24. Chloride

Physiology

Chloride is the major extracellular and intracellular counter anion to sodium and potassium; 70 % is in the ECF, and the remainder is in the intracellular space, connective tissue and bone [1,2]. Total body chloride in adult men is about 33 mmol (1.2 g) /kg body weight. Plasma chloride is maintained at 95-107 mmol/L (3.4-3.8 g/L); its concentration in interstitial fluid is slightly higher, whereas the intracellular concentration of chloride has been varyingly reported between 4 and 25 mmol/L. Chloride is absorbed passively in the proximal small intestine, where it follows the electrochemical gradient created by transport of the major cationic electrolytes. Intestinal secretion of chloride occurs proximally but the anion is conserved distally by uptake in exchange for bicarbonate. Dietary chloride deficiency has been described only once, in healthy infants who were fed an infant formula which, accidentally, provided less than 2 mmol/L [3]. It has been suggested that chloride may interact with sodium in inducing hypertension [4,5].

Requirements

Daily chloride intake is derived principally from sodium chloride. Since the dietary intake and systemic metabolism of chloride match closely, and are dependent on sodium, it is suggested that in the absence of more definitive information the requirements of chloride should match those for sodium.

References

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