Filament Anchoring Techniques of Toothbrushes and Bacterial Retention

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Recent studies have shown that although the different designs applied to the filament arrangement of the bristles of the toothbrushes show an improvement in plaque removal, it may also increase bacterial retention and growth. In fact, this event may create more damage instead of benefit in our regular oral hygiene because it may become a possible source for oral recontamination. The new designs of toothbrushes may harbor more microorganisms due to the fact that drying, as well as rinsing requires more time in order to efficiently reduce bacterial adherence. We hypothesized that filaments that are placed into bundles would have a higher chance to harbor microorganisms since they would require more rinsing/drying time than other types of toothbrushes.

In our study we examined and compared three types of filament anchoring techniques (staple-set tufting, in-mold tufting, and individual in-mold tufting). We tested the adherence of two common microorganisms such as Streptococcus mutans and Candida albicans. The results will be presented and discussed. This study will bring some insights into the effect of different filament anchoring techniques on the bacterial levels on toothbrushes.