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Abstract

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DIAGNOdent is a laser fluorescence device used for dental caries diagnosis in occlusal and smooth surfaces. Despite the promising preliminary results, the molecules involved in the increase of fluorescence in carious lesions remain unclear. The aim of this study was to compare the laser fluorescence readings before and after changes in the organic material of occlusal carious lesions in primary teeth. Twenty-four primary molars stored in saline solution with at least one site with occlusal caries were divided into two groups. The control group had 17 sites with caries and the experimental one had 16 sites. The carious lesions were measured with laser fluorescence. The experimental samples were then removed from the storage solution and immersed in a 2% sodium hypochlorite solution for 24 hours. After washing with water, the teeth were measured again with the laser fluorescence device. The teeth of the control group were submitted to the same procedures, but saline solution was used instead of the sodium hypochlorite solution. A statistically significant reduction in the mean of the readings after immersion in the two tested solutions compared with the initial readings was observed in both groups, but the decrease was statistically higher in the experimental group ($p < 0.0001$). In this study, the data indicate that changes in the fluorescence of carious lesions measured by the laser fluorescence are mainly due to the organic content alterations rather than to the mineral loss.

Keywords : Occlusal splints; Tooth, deciduous; Fluorescence; Lasers; Dental caries.

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