

of the post-stroke patients recorded positive scores indicative of the inability to remove debris most likely on account of their neurologic disease.

These findings may offer care givers the possibility of quantifying the accumulation of food in their patients' mouth in order to be able to evaluate the positive effects of an educational programme directed at nursing staff.

M. Migliario, L. Rimondini  
Italy

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## EROSION AND POLYOLS

Sir, we read with interest the recent article by Nadimi *et al.*<sup>1</sup> The authors reviewed studies regarding sugar-free products and dental caries or dental erosion and raise a concern about sugar-free confections and dental erosion.

As stated in the paper by Nadimi *et al.*, 'polyol-based sugar-free products may decrease dental caries incidence.' What the authors failed to make clear is that the erosive potential of sugar-free confections actually is derived from acidic ingredients, which may be used in sugar-free products independent from polyols; these ingredients, not the polyols, directly create an acidic pH at the tooth surface.

Polyols are safe for consumption and it is well documented that they provide health and dental benefits. For example, polyols used to replace sugar in sugar-free products can help reduce overall sugar intake, diminish blood glucose response, reduce caloric intake, and lead to improved dental health. Scientists and regulators alike recognise that polyols do not cause tooth decay and labelling indicating this health benefit

is allowed in the US and the European Union as well as many other parts of the world.

Further, polyols can be used to replace sugar for various reasons, but not all sugar-free products are intended to be tooth-friendly. In tooth-friendly products, polyols replace fermentable carbohydrates (sugars) in order to reduce fermentation activity and the resulting acidic pH at the tooth surface. It is possible to successfully develop sugar-free confections with tooth-friendly properties, as shown by the large range of product examples in the marketplace. Those products can be identified by a tooth-friendly claim, in addition to the sugar-free claim.

Current research indicates that individual susceptibility to tooth erosion varies depending on one's behaviour, lifestyle, diet and genetic make-up. It is impossible to single out any one food or beverage as the cause of dental erosion considering the many factors that determine individual dental health, including the types of food consumed, the length of time foods stay in the mouth, the level of oral hygiene, and access to professional dental care.

H. Curtis Stevens  
President, Calorie Control Council  
(an international association of companies that make low-calorie, sugar-free and reduced-fat foods and beverages, including companies that make ingredients for those products. Companies that make and use polyols are among the Council's members)

1. Nadimi H, Wesamaa H, Janket S J, Bollu P, Meurman J H. Are sugar-free confections really beneficial for dental health? *Br Dent J* 2011; **211**: E15.

*Corresponding author Sok-Ja Janket responds: In response to Dr Stevens' letter regarding our article<sup>1</sup> I would like to respond on behalf of my team. Contrary to Dr Stevens' allegations, we have clearly stated that sugar-free products might pose dental erosion risk 'if they contain acidic flavouring' several times in the article. Moreover, we have highlighted all the studies that have shown dental health benefits of polyols on the second and third pages.<sup>1</sup> We further clarified in non-scientific media that it is the acidic flavouring, not the polyols, that causes the harm.*

*The following are links to some of the interviews we have given.*

Dentistry IQ <http://bit.ly/qowuP2>  
Sydney Morning Herald <http://www.smh.com.au/lifestyle/diet-and-fitness/the-sugarfree-myth-20111019-1m6z5.html>  
Beveragedaily.com <http://www.beveragedaily.com/Formulation/Sugar-free-drinks-may-generate-false-security-on-tooth-decay-study-finds>

*The long term safety of polyols on general health appears to be unknown. We would like to inform readers that the European Union has banned the use of polyols in beverages according to a non-scientific medium which can be accessed via the following link. <http://www.beveragedaily.com/Formulation/Sugar-free-drinks-may-generate-false-security-on-tooth-decay-study-finds>*

*If Dr Stevens wishes to claim long term safety of polyols, she should provide references. For a person who works for an organisation promoting low calorie products, her opinion may not be impartial. This clear conflict of interest gives her comments very little credibility. A renowned diabetes researcher, Dr Bloomgarden, stated that direct testing to rule out human toxicity was not required for FDA approval (for nutraceuticals such as polyols), unlike the approach taken with pharmaceutical products.<sup>2</sup> Furthermore, Dr Stevens' claim that 'polyols reduce caloric intake' may not be entirely correct, because diet soda drinkers did not lose weight and the sweet taste actually increased the appetite.<sup>3,4</sup>*

*As Stevens correctly stated, polyols substitute for fermentable carbohydrates in an attempt to reduce acid production by microbiota and thus decrease subsequent dental caries. However, some sugar-free products with acidic additives deliver acids directly to tooth surfaces which polyols were intended to reduce. So, what is the purpose of using sugar-free products? We encourage the artificial sweetener industry to prove long term safety by a randomised trial, not an epidemiologic study which is prone to biases. Our group is qualified to conduct such studies and has a proven history of not being swayed by outside pressures or established dogma.<sup>5</sup>*

Lastly, all the studies we have reviewed were intervention studies in the format of *in vitro* or *ex vivo*, thus 'one's behaviour, lifestyle, diet, genetic make-up, oral hygiene, and access to professional dental care' could not have affected the results. In addition, there is overwhelming evidence that industrial exposure to acid fumes causes dental erosion.<sup>6,7</sup> Therefore, it is transparent that exposure to acids is a risk factor for dental erosion.<sup>8,9</sup>

In conclusion, we do not discount the benefits of polyols on dental caries but acidic additives should be avoided and long term safety of polyols should be studied in humans. The objective of our review was to raise awareness of the risk hidden under the false security of 'sugar-free' dental health claims.

1. Nadimi H, Wesamaa H, Janket SJ, Bollu P, Meurman JH. Are sugar-free confections really beneficial for dental health? *Br Dent J* 2011; **211**: E15.
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## ASTONISHING DENIAL

Sir, I would like to draw readers' attention to the serious issue of 'big' corporate takeover of dentistry. In my opinion, the denial of the profession and the BDA to confront this matter is astonishing. My personal experience when discussing the topic with the colleagues who had the pleasure of working for the major corporates is that it has been overwhelmingly negative.

Please let's not fool ourselves: a corporate's main function is to generate money for its shareholders. It is not the principal dentist safeguarding the patients' best interests or introducing the latest and the best for 'his or her' practice.

With regard to the free market, there is no free market regulating the market. Currently there are few estate agents dealing with dental practice sales. Incidentally these agents deal initially with the best rewarding clients.

Of course the NHS has a fair tendering procedure for its allocation of new contracts. However, corporate resources will employ full-time staff to deal with tendering. Can 'Dr Smith' who has dedicated his life to NHS dentistry publish a 100 page tendering proposal? Not to mention the bank and the new CQC with its 'register first before buying' ingenious policy.

We may all be comfortable burying our heads in the sand for now. But be aware of the future. Would the strategy of a large supermarket chain entering dentistry be unusual for a corporate? Not at all. It is part of a genuine and legal growth strategy: squeeze suppliers and wages. What income would be allocated to a self-employed dentist working in such circumstances? I suppose a hard working farmer will be able to answer this with some degree of passion. And imagine if that chain owned and supplied all other small practices with dental material and other services.

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## SCURVY AND THE AGEING POPULATION

Sir, we write to you about two cases of scurvy which recently presented to our unit. Despite a great reduction in its prevalence, this ancient disease still affects people in our developed world today. It is noteworthy that the Care Quality Commission has recently published a report showing 17% of hospitals investigated were not compliant in meeting the nutritional needs of patients.<sup>1</sup> Furthermore, studies have shown that high proportions of elderly people already have low vitamin C levels on medical admission.<sup>2</sup>

The earliest symptom of scurvy, occurring only after many weeks of deficient intake, is fatigue. The most common cutaneous findings are perifollicular haemorrhages, ecchymoses, leg oedema, poor wound healing, and coiled body hairs. Gingival abnormalities include gingival swelling, purplish discoloration, and haemorrhages. Pain in the back and joints is common. Syncope and sudden death may occur.<sup>3</sup> Scurvy is easily treated with vitamin C supplements and the inclusion of fresh fruit and vegetables in a daily diet.<sup>4</sup>

An 83-year-old female who lived in a care home was referred regarding 'erosions' in her mouth with associated difficulty in maintaining adequate nutritional intake. The patient's medical history included coronary artery bypass graft, stroke, nephrectomy, anaemia, osteoarthritis and dementia. There were no known allergies or use of alcohol and the patient had stopped smoking 40 years ago.

Clinical examination revealed blood crusted lips and generalised confluent ulceration affecting the buccal mucosa which also involved the gingiva. An elevated blood urea was noted, suggestive of renal dysfunction or poor fluid intake and her vitamin C levels were low. Clinical symptoms coupled with low ascorbic acid levels led to a diagnosis of scurvy. The patient was started on vitamin C supplements and a review a week later showed complete resolution of the oral lesions.

In another case, a 63-year-old female presented reporting a one month history of poor eating with reported weight loss due to swollen and bleeding gums. There was no relevant medical or social history except for a diet consisting mainly of plain pasta, devoid of fresh fruit and vegetables.

Clinical examination revealed the gingiva were swollen and bled spontaneously or on minor trauma (Fig. 1). All teeth were mobile. Initial blood tests revealed a Hb 7.9/dl and an otherwise normal FBP and coagulation screen. Medical examination revealed dependent oedema of the lower legs with bruising, perifollicular haemorrhaging and corkscrew hairs, (Fig. 2). A diagnosis of scurvy with secondary anaemia