

Medical Biochemistry

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Potassium

Toxicity value: A potassium level higher than 5.5 mmol/L is critically high, and a potassium level over 6 mmol/L can be life-threatening.

Deficiency manifestation

- Weakness and fatigue
- Muscle cramps and spasm
- Digestive problems
- Heart palpitations
- Muscle aches and stiffness
- Breathing difficulties

Calcium

Toxicity values: The Toxic Condition of Hypercalcemia and Hypercalciuria

Hypercalcemia occurs when serum calcium levels are 2.63 mmol/L or greater depending on normative laboratory values.

Deficiency manifestations

- Numbness.
- Tingling Fingers.
- Muscle cramps.
- Lethargy.
- Poor appetite.
- Weak or brittle fingernails.
- Difficulty swallowing.
- Fainting.

Magnesium

Toxicity values : Magnesium

toxicity develops after serum concentrations exceed 1.74–2.61 mmol/L

Deficiency manifestations

- nausea
- vomiting
- loss of appetite
- tiredness
- weakness

Chloride

Toxicity values: The normal serum range for chloride is 96 to 106 mEq/L, therefore chloride levels at or above 110 mEq/L usually indicate kidney dysfunction.

Deficiency manifestations

- excessive fatigue.
- muscle weakness.

- breathing problems.
- frequent vomiting.
- prolonged diarrhea.
- excessive thirst.
- high blood pressure

Iron

Toxicity values: Toxic effects begin to occur at doses above 10–20 mg/kg of elemental iron. Ingestions of more than 50 mg/kg of elemental iron are associated with severe toxicity. In terms of blood values, iron levels above 350–500 $\mu\text{g/dL}$ are considered toxic, and levels over 1000 $\mu\text{g/dL}$ indicate severe iron poisoning.

Deficiency manifestations

- Extreme fatigue.
- Weakness.
- Pale skin.
- Chest pain or shortness of breath.
- Headache
- Dizziness
- Cold hands and feet.
- Inflammation or soreness of your tongue.
- Brittle nails.