

Artificial Sweetener sensing in the human mouth and effect on exercise performance

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ABSTRACT

Many studies have suggested that oral rinsing of a sweet carbohydrate can positively affect exercise performance by stimulating reward centers in the brain. However, few studies have been performed which compared the effects of a sweet carbohydrate with a sweet artificial sweetener. The purpose of this study was to examine the effects of a sweet carbohydrate rinse, an artificial sweetener rinse, and a water rinse on exercise performance. Eight college students completed a ten-minute trial ride and were able to perform significantly more work when rinsing with the carbohydrate or artificial sweetener rinses (Total work= 116.63 (20.3) kJ $p=0.003$, 117.04 (22.83) kJ, $p=0.021$, respectively) than with the water rinse (Total work= 110.81 (19.54) kJ, $p=1.0$). The results suggest that the sensing of a "sweet" taste positively affects exercise performance by activating a pleasure center in the brain, altering perceived effort in the individual, which allows a larger quantity of work to be completed.

