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Differing effects of supplemental KCl and KHCO₃: pathophysiological and clinical implications.

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Compared to the prehistoric diet, the modern human diet contains not only excessive NaCl and deficient K⁺, but also deficient precursors of HCO₃⁻ and sometimes excessive precursors of nonvolatile acid. The mismatch between the modern diet and the still ancient biological machinery of humans subtly but chronically disorders their internal milieu, giving rise to a prolonged state of low-grade potassium deficiency and low-grade metabolic acidosis whose severity increases with age. Supplemental KCl cannot redress this mismatch and correct this state. However, the mismatch is redressed and the state corrected by restoring intakes of K⁺ and HCO₃⁻ to levels approaching those in the diet of our prehistoric forebearers, with either fruits and vegetables or with supplemental KHCO₃. So restored, KHCO₃ can: 1) attenuate hypertension and possibly prevent its occurrence by suppressing the phenomenon of normotensive NaCl-sensitivity, in part by its natriuretic effect; (2) prevent kidney stones by reducing urinary excretion of calcium and increasing urinary excretion of citrate; (3) ameliorate and protect against the occurrence of osteoporosis by increasing the renal retention of calcium and phosphorus, and by suppressing bone resorption and enhancing bone formation; and (4) likely prevent stroke.