

# IMPACT OF POLISHING ON CANDIDA ALBICANS ADHESION TO DENTAL RESINS

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**Aim:** The use of removable dentures is crucial for both functional and aesthetic prosthetic rehabilitation in partially and totally edentulous patients.

Colonization of denture materials by *Candida albicans* contributes to microbial adhesion, increasing the overall microbial load on the denture surface and leading to clinical complications such as denture stomatitis and other oral and health-related issues. Since the surface roughness and structure of dental materials, including the presence of asperities and irregularities, play a significant role in biofilm formation and *Candida* adhesion, this study aimed to investigate candidal adherence to three different dental base resin materials.

## Materials and methods:

Sixty square samples (1x1 cm) were fabricated and divided into three groups (n=20 each): G1 - heat-cured acrylic, G2 - cold-cured acrylic and G3 - thermoplastic nylon resin. Each group was divided into two subgroups: A - polished in a dental laboratory, and B - polished in the office.

All samples were placed in a suspension of 24-hour microbial cultures where the samples were incubated at 37°C for 30 minutes, followed by rinsing them with isotonic physiological solution for 3 seconds. Each sample was then individually transferred onto Sabouraud dextrose agar (CALB or CAN2 agar) using sterile tweezers and the rolling technique. The plates were subsequently incubated at 37°C for 24 hours. Following cultivation, the number of colonies that grown on the nutrient media were counted, and their presence was verified using microscopy. The statistical analysis of the obtained results was performed using statistical programs Statistic 7.1; SPSS 17.0.

## Results:

Data were statistically analyzed by ANOVA, Shapiro-Wilk and Independent t-tests. The mean values for Colony Forming Unit (CFU) for G1A were  $2.85 \times 10^3$ , G1B -  $6.3 \times 10^3$ , G2A -  $5.7 \times 10^3$ , G2B -  $11.85 \times 10^3$ , G3A -  $0.6 \times 10^3$  and G3B -  $1.65 \times 10^3$ .

According to ANOVA p-value was  $8.66 \times 10^{-15}$  that shows a significant difference among the three groups, highly significant differences between the laboratory and dental office polished samples in all three groups and also extremely significant differences between G2 and G3 group.

## Conclusion:

Different dental base resin materials interact differently with *C. albicans*. The type of dental base material and polishing method significantly affect microbial adherence. Available evidence suggests that *Candida* is less likely to adhere to thermoplastic nylon resin (G3) compared to heat-cured (G1) and cold-cured acrylic resins (G2).

