Elevated serum 25(OH)-vitamin D levels are negatively correlated with molar-incisor hypomineralization.

To date, the precise etiology of molar-incisor hypomineralization (MIH) is uncertain. Vitamin D plays a key role in hard tissue formation. Therefore, this study aimed to analyze the relationship between serum 25-hydroxy-vitamin D (25(OH)D) status and dental health data obtained from 1,048 children in a 10-year follow-up of the Munich GINIplus and LISAplus birth cohorts. The dental examination included the diagnosis of MIH and recording of (non-)cavitated caries lesions in primary and permanent teeth. Serum 25(OH)D concentrations were taken from blood samples of the 10-year investigation and measured with a fully automated, modular system. Different logistic regression and Poisson hurdle models were calculated. MIH was diagnosed
in 13.6% of the study population. Approximately 16.4% of the children demonstrated caries-related defects (D3-4MFS > 0). The mean season-adjusted concentration of 25(OH)D was 75.8 nmol/l (standard deviation 22.0 nmol/l). After adjusting for sex, age, body mass index, parental education, equivalent income, and television/personal computer (TV/PC) viewing hours, a 10 nmol/l increase in serum 25(OH)D concentrations was significantly associated with a lower odds ratio of having MIH (OR = 0.89; P = 0.006). Furthermore, higher 25(OH)D values were associated with a lower number of caries-affected permanent teeth. It is concluded that elevated serum 25(OH)D concentrations were associated with better dental health parameters.