TACSM Abstract

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

JAMES T. MOCK, SCOTT P. MCLEAN, AND JIMMY C. SMITH

Dept. of Kinesiology, Southwestern University, Georgetown, TX

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.