by dehydration, hyperparathyroidism, and **diabetic ketoacidosis.**

Common Symptoms:

- Excessive thirst
- frequent urination
- Fatigue & muscle weakness
- Nausea & vomiting
- Confusion or memory issues
- Irregular heartbeat

Management:

- Hydration – Drink plenty of fluids unless restricted by kidney disease.
- Treat underlying causes – Manage diabetes and parathyroid disorders.
- Medications – In severe cases, doctors may prescribe bisphosphonates or calcitonin.

HYPOCALCEMIA (LOW CALCIUM IN DIABETES)

Hypocalcemia occurs when calcium levels drop below normal, often due to chronic kidney disease, vitamin D deficiency, magnesium deficiency, or insulin therapy.

CAP ACCREDITED
COLLEGE of AMERICAN PATHOLOGISTS
ACCREDITED DIAMOND ACCREDITATION CANADA

معهد دسمان للسكري
Dasman Diabetes Institute
KFAS أحد مراكز Center

Common Symptoms:

- Muscle cramps or spasms
- Numbness & tingling (hands, feet, or lips)
- Weak bones or fractures
- Seizures (in severe cases)
- Heart rhythm problems

Management:

- Calcium-rich diet – Dairy, leafy greens, fortified foods.
- Vitamin D supplementation – Helps with calcium absorption.
- Regular monitoring – Check calcium, vitamin D, and kidney function levels.
- Address underlying causes – Manage diabetes and magnesium levels.

When to do Calcium level laboratory test?

- If you experience persistent symptoms of high or low calcium.
- If you have kidney disease or are at risk for bone loss.
- If you are starting or adjusting diabetes medications.

Calcium Reference Ranges

Calcium Type	Normal Range (mmol/L)	Patients with Hypocalcemia (Low)	Patients with Hypercalcemia (High)
Total Serum Calcium	2.12–2.52 mmol/L	<1.65 mmol/L (Severe)	>3.25mmol/L (Severe)
Turn Around Time	24 hours		

CAP ACCREDITED
COLLEGE of AMERICAN PATHOLOGISTS
ACCREDITED DIAMOND ACCREDITATION CANADA

معهد دسمان للسكري
Dasman Diabetes Institute
KFAS
أحد مراكز
Center

References:

1. American Association for Clinical Chemistry (AACC) – Calcium Test Reference Ranges.

2. National Institutes of Health (NIH) – Calcium Fact Sheet.

3. UpToDate – Disorders of Calcium Metabolism.

4. Nelson Textbook of Pediatrics (21st Edition).

5. Harrison's Principles of Internal Medicine (20th Edition).

Prepared by: Jane V. Andrade and Romelie Desposado

Revised on: July 3, 2025

Draft prepared on: April 11, 2025

CAP ACCREDITED
COLLEGE of AMERICAN PATHOLOGISTS

ACCREDITED DIAMOND
ACCREDITATION CANADA