

A Clinical Investigation of the Efficacy of a Dual Zinc Plus Arginine Dentifrice for Controlling Oral Malodor

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Study objectives

The objective of this study was to assess the efficacy of a new Colgate Total with Dual Zinc plus Arginine dentifrice (Colgate-Palmolive Co., New York, NY) containing zinc (zinc oxide, zinc citrate) 0.96%, 1.5% arginine and 1450 ppm F as sodium fluoride in a silica base for the 12 hour overnight oral malodor reduction after 3 weeks of product use, relative to that of a regular fluoride dentifrice containing 1450 ppm F as sodium fluoride in a silica base (Colgate-Palmolive Co., New York, NY).

Trial conditions and methods

Products under investigation

Test dentifrice 1: zinc (zinc oxide, zinc citrate) 0.96%, 1.5% Arginine and 1450 ppm fluoride (Colgate Total with Dual Zinc plus Arginine; Colgate-Palmolive Company, New York, NY)

Control dentifrice: regular fluoride dentifrice containing 1450 ppm fluoride (MaxFresh Tea; Colgate-Palmolive Company, New York, NY)

Methods

In this double-blind clinical study a total of 80 adult male and female subjects were randomly assigned to one of two treatment groups (Dual Zinc plus Arginine - test, regular fluoride dentifrice – control). Subjects were evaluated for baseline oral malodor by a panel of four trained and calibrated judges using a nine-point organoleptic hedonic scale. Subjects were provided with their assigned dentifrice and toothbrush and instructed to brush their teeth twice daily (morning and evening) for one minute. After 3 weeks, subjects returned to the study site for their follow-up evaluation of malodor after having refrained from brushing for 12 hours (overnight).



Results

After 3 weeks of product use, 90% of the group using the Dual Zinc plus Arginine toothpaste experienced a shift toward “pleasant” breath (Figure 1). Subjects in the Dual Zinc plus Arginine dentifrice group and the regular fluoride dentifrice group showed statistically significant ($p < 0.001$) reductions of 38.9% and 11.6%, respectively, in organoleptic scores as compared to baseline (Figure 2). Relative to the regular fluoride dentifrice group, subjects in the Dual Zinc plus Arginine dentifrice group exhibited statistically significant ($p < 0.001$) reduction of 30.8% in oral malodor.

Figure 1. Overnight (12 hr) Post Brushing versus Baseline

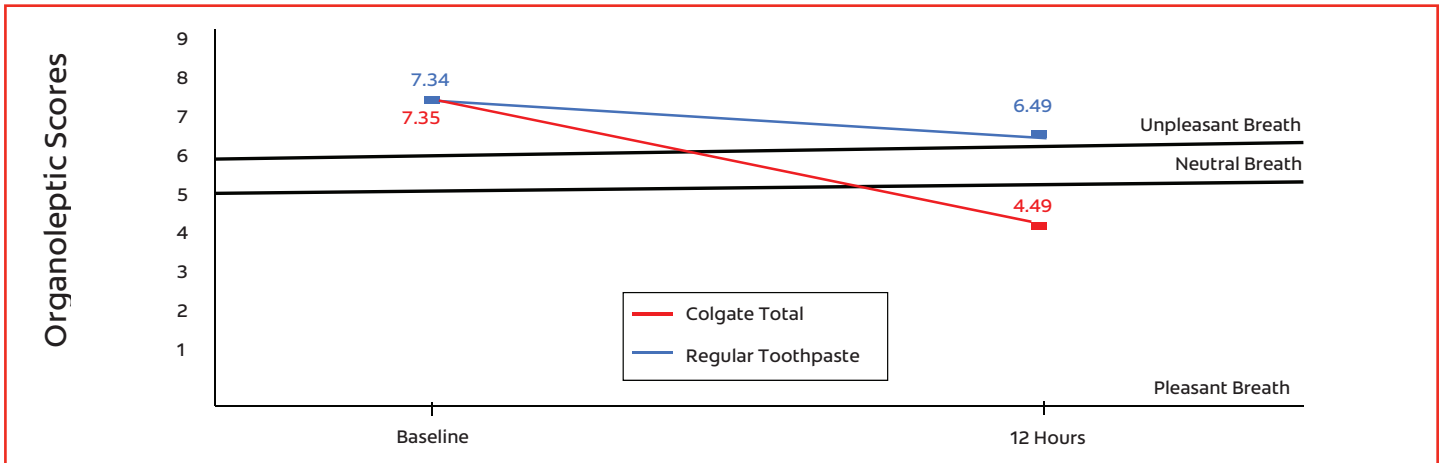
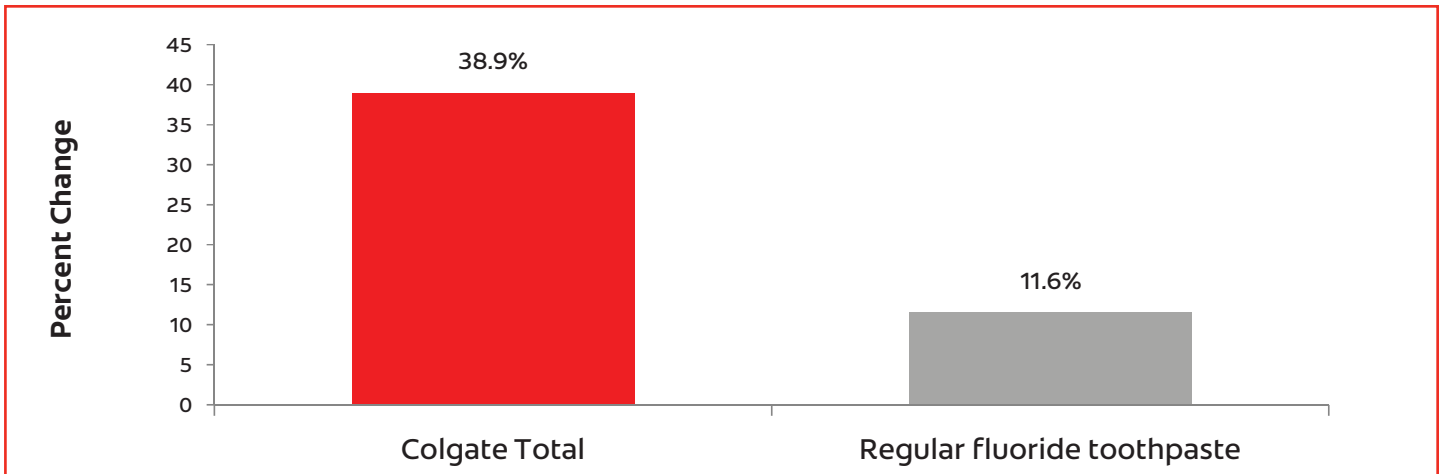


Figure 2. Percent Change in Organoleptic Scores



Conclusion

The Colgate Total with Dual Zinc plus Arginine dentifrice containing zinc (zinc oxide, zinc citrate) 0.96%, 1.5% arginine and 1450 ppm fluoride as sodium fluoride in a silica base provides significantly greater reduction in oral malodor as compared to a regular fluoride dentifrice containing 1450 ppm fluoride as sodium fluoride in a silica base 12 hours post-brushing (overnight) after 3 weeks of product use.

