

The progression of tooth erosion in a cohort of adolescents of mixed ethnicity

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Summary. *Objectives.* To establish the prevalence of tooth erosion in a sample of 12-year-old children and to monitor changes over the subsequent 2 years.

Methods. A random sample of 1753 children aged 12 years was drawn from all 62 state maintained schools in Leicestershire. A total of 1308 were re-examined 2 years later. Erosion was recorded on incisors and first molars using an erosion index based upon that from the Children's Dental Health in the United Kingdom 1993 survey. A score was also allocated to each subject according to the most advanced lesion in the mouth. *Results.* Erosion was present in 56.3% of subjects at age 12 and 64.1% at age 14. Deep enamel or dentine was eroded in 4.9% and 13.1% of subjects, respectively, at the same ages. One hundred and sixty-one (12.3%) children who were erosion-free at 12 years of age developed erosion over the subsequent 2 years. Boys had more erosion than girls, as did white compared to Asian children. Associations were found between erosion experience and social deprivation.

Conclusion. New erosive lesions developed in 12.3% of the subjects between the ages of 12 and 14 years. New or more advanced lesions were seen in 27% of the children over the 2 years of the study. Males, white children and social deprivation were significantly associated with erosion experience.

Introduction

Those practising dentistry were aware of tooth erosion as early as 1778 [1], and although the role of medicaments in its aetiology became apparent in 1886 [2], the multifactorial nature of the condition was not fully appreciated until the latter part of the 20th Century [3,4]. Early reports highlighting tooth erosion were presented as case studies of advanced lesions due to excessive intake of drinks [5], aberrant habits [6–8] or incorrect use of acidic products [9,10]. The collection of data on the prevalence of erosion based on populations began in Europe with a study of Swiss adults [11].

The first prevalence study of tooth erosion in the United Kingdom was the Children's Dental Health

Survey of 1993 [12]. Fifty-two per cent of 5-year-olds and 27% of 12-year-olds had erosion, with 24% and 1%, respectively, having dentine exposed. Thirty-two per cent of 14-year-olds had erosion and 2% had exposed dentine. The concurrent National Diet and Nutrition Survey (NDNS) of children aged 1½ to 4½ years [13] identified 29% of 3½ to 4½ year olds with erosion, in 13% erosion involved dentine. The latest NDNS study of young people aged 4–18 years found that 42% of 11–14-year-olds had erosion, with 3% having exposed dentine [14]. Local population studies have found 17% of 3-year-olds [15], 48% of 4–5-year-olds [16] and 33% of 5-year-olds [17] with tooth erosion into dentine. Neither Bartlett *et al.* [18] nor Deery *et al.* [19] found exposed dentine in the 57% and 45% of 12-year-olds with tooth erosion, whereas Milosevic *et al.* [20], Williams *et al.* [21] and Al-Dlaigan *et al.* [22] found 8%, 1% and 52%, respectively, of 14-year-olds with exposed dentine. It is difficult to make

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direct comparisons between the results of different studies due to variable methodology although it is possible to compare findings concerning the proportions of subjects with the relatively easily diagnosed finding of dentine exposure.

Tooth wear, which encompasses erosion attrition and abrasion, has been recorded in adults and adolescents on a population basis in 36% of 16–24-year-olds, with 1% of subjects having erosion that extended into dentine [23]. As the majority of tooth wear is due to erosion [24], this gave a good representation of erosion experience in an age group just older than that recorded in the National Children's Dental Health Survey [12].

Prevalence studies provide an indication only of the proportion of a population with erosion at a single moment in time. To assess the progress of tooth erosion and thereby the threat to the health of the dentition, it is necessary to have incidence data from studies. Incidence data in any form is sparse. Ten Bruggen Cate [25] found that 12% of workers exposed to acid mists in an industrial environment had erosive lesions which were initiated or advanced over a 2-year period. Ganss *et al.* [26] recorded an incidence of 18% over 5 years from orthodontic study models of children aged 10.2–15.8 years. Subjects with erosion experience increased from 5% to 23% of the sample, although those with exposed dentine only increased from 0.4% to 1.5%. When studying the effectiveness of a non-erosive drink, Nunn *et al.* [27] noted that the proportion of 12-year-old girls with erosion rose from 68% to 95% over the 18 months of the study.

The need for a population based incidence study of tooth erosion has been apparent for some time. The aims of this study were to monitor the incidence of tooth erosion over a two year period in a sample of children from the age of 12 years and to investigate gender, ethnic and socio-economic influences.

Methods

A random sample of 1753 children aged 12 years were examined from all 62 state maintained schools in Leicestershire and Rutland on the basis of including every fifth child on the relevant school register from a school population of approximately 10,500. Boys and girls were sampled separately to ensure representative samples. A total of 1308 children were located and re-examined 2 years later at the age of 14 years in the 78 schools and colleges

that provide educational facilities for this older age group.

Standardized examinations were completed in schools with each subject fully recumbent on a garden chair and using a Daray 4000 dental light source (Daray Lighting Limited, Leighton Buzzard, UK) on the higher setting. Gross debris was removed using gauze, otherwise teeth were not routinely cleaned or dried. The erosion index used was based upon that from the 1993 Survey of Children's Dental Health [12], with two differences. In addition to erosion being diagnosed on the basis of visual examination, a CPITN probe was run over the tooth surface to check for loss of enamel surface characteristics. Secondly, the first permanent molars were included in the present study.

Erosion Index codes were:

Depth; **0** Normal enamel

- 1** Loss of enamel surface characteristics
- 2** Loss of enamel exposing dentine
- 3** Loss of enamel and dentine with pulp exposure
- 9** Assessment cannot be made

Area; **0** Normal

- 1** Less than one third of surface involved
- 2** Between one and two thirds of surface involved
- 3** More than two thirds of surface involved
- 9** Assessment cannot be made

The teeth examined for erosion included the incisors and first permanent molars. Labial and lingual surfaces were examined on incisors and buccal, occlusal and lingual surfaces on molars.

A score for each subject was allocated according to the most advanced lesion in the mouth as follows [25,28]:

Mouth Erosion Score

- 0** No erosion
- 1** Loss of enamel surface characteristics (perikymata; mammelons; buccal or occlusal fissure features; smoothing of cingulum; smooth glassy texture of enamel surface).
- 2** Loss of much of the enamel thickness without dentine exposure
- 3** Loss of enamel exposing dentine
- 4** Secondary dentine exposed
- 5** Pulp exposed

Every tenth child was re-examined at the end of each session to check intra-examiner variability.

Each child was allocated a Townsend Deprivation Index score [29] on the basis of their home postcode to allow comparison of incidence by deprivation status.

Table 1. Erosion category totals.

Age	Erosion level								Total
	Absent		Surface enamel		Deep enamel		Dentine		
	number	%	number	%	number	%	number	%	
12	572	43.7	641	49.0	64	4.9	31	2.4	1308
14	469	35.9	554	42.4	171	13.1	114	8.7	1308

Table 2. Erosion scores in boys and girls.

	Erosion score							
	Absent		Loss of surface characteristics		Deep enamel loss		Dentine exposed	
	number	%	number	%	number	%	number	%
12 years old								
Boys	262	38.9	351	52.1	42	6.2	19	2.8
Girls	310	48.9	290	45.7	22	3.5	12	1.9
Totals	572		641		64		31	
14 years old								
Boys	207	30.7	280	41.5	104	15.4	83	12.3
Girls	262	41.3	274	43.2	67	10.6	31	4.9
Totals	469		554		171		114	

Erosion was more common in boys than girls at both ages: 12 years: $\chi^2 = 12.93$, $P < 0.001$; 14 years: $\chi^2 = 15.54$, $P < 0.001$.

Calibration

The examiner (CRD), who had previously used the erosion index in the National Children's Dental Health Survey [12], received training and calibration as a member of the concurrent NDNS study of young people aged 4–18 years [14]. In addition, a reproducibility exercise was completed prior to the examinations of the 12- and 14-year-olds, examining around 120 children for each exercise on two occasions, one week apart.

Statistical methods

A chi squared test was used to test the strength of associations between independent sample proportions, and the McNemar test was applied to paired proportions.

Results

Reproducibility study

Kappa values of 0.80, 0.67 and 0.76 were obtained for erosion depth, erosion area and subject score, respectively, in the 12-year-old children. The corresponding values for the 14-year-olds were

0.84, 0.71 and 0.77. All indicated a good level of intra-examiner agreement.

Main study

A total of 1753 children were examined at age 12 years, 906 (51.7%) were boys and 847 (48.3%) were girls. White (1379) and Asian (316) subjects formed the main ethnic groups. The 1308 children who were successfully traced and re-examined had a very similar gender and ethnic compositions to those of the original sample. All analytical comparisons were made between the 1308 children when aged 12 and 14 years. Analyses of the total sample and between genders included 43 subjects of ethnic origin other than white or Asian.

Erosion was present in 56.3% of 12-year-olds, increasing to 64.1% by the age of 14 (Table 1). The proportion of subjects with exposure of deep enamel increased from 4.9% to 13.1%, and those with exposed dentine from 2.4% to 8.7%. Boys had significantly more erosion than girls at both ages, $P < 0.001$, respectively (Table 2), as did white compared to Asian children in both age groups, $P < 0.001$ (Table 3).

One hundred and sixty-one (12.3%) children who were erosion free at 12 years developed tooth erosion

Table 3. Erosion scores in white and Asian children.

	Erosion score							
	Absent		Loss of surface characteristics		Deep enamel loss		Dentine exposed	
	number	%	number	%	number	%	number	%
12 years								
White	418	40.7	523	50.9	58	5.6	29	2.8
Asian	129	54.4	103	43.5	4	1.7	1	0.4
Total	547		626		62		30	
14 years								
White	338	32.9	449	43.7	145	14.1	96	9.3
Asian	117	49.4	90	38.0	22	9.3	8	3.4
Total	455		539		167		104	

Erosion was more common in white than Asian children at both ages: 12 years: $\chi^2 = 14.32$, $P < 0.001$; 14 years: $\chi^2 = 22.02$, $P < 0.001$.

by the age of 14 (Table 4). The majority developed loss of enamel surface characteristics, which is the first stage of erosion. Approximately 1% suffered erosion that progressed rapidly to deep enamel loss or exposure of dentine (Table 5). One hundred and ninety (14.5%) children who already had erosion at 12 years were recorded as increasing their erosion mouth score category, with the majority going from loss of surface characteristics to deep enamel loss (Table 5). Overall, 351 (26.8%) children had new or more advanced erosion lesions over the 2 years of the study (Table 5).

Tooth erosion incidence for the sample and each subsample was analysed by the McNemar test. The incidence of erosion between 12 and 14 years of age was highly significant for the full sample and for the subgroups of boys, girls, white children and white boys and girls, between the ages of 12 and 14 years. Incidence was significant in the whole Asian sample and in Asian boys. The increase in erosion in Asian girls was not significant (Table 6). The overall change in erosion mouth score was 26.8%, this being highest in boys and white boys (30.7%) and lowest in Asian girls (11.3%), although this last increase was significant (Table 7).

The incidence of erosion between 12 and 14 years was significant in the Advantaged and Deprived socio-economic groups of white children, with the greatest increase in the most deprived group at 16% (Table 8). This was a more marked increase of 36.4%, compared to 26% in the Advantaged and Intermediate deprivation groups for erosion mouth score (Table 9). There were insufficient numbers of Asian subjects in each deprivation category to support incidence analysis.

Table 4. Change in erosion presence between the ages of 12–14 years.

Change in presence of erosion	Number	%
None	1093	83.6
No to yes	161	12.3
Yes to no	54	4.1

Table 5. Increase in erosion score category.

Change in score	Number	% change	% of sample
None to surface enamel loss	135	38.5	10.3
None to deep enamel loss	14	4.0	1.1
None to dentine exposure	12	3.4	0.9
Surface enamel loss to deep enamel loss	119	33.9	9.1
Surface enamel loss to dentine exposure	60	17.1	4.6
Deep enamel loss to dentine exposure	11	3.1	0.8
Total	351		26.8

Discussion

One of the greatest obstacles to an incidence study is obtaining access to the same subjects at a later date. In this study, this was complicated by the arrangement whereby half the 12 years olds attending 40 high schools in the county of Leicestershire move to upper schools or colleges at the age of 14. Some were untraceable as they failed to attend the designated upper school/college from their feeder school or had moved out of the area. Six Leicester City schools, sited in deprived areas, were closed during the 2-year period of the study. The examination dates of the children were matched closely at 12 and

Table 6. Changes in presence of erosion at age 12 and 14 years.

Cohort	Erosion at 12–14 years			Total	<i>P</i>
	Present – present, absent – absent	Absent – present	Present – absent		
Total sample	1093 (83.6%)	161 (12.3%)	54 (4.1%)	1308	< 0.001
Boys	576 (85.5%)	78 (11.6%)	20 (3.0%)	674	< 0.001
Girls	517 (81.5%)	83 (13.1%)	34 (5.4%)	634	< 0.001
White	851 (82.8%)	130 (12.6%)	47 (4.6%)	1028	< 0.001
Asian	210 (88.6%)	20 (8.4%)	7 (3.0%)	237	< 0.05
White boys	445 (85.9%)	57 (11.0%)	16 (3.1%)	518	< 0.001
White girls	406 (79.6%)	73 (14.3%)	31 (6.0%)	510	< 0.001
Asian boys	113 (86.3%)	14 (10.7%)	4 (3.1%)	131	< 0.05
Asian girls	97 (91.5%)	6 (5.7%)	3 (2.8%)	106	> 0.05

Table 7. Erosion score changes.

Cohort	Erosion score 12–14 years			Total	<i>P</i>
	No change	Increase	Decrease		
Total sample	887 (67.8%)	351 (26.8%)	70 (5.4%)	1308	< 0.001
Boys	440 (65.3%)	207 (30.7%)	27 (4.0%)	674	< 0.001
Girls	447 (70.5%)	144 (22.7%)	43 (6.8%)	634	< 0.001
White	680 (66.1%)	286 (27.8%)	62 (6.0%)	1028	< 0.001
Asian	184 (77.6%)	45 (19.0%)	8 (3.4%)	237	< 0.001
White boys	337 (65.1%)	159 (30.7%)	22 (4.2%)	518	< 0.001
White girls	343 (67.3%)	127 (24.9%)	40 (7.8%)	510	< 0.001
Asian boys	93 (71.0%)	33 (25.2%)	5 (3.8%)	131	< 0.001
Asian girls	91 (85.5%)	12 (11.3%)	3 (2.8%)	106	< 0.05

14 years to ensure that all children had a 2-year gap between examinations. It was possible to re-examine 75% of the original subjects at age 14 years, with the gender and ethnic composition of the sample at 12 and 14 being very similar, and thus representative of the population.

Erosion data were recorded using incisors and first molars as index teeth, these having been subject to maximum exposure to erosive aetiological factors at age 12 years. Little sensitivity and specificity is

lost from partial recording of erosion using index teeth [30] and this method has been used in national surveys [12–14].

Erosion was found in 56.3% of subjects at age 12 and in 64.1% of 14 years olds. The numbers with deep enamel exposure increased from 4.9% to 13.1% of subjects and the proportions with exposed dentine increased from 2.4% to 8.7% over the two years of the study. It is unlikely that any of the children would have received treatment that could have

Table 8. Deprivation Index and change in erosion presence between 12 and 14 years of age in white children.

Erosion present	Deprivation (Townsend Index score)					
	Advantaged (−5.2 to −1.1)		Intermediate (−1 to 1.99)		Deprived (2 to 8.9)	
	Number	%	Number	%	Number	%
None	507	83.1	187	82.7	117	81.8
No → Yes	74	12.1	25	11.1	23	16.1
Yes → No	29	4.8	14	6.2	3	2.1
Total	610		226		143	

McNemar Test: Advantaged: $\chi^2 = 18.79$, $P < 0.001$; ISS: $\chi^2 = 2.56$, $P > 0.05$; Deprived: $\chi^2 = 13.88$, $P < 0.001$.

Table 9. Deprivation Index and change in erosion mouth score between 12 and 14 years of age in white children.

Erosion score change	Deprivation (Townsend Index Score)					
	Advantaged (−5.2 to −1.1)		Intermediate (−1 to 1.99)		Deprived (2 to 8.9)	
	Number	%	Number	%	Number	%
None	416	68.2	146	64.6	86	60.1
Increase	160	26.2	60	25.5	52	36.4
Decrease	34	5.6	20	8.8	5	3.5
Total	610		226		143	

McNemar Test: Advantaged: $\chi^2 = 80.51$, $P < 0.001$; ISS: $\chi^2 = 19.01$, $P < 0.001$; Deprived: $\chi^2 = 37.12$, $P < 0.001$.

affected the progression of erosive lesions, as a related study amongst the same children and dentists responsible for their care revealed low levels of erosion awareness in both groups [31].

There was a significantly higher prevalence of erosion in boys than girls at both ages, $P < 0.001$, which supports findings from other studies [17,20,22,32]. Dentine exposure increased from 2.8% in boys at 12 years to 12.3% at 14, whilst in girls the increase was from 1.9% to 4.9%. White children had significantly more erosion than their Asian peers at both examinations, $P < 0.001$, with the difference in prevalence between the two groups being greater at 14 than 12 years. At age 12, 2.4% more white children than Asians had exposed dentine, at 14 years the difference was 5.5%. No previous study has reported cultural differences in erosion experience.

Incidence is defined as the amount of new disease in a population occurring over a period of time [33]. That is, the number of children who did not have tooth erosion at 12, but developed it by 14 years, recorded as 12.3% in this study. This was substantially less than the 27% found by Nunn *et al.* [27] in a small sample of 12-year-old girls. It was also less than that found by Ganss *et al.* [26], but that increase of 18% was recorded over a longer period of 5 years. The majority of the increase in erosion severity in this study was from absence to loss of enamel surface characteristics. However this is not the full picture as children with active erosion at 12 years of age also may have suffered erosion progression over the same period, as seen in Table 5, with the majority (9.1%) moving from loss of surface characteristics to deep enamel loss. Thus 26.8% of 12-year-olds had erosive lesions that were initiated or had progressed over the 2 years. This was highest

in white boys, at nearly one-third, and lowest in Asian girls, at just over 10%.

Incidence data for the whole sample and subgroups of boys, girls, white children, Asians, white boys, white girls, and Asian boys all demonstrated significant increases between the ages of 12 and 14 years in the proportions of children with erosion. The only group not to show a significant increase was Asian girls, $P > 0.05$. This may indicate that cultural and gender factors are relevant to the prevalence and incidence of erosion [21,34].

Erosion experience increased significantly in both the Advantaged and Deprived groups, although increase was greatest in the Deprived category. Significant changes in erosion mouth score were noted for all groups, with the greatest increase again in Deprived children. This may be the strongest evidence to date implying a relationship between socio-economic status and tooth erosion.

There are dangers in comparing prevalence results from samples at different ages and thereby inferring a generalized progression of erosion. Methodologies may vary in that different examination techniques and erosion indices may be employed and the number of teeth or tooth surfaces examined may differ. Also the gender, ethnic and socio-economic mixes of the samples may be different, along with their socio-demographic origins. All of these factors potentially affect the reported prevalence levels of tooth erosion for different samples. Bartlett *et al.* [18] reported erosion into enamel in 57% of London children with a median age of 12 years. Dentine erosion was relatively uncommon at 2%. The authors compared these results with those of Milosevic *et al.* [20] for 14-years-old Liverpool children. In that study, all children were found to have tooth wear into enamel, and 30% had dentine exposed on occlusal

or incisal edges. Bartlett *et al.* concluded that these two sets of results might suggest that wear progresses rapidly in adolescent children. This suggestion may not be valid due to the differing circumstances of the two studies with no allowance made for the significant effects of socio-demographic or ethnic composition. The only accurate and valid assessment of the rate of tooth erosion increase in a population over time is provided by an incidence study.

This study demonstrated that the incidence of tooth erosion in adolescents was 12.3% over a period of 2 years from the age of 12, and overall tooth erosion progressed at a rate equivalent to over one quarter of subjects developing new, or advancing existing erosion lesions over this time. The subjects for whom the progression of erosion had the greatest clinical significance were those in whom it progressed from no erosion to dentine exposure, and from surface enamel loss or deep enamel loss to dentine exposure. However these made up only 6.3% of the sample, which would translate to 661 patients of this age group over 2 years with dentine exposure in the population requiring advice and treatment. This could arguably be a containable rate for the 285 dental practitioners in the district. However if the incidence of tooth erosion from this cohort continues into late adolescence and adult life, and is replicated in following cohorts, it may create a significant financial burden on the purchasers of dental services.

It is impossible to predict if the worst cases mentioned above would progress more rapidly, as erosion is a measure of past conditions and not a predictor for the future. Without intervention these cases would be expected to progress most rapidly. However if excessive or aberrant extrinsic acid consumption, or intrinsic acid exposure are corrected, erosion progress should cease, which reinforces the need for vigilance within the dental profession.

Tooth erosion was found to develop at varying the two rates in different genders and ethnic groups, and at a faster rate in more deprived adolescents. The progression of erosion over the two years of the study was significant for all groups except Asian girls, and the level of significance in Asians was lower than their white peers. This study highlights the need for greater attention to be paid to cultural influences when analysing the results of future studies.

Conclusions

Between the ages of 12 and 14 years, 161 (12.3%) of the children developed erosion and new or more advanced lesions were found in 351 (26.8%) of subjects. Being male and white bore a significant association to erosion progression, as did social deprivation.

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Résumé. *Objectifs.* Etablir la prévalence de l'érosion dentaire dans un échantillon d'enfants de 12 ans et de suivre les changements sur une période de deux ans. *Méthodes.* Un échantillon choisi au hasard de 1753 enfants âgés de 12 ans a été obtenu à partir des 62 écoles d'état du Leicestershire. 1308 ont été re-examinés deux ans plus tard. L'érosion a été notée sur les incisives et les premières molaires à l'aide d'un indice d'érosion basé sur celui de l'évaluation de 1993 du Children's Dental Health au Royaume-Uni. Un score a été attribué à chaque sujet selon la lésion la plus avancée dans la cavité buccale.

Résultats. L'érosion était présente chez 56,3% des sujets de 12 ans et 64,1% de ceux de 14 ans. A ces âges, les lésions profondes de l'émail et de la dentine étaient présentes chez respectivement 4,9% et 13,1% des sujets. 161 (12,3%) enfants exempts d'érosion à l'âge de 12 ans ont développé une érosion dans les deux ans suivants. Les érosions étaient plus fréquentes chez les garçons que les filles et chez les caucasiens par rapport aux asiatiques. Des associations ont été trouvées entre la présence d'érosion et la précarité sociale.

Conclusion. 12,3% des sujets ont développé de nouvelles lésions érosives entre les âges de 12 et 14 ans. De nouvelles et plus importantes lésions ont été vues chez 27% des enfants sur les deux ans de l'étude. Les garçons, caucasiens et subissant une précarité sociale présentaient significativement plus de lésions érosives.

Zusammenfassung. *Ziele.* Feststellung der Prävalenz von Zahnerosion in einer Stichprobe von Zwölfjährigen und Monitoring von Veränderungen in den zwei folgenden Jahren.

Methoden Eine Zufallsstichprobe von 1753 Kindern im Alter von 12 Jahren wurde von allen 62 staatlichen Schulen in Leicestershire gezogen. 1308 wurden nach zwei Jahren erneut untersucht. Die Erosionen wurden dokumentiert an den Schneidezähnen und den ersten Molaren unter Verwendung eines Index basierend auf dem *Children's Dental Health 1993 Survey* im Vereinigten Königreich. Ein Scorewert wurde jedem Individuum je nach dem stärksten betroffenen Zahn zugeordnet.

Ergebnisse. Erosionen waren bei 53.6% der Kinder im Alter von 12 und bei 64.1% im Alter von 14 Jahren vorhanden. Dentinnaher Schmelz oder Dentin waren bei 4.9% bzw. 13.1 % betroffen. 161 (12.3%) der Kinder, die im Alter von 12 Jahren keine Erosion aufwiesen, waren im Alter von 16 betroffen. Jungen hatten häufiger Erosionen als Mädchen, kaukasische Kinder häufiger als asiatische. Zwischen dem Auftreten von Erosionen und sozialer Deprivation wurden Assoziationen gefunden.

Schlussfolgerung. 12.3% der untersuchten Individuen entwickelten Erosionen zwischen dem Alter von 12 Jahren und 14 Jahren. Neue oder fortgeschrittenere Läsionen wurden bei 27% der Kinder beobachtet. Männliche und kaukasische Kinder sowie Kinder mit sozialer Deprivation zeigen signifikante Assoziationen im Hinblick auf Erosionen.

Resumen. Objetivos. Establecer la prevalencia de la erosión dentaria en una muestra de niños de 12 años y controlar los cambios durante los 2 años siguientes. **Métodos.** Se extrajo una muestra aleatoria de 1753 niños de 12 años de las 62 escuelas estatales en Leicestrshire. 1308 se reexaminaron 2 años más tarde. La erosión se registró en los incisivos y los primeros molares usando un índice de erosión basado en el estudio de 1993 sobre la Salud Dental Infantil en el Reino Unido. También se asignó una puntuación a cada sujeto según la lesión más avanzada en la boca. **Resultados.** La erosión estaba presente en el 56,3% de sujetos de 12 años y en el 64,1% de 14 años. El esmalte profundo o la dentina se erosionaron en el 4,9% y el 13,1% de sujetos respectivamente a las mismas edades. 161 (12,3%) niños que estaban libres de erosión a los 12 años desarrollaron erosión en los siguientes 2 años. Los niños tenían más erosión que las niñas así como los caucásicos comparados con los niños asiáticos. Las asociaciones se encontraron entre el antecedente de erosión y con desventaja social. **Conclusión.** El 12,3% de los sujetos desarrollaron nuevas lesiones erosivas entre las edades de 12 y 14

años. Se vieron lesiones nuevas y más avanzadas en el 27% de los niños en los 2 años del estudio. Varones, caucásicos y con desventaja social conllevan asociaciones significativas con antecedente de erosión.

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