

#377 Dental Erosion: Results from the Icelandic Oral Health Survey

Ágústs dóttir H^{1*}, Árnadóttir IB², Guðmundsdóttir H^{3,4}, Eggertsson H⁵, Sæmundsson SR², Eliasson ST², Holbrook WP²

¹Ministry of Health and Social Security Iceland ²University of Iceland
³Public Health Institute Iceland ⁴Centre for Oral Health and ⁵University of Indiana

Abstract

Objectives: The Oral Health Survey in Iceland aims to obtain national data on the oral health of Icelandic children and teenagers. One of the primary goals of the study was to measure the prevalence of dental erosion in permanent teeth. **Methods:** A representative sample of 2,254 Icelandic children in first, seventh and tenth grade (approx. 6y, 12y and 15y) was examined. Oral examinations took place in the schools and were performed by a single trained and calibrated examiner following thorough tooth cleaning by a dental hygienist. Dental erosion was recorded on permanent teeth according to the modified scale of Lussi previously used in studies of dental erosion in Iceland. **Results:** Dental erosion was not seen in the permanent teeth of six year olds, but was evident among 14.8% of 12-year-olds with boys more frequently affected than girls (19.0% boys, 9.8% girls; $p < 0.001$, χ^2). Among 15-year-olds dental erosion was seen among 30% (37.3% of the boys and 22.6% of the girls, $p < 0.001$, χ^2). The teeth most frequently showing signs of erosion were the lower first molars. **Conclusions:** The results from this nationally representative sample of Icelandic children were that 30% of 15-year-olds showed signs of dental erosion and almost 15% of the 12-year-olds. Dental erosion was found to be almost twice as frequent among boys as in girls in Iceland. This national survey suggests an even higher prevalence of erosion in Iceland than earlier regional surveys of similar age groups.



Introduction

Dental erosion has been defined as the irreversible loss of dental hard tissue caused by a chemical process that does not involve bacteria¹. In 1995 the prevalence of dental erosion among 15-year-old subjects in a study in Reykjavik was 21%², but had not been considered a problem before.

Objectives

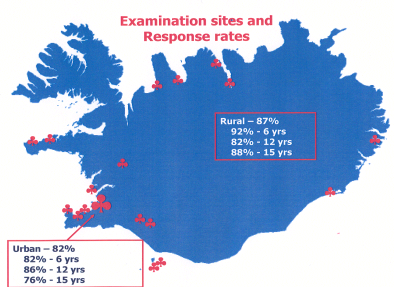
- To obtain national data on oral health of Icelandic children and teenagers.
- Measure prevalence of dental erosion in permanent teeth.

Methods

- Random sample of 2,254 Icelandic children in 1st, 7th and 10th grade (6y, 12y and 15y) examined.
- Oral examinations took place in the schools.
- Examinations by one trained and calibrated examiner following thorough tooth cleaning by a dental hygienist.
- Dental erosion was recorded on permanent teeth according to the modified scale of Lussi, as previously used in Iceland^{2,3}.
- Presence and severity of erosion recorded on all teeth.

Grading:

- 1= enamel erosion
- 2= dentine erosion
- 3= severe dentine erosion



Results

Dental erosion was not seen in the permanent teeth of six year olds, but was evident among 14.8% of 12-year-olds with boys more frequently affected than girls (19.0% boys, 9.8% girls; $p < 0.001$, χ^2). Among 15-year-olds dental erosion was seen among 30% (37.3% of the boys and 22.6% of the girls, $p < 0.001$, χ^2). Enamel erosion (grade=1) was most frequently seen, but dentine erosion (grade=2) was found in 4% of the lower first molars among 15-year-olds. The teeth most frequently showing signs of erosion were the lower first molars.

Table 1. Presence of erosion in 7th grade – 12-year-olds by gender and tooth type

Erosion	All %	Boys %	Girls%
all teeth	14.8	19.0	9.8
anterior teeth	2.5	3.2	1.7
posterior teeth	14.0	18.0	9.2

$p < .001$

Table 2. Presence of erosion in 10th grade – 15-year-olds by gender and tooth type

Erosion	All %	Boys %	Girls%
all teeth	30.2	37.3	22.6
anterior teeth	10.0	13.9	5.8
posterior teeth	30.2	37.0	22.3

$p < .001$

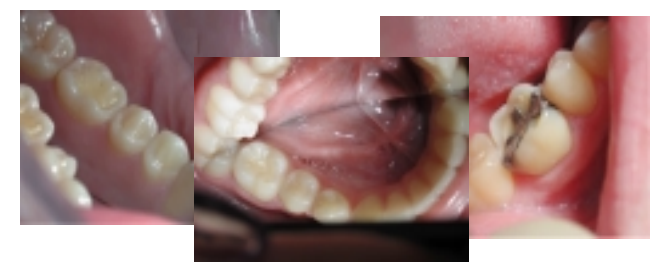
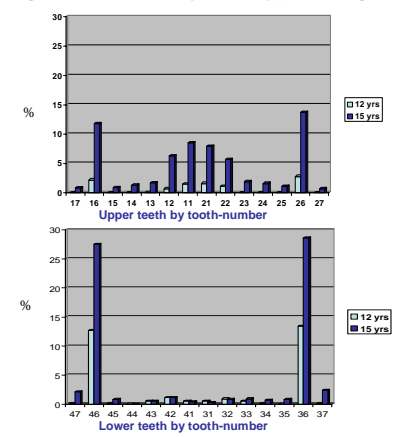


Figure 2. Erosion by tooth type and age



Conclusions

- Dental erosion was seen in:
 - > 30% of 15-year-olds and
 - > 15% of the 12-year-olds
- Dental erosion was twice as frequent among boys than girls
- This national survey shows:
 - > a higher prevalence of erosion in Iceland than earlier regional surveys of similar age groups
 - > a different pattern, where the first molars are now more frequently affected than anteriors

References

- Pindborg J. Pathology of dental hard tissues. Copenhagen: Munksgaard, 1970.
- Arnadóttir IB *et al.* Acta Odontol Scand. 2003;61:25-28.
- Lussi A *et al.* Dental Erosion in a population of Swiss adults. Community Dent Oral Epidemiol. 1991;19:286-90