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18/mhs01/301

MEDICAL LABORATORY  
SCIENCE

### Assignment

1. OUTLINE THE TOXICITY  
VALUES AND DEFICIENCY  
MANIFESTATIONS OF THE  
FOLLOWING MINERALS

A. POTTASIIUM

B. CALCIUM

C. MAGNESSIUM

D. CHLORIDE

E. IRON

### Answer

A. Low potassium is called  
hypokalemia

Symptoms of hypokalemia  
are:

- Weakness
- Fatigue
- Muscle cramp or  
twitching
- Abnormal heart rhythm
- Hypokalemia can affect  
your [kidneys](#). Which may  
cause one to visit the

bathroom more often and become thirsty.

ii. Toxicity value of potassium:

Hyperkalemia: a normal range of potassium is between 3.6 and 5.2 millimoles per liter (mmol/L) of blood. A potassium level higher than 5.5 mmol/L is critically high, and a potassium level over 6 mmol/L can be life-threatening.

B. • Mental confusion, irritability, depression, and anxiety

- Tooth decay
- Insufficient blood clotting
- Bone fractures
- Osteopenia or osteoporosis
- Growth and development delays in children
- Heart problems

**Toxicity value of calcium:**

Excess calcium intake from foods alone is difficult if not impossible to achieve.

Rather, excess intakes are more likely to be associated with the use of calcium supplements. However, the potential indicators for the adverse outcomes of excessive calcium intake are not characterized by a robust data set that clearly provides a basis for a dose–response relationship.

C. Magnesium deficiency, also known as hypomagnesemia, is an often overlooked health problem. Health problems associated with magnesium loss include diabetes, poor absorption, chronic diarrhea, celiac disease and hungry bone syndrome. People with alcoholism are also at an increased risk

They include:

!

Muscle cramps and twitches !

Mental disorders

! Osteoporosis

!

Fatigue and muscle weakness

! High blood pressure

**Toxicity value of**

**magnesium:**

An adult body contains approximately 25 g magnesium, with 50% to 60% present in the bones and most of the rest in soft tissues. Less than 1% of total magnesium is in blood serum, and these levels are kept under tight control.

Normal serum magnesium concentrations range between 0.75 and 0.95 millimoles (mmol)/L [1,5].

Hypomagnesemia is defined as a serum magnesium level less than 0.75 mmol/L.

Magnesium homeostasis is largely controlled by the kidney, which typically excretes about 120 mg magnesium into the urine each day. Urinary excretion is reduced when magnesium status is low

D. Low chlorine in the body causes Hypochloremia which is an electrolyte imbalance and is indicated by a low level of chloride in the blood. The normal adult value for chloride is 97-107 mEq/L.

### **Toxicity value of calcium:**

Excess calcium intake from foods alone is difficult if not impossible to achieve.

Rather, excess intakes are more likely to be associated with the use of calcium supplements. However, the potential indicators for the adverse outcomes of excessive calcium intake are not characterized by a robust data set that clearly provides a basis for a dose-response relationship. The measures available are confounded by a range of variables including other dietary factors and pre-existing disease conditions.

E. Low iron in the body

causes anaemia .

## symptoms of anemia

- Extreme fatigue
- Weakness
- Pale skin
- Chest pain, fast heartbeat or shortness of breath
- Headache, dizziness or lightheadedness
- Cold hands and feet
- Inflammation or soreness of your tongue
- Brittle nails
- Unusual cravings for non-nutritive substances, such as ice, dirt or starch
- Poor appetite, especially in infants and children with iron deficiency anemia