

## ACID-BASE STUDY GUIDE

- Normal Plasma pH 7.35 to 7.45 (hydrogen (H<sup>+</sup>) concentration)
  - Higher this goes, higher the mortality rate
  - Measure the acidity or alkalinity of blood
  - Homeostatic mechanisms keep pH normal
    - Buffer systems, kidneys & lungs
    - Greater H<sup>+</sup> concentration = lower pH & more acidic solute
    - Lower H<sup>+</sup> concentration = higher pH & more alkaline solute
- Major ECF buffer system
  - Bicarbonate-carbonic acid system
  - $\text{CO}_2 + \text{H}_2\text{O} \leftrightarrow \text{H}_2\text{CO}_3 \leftrightarrow \text{H}^+ \text{ and } \text{HCO}_3^-$
  - Kidneys regulate bicarbonate in the ECF
  - Lungs (controlled by medulla) regulate CO<sub>2</sub>, thus the carbonic acid in the ECF
    - Lungs are first responders
- Other buffer systems
  - ECF: inorganic phosphates and plasma proteins
  - ICF: proteins, organic, inorganic phosphates
  - Hemoglobin

## METABOLIC ACIDOSIS

pH lower than 7.35

- Can occur by a gain of H<sup>+</sup> or loss of bicarbonate ions (<22 mm Hg)
- Causes
  - Direct loss of bicarbonate (diarrhea, administration of IV nutrition w/o bicarb or bicarb-producing solutes, diuretic use, early renal insufficiency, excess chloride, lower intestinal fistulas, ureterostomies)
  - Most common due to kidney injury
  - Lactic acidosis (higher it is, the worse sepsis is), salicylate poisoning, renal failure, methanol, ethylene, or propylene toxicity, DKA, ketoacidosis due to starvation
  - Systemic issue: diabetes
- Clinical Manifestations
  - Headache, confusion, drowsiness, increased RR/depth, low BP, nausea, vomiting, cold/clammy skin, arrhythmias, shock, peripheral vasodilation, decreased cardiac output
- Medical Management
  - First have to correct underlying issue

# Key Acid Base Study Guide

**SJ Ball**



## **Key Acid Base Study Guide:**

## Reviewing **Key Acid Base Study Guide**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is really astonishing. Within the pages of "**Key Acid Base Study Guide**," an enthralling opus penned by a very acclaimed wordsmith, readers embark on an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve into the book's central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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