

Candida albicans biofilm formation on soft denture liners and efficacy of cleaning protocols.

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Source

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Abstract

OBJECTIVE:

The aim of this study was to investigate *Candida albicans* biofilm formation on denture liners and to analyse the efficacy of cleaning protocols.

MATERIAL AND METHODS:

Specimens were prepared from four silicone-based soft denture liners. After artificial ageing and surface free energy determination, specimens were incubated with saliva (2 h) and *Candida albicans* ATCC 10231 for either short- (2.5 h) or long-term (24 h) biofilm formation. Adherent cells were determined either after incubation of specimens with *Candida albicans* or after treatment with different denture cleaning protocols. Statistical analysis was performed using one-way anova and the Games-Howell test ($\alpha = 0.05$).

RESULTS:

For both short- and long-term biofilm formation, similar amounts of *Candida albicans* cells were found on the surface of the different liners ($p = 0.295$ and 0.178 , respectively). For both short- and long-term biofilm formation, the highest cleaning efficacy was observed for sodium hypochlorite (NaOCl; $p < 0.01$). The efficacy of the chemical denture cleaner in removing long-term *Candida albicans* biofilms was significantly lower than the efficacy of removal by brushing ($p < 0.001$).

CONCLUSION:

Different silicone-based soft denture liners yield similar *Candida albicans* biofilm formation on their surface. The highest efficacy for the removal of *Candida albicans* biofilms was identified for NaOCl. Chemical denture cleaners appear to have rather low efficacy to remove mature *Candida albicans* biofilms.