

A Comparison between Liquid and Conventional Toothpastes for Plaque Removal Effectiveness: A Crossover Randomized Controlled Trial

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Abstract

Objectives: To investigate the effectiveness of a liquid and a cream toothpaste on dental plaque score.

Methods: Thirteen subjects, aged 20-23 years old participated in this randomized controlled crossover clinical study. The study was conducted in 2 phases of 4-weeks each with a washout period of 1 week between phases. The subjects were randomized into two groups: Jintan-NUDE aqua mint[®] and Colgate Total Advance Fresh[®] and instructed to perform routine brushing with the assigned toothpastes. Total plaque scores (TPS) and proximal plaque scores (PPS) were assessed by one examiner using a Turesky's modification of the Quigley and Hein plaque index (TMQHI) 4 times during each phase: baseline (t_0), immediately after use (t_1), after the second week (t_2), and fourth week (t_3) of toothpaste use. Repeated ANOVA was used to compare the differences within each group and the paired t-test was used to compare the differences between groups at t_0 , t_1 , t_2 , and t_3 . The significance level was set at 0.05.

Results: The mean TPS and PPS of the groups were not significantly different at each evaluation point, except for the TPS of the liquid group at t_2 , which was significantly higher than that of the cream group. The TPS and PPS in each group at t_1 were significantly lower compared with t_0 , t_2 , t_3 and the TPS of the liquid toothpaste group at t_2 was significantly higher than that at t_0 . The differences between the other time points were not significant.

Conclusions: The cream toothpaste exhibited more plaque reduction than the liquid toothpaste at all time points measuring by the mean TPS and PPS. However, the difference was not statistically significant except for the second week's results.

Keywords: dental plaque, liquid toothpaste, plaque score, tooth brushing