0010

Effect of Hydrogel-Encapsulated Carbohydrates on Caries-Related Variables During Physical Activity

a. alshabeeb, A. Lehrkinder, P. Lingström
Cariology, Institite of Odontology, Gothenburg, Sweden

Objectives Various forms of energy products have appeared on the market in recent years. Even if an increased performance is achieved, negative side effects such as an increased risk for caries disease may occur. The purpose of this study was to evaluate the effect of a new sportgel, in which high concentrations of carbohydrates are encapsulated in a hydrogel structure, on different caries-related variables during resting and physical activity.

Methods Two different sportgel products: 1) Maurten Gel 100 (Maurten, Gothenburg, Sweden) and 2) SIS Beta Fuel (Science in Sport, London, UK) were tested in 12 healthy adults. They were instructed to consume identical amounts (based on sugar content) of each product on two separate occasions – either resting or physical activity (on a stationary bicycle indoors). Plaque acidogenicity was assessed via the Strip-method, and salivary samples were collected to determine glucose/fructose before and up to 45 min after consumption. Mv ± SD and area under the curve (AUC) were calculated for the two variables. Paired t-test was used to compare differences with $p<0.05$ considered statistically significant.

Results A more pronounced pH fall was seen during physical activity than in resting conditions for both products. The AUC calculations showed less pronounced pH-lowering effect by the hydrogel during the first 10 min during both resting ($p<0.01$) and physical activity ($p<0.05$). Only minor differences were found from 10 min and onwards. Total salivary sugar concentration differed between the two products with lower values for SIS during physical activity ($p<0.01$), while no difference was seen during resting conditions.

Conclusions The main findings indicate a lower risk for dental caries to occur of this new encapsulated hydrogel sugar formula. However, it is of outmost importance that further studies be conducted during more realistic physical activity conditions.