Lab Values

REFERENCE

POTASSIUM 3.5–5.0 · SODIUM 135–145

- Potassium pumps the heart and muscle. Hyper: 'tight and contracted' — ST elevation, peaked T, hypotension, bradycardia; severe = VFib or standstill
- Hypokalemia: 'low and slow' — flat T, ST depression, prominent U wave, cramping, flaccid paralysis, ileus
- Sodium maintains BP, volume, and pH. Hyper: 'big and bloated' — flushed, edema, low-grade fever, swollen dry tongue, increased muscle tone
- Hyponatremia: 'depressed and deflated' — tachycardia, weak thready pulse, seizures, coma, respiratory arrest

CHLORIDE 97–107 · MAGNESIUM 1.3–2.1

- Chloride is sodium's side kick — maintains BP, volume, pH balance; hyper looks 'big and bloated', hypo brings diarrhea/vomiting, diaphoresis, fever, confusion
- Magnesium mellows the muscles. Hyper: 'calm and quiet' — bradycardia/heart blocks, hypotension, prolonged PR, depressed shallow respirations
- Hypomagnesemia: 'buck wild' — ST depression, T inversion, torsades de pointes, tachycardia/VFib, nystagmus

CALCIUM 9.0–10.5

- Calcium keeps the 3 Bs strong: bone, blood, beats (heart)
- Hypercalcemia: 'swollen and slow' — moans, groans, and stones: bone pain, kidney stones, constipation
- Hypocalcemia: diarrhea, Trousseau's sign, Chvostek sign, weak bones

HOW TO USE THIS PAGE

- Each electrolyte pairs a normal range and job with a hyper and a hypo picture — read across the pair
- The ECG is where electrolytes announce themselves: peaked T, flat T/U waves, torsades, heart blocks

Take Home Message:

Electrolytes show up on the ECG first: peaked T is potassium up, flat T with a U is potassium down, torsades is magnesium down.