

Water at high temperature: is its applicability for biofilm control of dental unit viable?

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Introduction: Biofilm development in dental unit waterlines has aroused the attention in elaborating different protocols for disinfection as well as the use of commercial substances. **Objective:** This study investigated the effect of water at high temperature on the physical and mechanical properties of polyurethane and on biofilm removal, aiming for its applicability in dental unit waterlines. **Methods:** Physical and mechanical properties of the polyurethane were evaluated after simulating a 1-year period of daily immersion in water at 60°C. The changes in color, microhardness, surface roughness, and tensile strength were evaluated before and after reproducing a disinfection protocol of 30 and 60 s. For antibiofilm activity measurement, fragments of waterline were contaminated with *Pseudomonas aeruginosa*. After the biofilm growth, the specimens were randomly divided into four groups, according to temperature of water and exposure time, as follows: I) Water at room temperature for 30s; II) Water at 60°C for 30s; III) Water at room temperature for 60s; IV) Water at 60°C for 60s. **Results:** Relative to effects on the properties of the polyurethane, immersion in water at 60°C did not promote changes in color and tensile strength. However, after the simulated periods, lower values were observed for microhardness and increased values for surface roughness. Regarding antibiofilm action, in both immersion times of exposition, water at 60°C significantly reduced the microbial load and promoted substantial changes in cells morphology in comparison to water at room temperature. **Conclusion:** disinfection with water at 60°C demonstrated possible application in controlling cross-contamination in dentistry.

Keywords: Biofilms; Dental Unit Waterline; Disinfection; Infection Control; *Pseudomonas aeruginosa*.

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