ONLINE ISSN : 1880-3997
PRINT ISSN : 0917-2394

Pediatric Dental Journal
Vol. 17 (2007) , No. 1 pp.79-83

The concentration of gum component in saliva before and after swallowing during prolonged gum chewing

Kimiko Nakagawa[1)], Shigeru Watanabe[1)], Chenghua Pai[1)], Maki Minami[1)], Akira Suzuki[1)] and Kazunori Takamori[1)]

1) Department of Human Development & Fostering, Division of Pediatric Dentistry, Meikai University School of Dentistry

(Received on October 12, 2006)
(Accepted on January 26, 2007)

Abstract OBJECTIVES: The concentration of the substances eluted from the gum into saliva before and after swallowing has not almost carried out. The purpose of this study was to measure the volume of saliva before (VMAX) and after (RESID) swallowing in the mouth and was also to measure the concentration of the component (sugar) eluted from the gum chewing. METHODS: The RESID was measured by a dilution method (Lagerlof and Dawes, 1984). It was computed by measuring the potassium concentration in saliva and in the expectorated after a five-second rinse with 10 ml of water immediately following a swallow. The volume swallowed was calculated as salivary flow rate divided by the swallowing frequency, and the VMAX was estimated as the sum of RESID and the volume of saliva swallowed. Swallows were registered by placing over the larynx an electrode which was connected to an EMG. The volume of sugar contained in the gum was 74.8% as a total weight of the gum. Subjects were seven males and 13 females who were all in good health for measuring the RESID and VMAX. For each of the six participants of them, the concentration of sugar in saliva expectorated was measured by frame photometer. RESULTS: VMAX, swallowing frequency and the volume of fluid swallowed increased as comparing with the values when the salivary flow rate was unstimulated. The mean volume of sugar in expectorated saliva as a percentage of the initial weight of sugar contained during gum chewing at the first swallowing was 16.5±5.38% and at the 10th swallowing was 0.76±0.06%. These were 3.6 times and 1.8 times of those of unstimulated saliva, respectively.

Key words Chewing-gum, Flow rate, Gum component, Saliva, Salivary pH

To cite this article:

Kimiko Nakagawa, Shigeru Watanabe, Chenghua Pai, Maki Minami, Akira Suzuki and Kazunori Takamori: The concentration of gum component in saliva before and after swallowing during prolonged gum chewing . *Ped Dent J* **17**: 79-83, 2007 .

JOI JST.JSTAGE/pdj/17.79