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Effect of a supplement rich in alkaline minerals on acid-base balance in humans.

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BACKGROUND:

Western diets are considered acidogenic due to the high dietary acid load and a low intake of base-forming dietary minerals such as potassium, magnesium or calcium. In the present study we investigated the effect of a multimineral supplement (MMS) rich in alkaline minerals on acute and chronic regulation of acid-base balance with the pH of blood, urine and saliva as potential surrogate markers.

METHODS:

Parameters were measured (i) without MMS intake, (ii) in the three consecutive hours following ingestion (blood and urinary pH) and (iii) during one week with or without MMS intake (self-monitored using pH measurement strips).

RESULTS:

25 (15 female; 10 male) subjects (age 44 +/- 14 y; BMI 23.9 +/- 1.9 kg/m2) were enrolled in the investigation. Following acute administration of the MMS in the morning, blood ph (1 and 2 h after ingestion) rose from 7.40 to 7.41; $p < 0.05$, and also urinary pH 3 h after ingestion (5.94 to 6.57; $p < 0.05$) increased significantly. Following longer-term supplementation, both the increase in urinary pH in the morning and in the evening occurred within 1 day. Compared to pH values without the MMS, average pH in urine was 11% higher in the morning and 5% higher in the evening. Analyses of food records showed that the increase in urinary pH was not related to dietary change.

CONCLUSION:

Our results suggest that the ingestion of a multimineral supplement is associated with both a significant increase in blood and urinary pH. The health related consequences of this supplementation remain to be determined.