

Clinical and Physiological Normal Ranges

Electrolytes (ECF vs ICF)

Sodium: ECF 135–145 mmol/L, ICF 10–15 mmol/L
Potassium: ECF 3.5–5.0 mmol/L, ICF 120–150 mmol/L
Chloride: ECF 98–106 mmol/L, ICF 3–4 mmol/L
Bicarbonate: ECF 22–28 mmol/L, ICF 12–16 mmol/L
Calcium (ionized): ECF 1.1–1.3 mmol/L, ICF <0.0001 mmol/L
Magnesium: ECF 0.7–1.1 mmol/L, ICF 10–30 mmol/L
Phosphate: ECF 1–1.8 mmol/L, ICF 75–150 mmol/L

Body Fluid Distribution

Total Body Water: 60% body weight
ICF: 40%, ECF: 20% (Interstitial 15%, Plasma 5%)
Blood Volume: Men 70 mL/kg, Women 65 mL/kg

Acid-Base Values

pH 7.35–7.45, pCO₂ 35–45 mmHg, HCO₃⁻ 22–26 mmol/L
Anion gap 8–12 mmol/L

Respiratory

Tidal Volume 500 mL, Respiratory rate 12–20/min
Vital Capacity 3–5 L, Total Lung Capacity 6 L

Cardiovascular

Heart Rate 60–100 bpm, BP 90/60–120/80 mmHg
Cardiac Output 4–8 L/min, Stroke Volume 60–100 mL

Renal

GFR 90–120 mL/min, Urine output 0.5–1 mL/kg/hr

Endocrine & Metabolic

Fasting glucose 70–99 mg/dL
TSH 0.4–4.0 mIU/L, Free T4 0.8–1.8 ng/dL

Hematology

WBC 4,000–11,000/ μ L
Platelets 150,000–400,000/ μ L
Hemoglobin (M 13.5–17.5, F 12–16 g/dL)

Temperature & Energy

Temperature 36.5–37.5°C
Daily energy requirement ~2000–2500 kcal/day

Neurological

ICP 5–15 mmHg, CSF pressure 10–18 cmH₂O