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Hydrogen-rich water affected blood alkalinity in physically active men

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Abstract

Possible appliance of effective and safe alkalizing agent in the treatment of metabolic acidosis could be of particular interest to humans experiencing an increase in plasma acidity, such as exercise-induced acidosis. In the present study we tested the hypothesis that the daily oral intake of 2L of hydrogen-rich water (HRW) for 14 days would increase arterial blood alkalinity at baseline and post-exercise as compared with the placebo. This study was a randomized, double blind, placebo-controlled trial involving 52 presumably healthy physically active male volunteers. Twenty-six participants received HRW and 26 a placebo (tap water) for 14 days. Arterial blood pH, partial pressure for carbon dioxide (pCO₂), and bicarbonates were measured at baseline and postexercise at the start (day 0) and at the end of the intervention period (day 14). Intake of HRW significantly increased fasting arterial blood pH by 0.04 (95% confidence interval; 0.01 - 0.08; p < 0.001), and postexercise pH by 0.07 (95% confidence interval; 0.01 - 0.10; p = 0.03) after 14 days of intervention. Fasting bicarbonates were significantly higher in the HRW trial after the administration regimen as compared with the preadministration (30.5 ± 1.9 mEq/L vs. 28.3 ± 2.3 mEq/L; p < 0.0001). No volunteers withdrew before the end of the study, and no participant reported any vexatious side effects of supplementation. These results support the hypothesis that HRW administration is safe and may have an alkalizing effect in young physically active men.

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