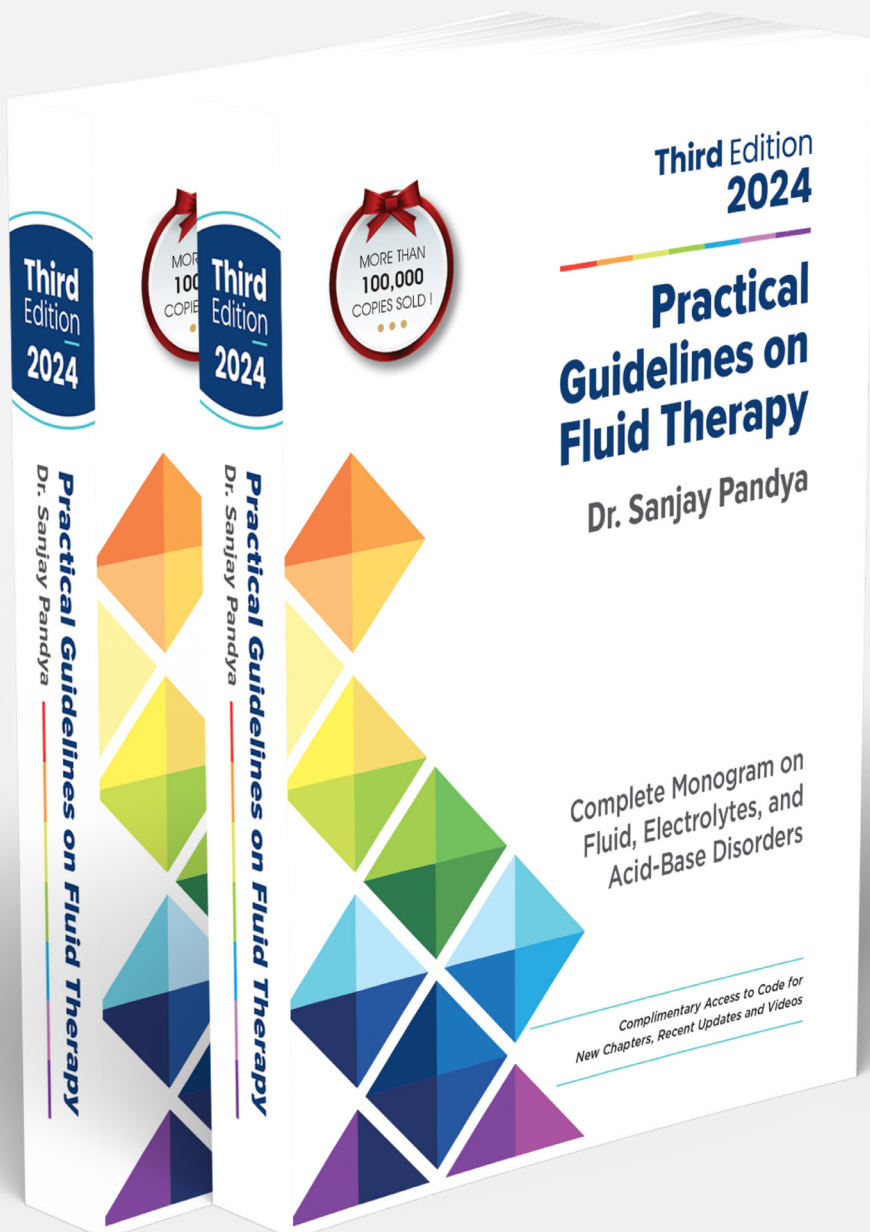




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Chapter 26: Hypophosphatemia



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26

Hypophosphatemia

Basic Physiology	312	Diagnosis	316
HYPOPHOSPHATEMIA	313	History and physical examination..	316
Etiology	314	Basic investigations	316
Acute respiratory alkalosis	314	Measurement of urinary phosphate excretion	316
Sepsis.....	314	Measure serum PTH and vitamin D levels	317
Increased insulin secretion.....	314	Other helpful tests	317
Diabetic ketoacidosis.....	314	Management	317
Hungry bone syndrome	314	Basic principles	317
Postoperative	315	Precautions	318
Clinical Features	315	Correction of underlying causes...	319
Acute hypophosphatemia.....	315		
Chronic hypophosphatemia.....	316		

SERUM PHOSPHATE

Phosphorus is a vital component of all body tissues and plays an essential role in various body functions. The terms phosphate and phosphorus are commonly used interchangeably.

BASIC PHYSIOLOGY

- Phosphate is the most abundant intracellular anion, the second-largest mineral in the body after calcium, and comprises approximately 1% of the body weight.
- Distribution: Most (about 85%) of the body's phosphorus is found within bone and teeth as hydroxyapatite, and the rest is distributed in tissues throughout the body. As only 1% of total body phosphorus is found in the

extracellular fluid (ECF), the value of serum phosphorus may not necessarily reflect total body phosphorus content. In addition, even a change in pH leads to a shift of phosphate (acidosis shifts phosphate from intracellular fluid (ICF) to ECF) and affects the value of serum phosphorus.

- Normal value: Normal serum phosphorus levels in adults range from 2.5 to 4.5 mg/dL (0.75 to 1.45 mmol/L). It is best measured in the fasting state since there is as much as 50% diurnal variation (lower value in the morning and higher at night and after meals). Clinically, serum phosphorus level reflects nutritional status.
- Function: Phosphorus plays a major role in bone formation and is involved in cellular energy metabolism for

almost all cellular functions (e.g., cell membranes, phospholipids, nucleic acids, acid buffering, enzyme

systems, the energy carrier ATP-adenosine triphosphate, etc.).

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