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Comment on the Paper Entitled 'Effect of Erythritol and Xylitol on Dental Caries Prevention in Children'

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Honkala et al. [2014] wrote an article entitled 'Effect of erythritol and xylitol on dental caries prevention in children' using the ICDAS system [Ismail et al., 2007] and caries index values during the mixed dentition period. During the follow-up time primary molars and canines are replaced by permanent canines and premolars, adding the reported maximum from 28 to 40 teeth. The mean value of the teeth ranged from 23.3 to 25.0 at the end of the follow-up period.

The DMFT index combines past and present caries experience and therefore has nothing to do with caries prevalence. 'Past caries' may represent restorations, when carious tissue is removed and replaced by fillings, or else, teeth extracted because of caries. Restored or extracted teeth do not result in carious patients.

The use of the ICDAS system separately for enamel (1–3) and dentin (4–6) caries showed a decline during the follow-up as did also the caries index values (table 2). The reason for that may be

hidden: 'if a tooth was exfoliated (or extracted), all the visible surfaces from earlier assessment were recorded as missing when calculating caries increments.' Exfoliation of (carious) primary molars and replacement by permanent premolars (with no cariogenic challenge time) explains the decline.

Combining past and present experience into a mean index value does not either produce 'lifelong prevalence' values as I wrote in this journal, in an article entitled 'Has dental caries prevalence some connection with caries index values in adults?' [Larmas, 2010]. Now I have to add: not in children, either.

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Reply

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We would like to thank Prof. Larmas for the interest he has taken in our study on the 'Effect of erythritol and xylitol on dental caries prevention in children'. In our article, we present and analyze the results of what is, to our knowledge, one of the largest and longest clinical trials ever carried out using the ICDAS caries scoring and classification system. The trial target population consisted of children, making schools the most practical setting for our dental intervention. As Prof. Larmas points out, any clinical trial focusing on children with mixed dentition is confronted with the complexity of exfoliating and erupting teeth. However, we feel we dealt accordingly with the challenges associated with this issue.

In the last few years, Prof. Larmas has repeatedly expressed his concern regarding the use of the DMFT index as a measure of caries prevalence. We agree that DMFT scores only reflect past and present caries experience and that the use of DMFT becomes even

more complicated in a context of mixed dentition. Given the widespread application of the index, we have included DMFT analyses as part of our global presentation of study results. However, the primary focus of our analytical efforts lies on the development of caries in the mixed dentition in the different study groups. Indeed, we conclude, independently of DMFT scores, that dentin caries teeth and surfaces at 24 months' follow-up and surfaces at 36 months' follow-up were significantly lower in the mixed dentition in the erythritol group as compared with the control group. As stated in our article, 'the confounding effect of exfoliation was controlled in this study by comparing the caries indices only on the tooth surfaces which were present on two consecutive annual examinations'. Results were confirmed by survival analyses, dealing with the complexity of exfoliating and erupting teeth by assessing exposure to treatment as key variable.