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Bisphenol-A contents in materials used in pediatric dentistry

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Abstract Bisphenol-A (BPA) has been shown to be an endocrine disruptor in animals. We have previously demonstrated selective extraction of BPA from dental materials and its detection by gas chromatography-mass spectrometry. In the present study, this same procedure was employed for the detection of BPA in materials routinely used in pediatric dentistry—commercial resin composites, fissure sealants, compomers, and dentin bonding agents. In unpolymerized materials, significant BPA contamination was detected in 2 of 3 resin composites, 2 of 5 fissure sealants, and all bonding agents and intermediate resins tested. Moreover, in most cases, incubation of polymerized materials for 24 h resulted in release of BPA into phosphate-buffered saline. However, the highest level of BPA released (89.5 ng/g polymerized material) was still far less than the reported lowest dose that produces endocrine disruption in experimental animals (2µg/kg/d).

Key words Bisphenol-A, Dental materials, Gas chromatography-mass spectrometry

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