Clinical efficacy of ***Colgate® Sensitive Pro-Relief™ toothpaste***

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Comparing the efficacy in reducing dentin hypersensitivity of a new toothpaste containing 8.0% arginine, calcium carbonate, and 1450 ppm fluoride to a benchmark desensitizing toothpaste containing 2% potassium ion: An eight-week clinical study in Rome, Italy.

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Study objectives

The objective of the double-blind, randomized study conducted in Rome, Italy, was to compare a new toothpaste containing 8.0% arginine, calcium carbonate, and 1450 ppm fluoride as sodium monofluorophosphate (MFP) and a commercial toothpaste containing 2% potassium ion, as potassium nitrate, and 1450 ppm fluoride as sodium fluoride (NaF) with respect to the reduction in dentin hypersensitivity over an eight week period.

Trial conditions and methods

Products under investigation

Test: Colgate® Sensitive Pro-Relief™ toothpaste containing 8.0% arginine, calcium carbonate, and 1450 ppm fluoride as MFP (Colgate Palmolive, New York, NY). Control: Commercially available desensitizing toothpaste containing 2% potassium ion, as 5% potassium nitrate, and 1450 ppm fluoride as NaF in a silica base (Sensodyne Total Care Gentle Whitening, GlaxoSmithKline, Middlesex, UK).

Study subjects

A total of 80 adult male (n=24) and female (n=56) subjects (aged 19-70 years) with established dentin hypersensitivity (two hypersensitive teeth with a tactile sensitivity score [Yeaple probe] of 10-50 grams of force and an air blast score of 2 or 3 on the Schiff Cold Air Sensitivity Scale).

Methods

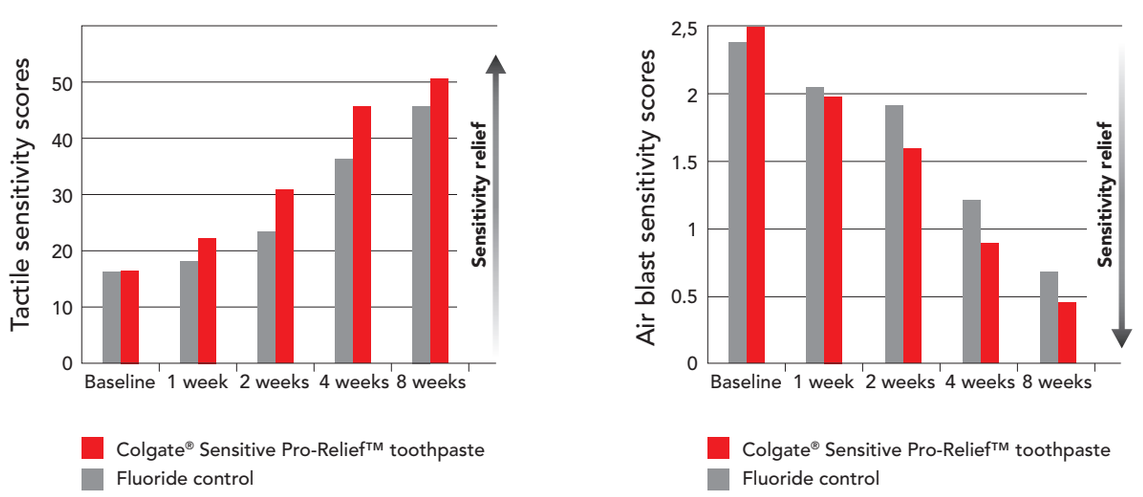
In this double-blind, parallel group study, 80 subjects with established dentin hypersensitivity were stratified according to their tactile and air blast scores at baseline and randomly assigned to the test (n=40) or control (n=40) group.

Subjects were instructed to brush their teeth twice a day (morning and evening) for 1 minute each time. Tactile and air blast sensitivity assessments were repeated at 1, 2, 4, and 8 weeks. Statistical analyses were performed separately for tactile and air blast scores. Comparisons of treatment groups with respect to baseline scores were performed using an independent t-test. Comparisons between treatments using baseline-adjusted scores were performed using analysis of covariance (ANCOVA).

Results

When used over a period of 8 weeks, the novel toothpaste containing arginine in a calcium carbonate base significantly reduced dentin hypersensitivity ($p<0.05$) in response to both tactile and air blast stimuli. Compared to the commercial toothpaste, the arginine-containing toothpaste with 2% potassium ion and NaF was significantly ($p<0.05$) more effective in reducing hypersensitivity scores after 2, 4, and 8 weeks (38.9%, 28.9%, and 11.6% for tactile stimuli; 16.8%, 26.4%, and 33.8% for air blast stimuli).

Effects on dentin hypersensitivity



Conclusion

Colgate® Sensitive Pro-Relief™ toothpaste, a new toothpaste with 8.0% arginine, calcium carbonate and 1450 ppm fluoride (MFP) provided statistically significantly ($p<0.05$) greater dentin hypersensitivity relief after 2, 4, and 8 weeks of use than a desensitizing tooth-paste containing 2% potassium ion and 1450 ppm fluoride (NaF).