

Developmental Defects of Enamel and Dental Caries on First Permanent Molars among Children Living in Slovenia

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The aim of the study was to determine the prevalence and association of developmental defects of enamel (DDE) and dental caries on first permanent molars. 478 children, aged 6–11.5 years (mean age 9.1), were examined for dental caries, fillings, and DDE in a dental chair by one calibrated dentist. Dental caries and fillings were assessed using the WHO criteria. DDE were assessed on buccal, occlusal, and lingual surfaces using the modified DDE Index. Demarcated and diffuse opacities, hypoplasia, affected cusps, posteruptive enamel breakdown, and atypical fillings were recorded. Of the 1912 first permanent molars, 13% had DDE. 28% of affected molars had DDE on more than one surface, and 28% had DDE extending over more than one third of the surface. Molars with DDE had significantly more dental caries (11%) and more fillings (17%) than those without DDE (6% dental caries, 11% fillings) (χ^2 ; $p < 0.01$). Even though not statistically significant, first permanent molars with DDE on more than one surface had more dental caries (13%) and more fillings (21%) than molars with DDE on one surface only (10% dental caries, 16% fillings). Also not statistically significant, first permanent molars with DDE extending over more than one third of the surface had more dental caries (15%) than those with DDE on less than one third of the surface (9%). 58% of children with one or more first permanent molar with DDE had all four of these teeth free of dental caries and fillings compared to 69% of children who did not have DDE on any first permanent molar (χ^2 ; $p < 0.05$). The study shows that first permanent molars with DDE could be at higher risk for dental caries development.

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Association between Developmental Defects of Enamel and Dental Caries in Pre-School Children

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The aim of this study was to evaluate the relationship between enamel defects and dental caries prevalence in preschool children with deciduous teeth. Clinical examination was carried out in 2,846 preschool children in Piracicaba city (Brazil) according to FDI criteria (1992) to record enamel defects (DDE Index) and WHO criteria (1994) to record dental caries (dmft Index). Enamel defects and caries lesions were diagnosed without drying or clean-

ing the teeth prior to the examination. Chi-square test was used to test differences ($\alpha = 0.05$). Relationship between hypoplasia and dental caries was statistically significant ($p < 0.001$), but no significant association was observed between demarcated opacities and dental caries ($p = 0.411$). An increased risk of dental caries was verified for children presenting hypoplasia ($1.27-1.15 < RR < 1.41$), but not for those presenting demarcated opacity ($1.06-0.93 < RR < 1.21$). In conclusion, the presence of hypoplasia in deciduous teeth might be a risk factor for dental caries, suggesting that enamel defects should be assessed in epidemiological surveys.

Dental Caries and Developmental Defects of Enamel in Brazilian Pre-School Children

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The risk of developing dental caries may be increased by the presence of developmental defects of the enamel (DDE). The aim of the study was to investigate whether a correlation existed between dental caries and DDE in a sample of Brazilian preschool children. 1,836 2–5-year-old children attending public nursery in the Federal District of Brazil (0.8 mg/l F water supply) in 2006 were clinically examined. Before the examination the children were laid on tables and had their teeth professionally brushed, flossed and dried by means of gauze bandages. Intra-examiner reliability of caries diagnosis (kappa) was 0.90 (examiner 1) and 0.93 (examiner 2), the inter-examiner reliability was 0.86. Tooth surfaces were diagnosed as sound, as presenting active lesions (non cavitated and cavitated), inactive lesions (non-cavitated and cavitated) and fillings, as indicated for extraction or extracted. The intra-examiner reliability for DDE diagnosis was 0.88 (examiner 3) and 0.85 (examiner 4), the inter-examiner was 0.82. The buccal surfaces were examined for DDE according to the modified DDE index recommended by the Fédération Dentaire Internationale [Int Dent J 1992;42:411–426]. Thus, the prevalence of opacity and hypoplasia, demarcated or diffuse, and their different combinations were recorded. The extension of the enamel defects was also registered. Overall, 39% of the children presented caries with no significant differences between boys and girls ($p > 0.05$; chi-square). However, on buccal surfaces, caries and DDE were identified in 27 and 32% of the children, respectively. Girls presented significantly higher prevalence of DDE than boys (34 vs. 29%, $p = 0.04$). There was a significant association between children with dental caries and children presenting different types of enamel defects on buccal surfaces (chi-square; $p = 0.001$), independently of the extent of the enamel defect considered ($p < 0.02$). However, no correlation was found between a higher prevalence of caries and a higher prevalence of DDE on buccal surfaces ($\rho = 0.65$, Spearman). The hypothesis that caries and DDE are correlated was not supported in the studied population, which benefited from fluoridated drinking water.