Short-term Efficacy of an Occluding Dentifrice on Dentinal Hypersensitivity

Seong J *et al. J Dent Res* 2017;96(Spec Iss A):0215.

Aim

To investigate the ability of an anhydrous 0.454% stannous fluoride test toothpaste to relieve dentine hypersensitivity **after a single direct application and after 3 days twice-daily use**, compared with a control toothpaste.

Study Products and Usage

- **Test toothpaste** containing 0.454% stannous fluoride (1100ppm fluoride) and 5% sodium tripolyphosphate.
- **Control toothpaste** containing 0.76% sodium monofluorophosphate (1000ppm fluoride*).

First Use (Direct Application): Subjects used their finger to gently rub a pea-sized amount of their assigned toothpaste into the cervical margin area of each of the 2 selected sensitive (test) teeth (60 seconds per tooth).

Home Use: In the test group, subjects brushed the 2 test teeth first, then their whole mouth for ≥1 minute; in the control group, subjects brushed their whole mouth for ≥1 minute.

Methods

- Single-centre, randomised, controlled, examiner-blind, two-treatment, parallel-design study, stratified (by maximum baseline Schiff sensitivity score of the two selected test teeth); conducted in otherwise healthy adult subjects (18-65 years) with ≥2 clinically diagnosed sensitive teeth.
- Schiff sensitivity scale and tactile (Yeaple probe) threshold in grams (g) stimuli was assessed at Baseline, immediately after the first direct application treatment, and after 3 days twice-daily brushing.

Subject Numbers

Eligible subjects were randomly assigned to one of the two treatments (Test n=117; Control n=116).

Statistical Methods

The primary efficacy variable was change from Baseline to Day 3 in Schiff sensitivity score (subject level mean change of the 2 test teeth). Change from Baseline was analysed for each study outcome using Analysis of Covariance (ANCOVA).

*Colgate Cavity Protection.

Results

Subjects using the 0.454% stannous fluoride toothpaste showed greater reductions in both clinical measures of sensitivity after a single direct application treatment, and after 3 days of twice-daily brushing, compared to the control group, which was statistically significant ($p<0.0001$, Figures 1 and 2).

Figure 1. Schiff Sensitivity Score by Time and Treatment Group

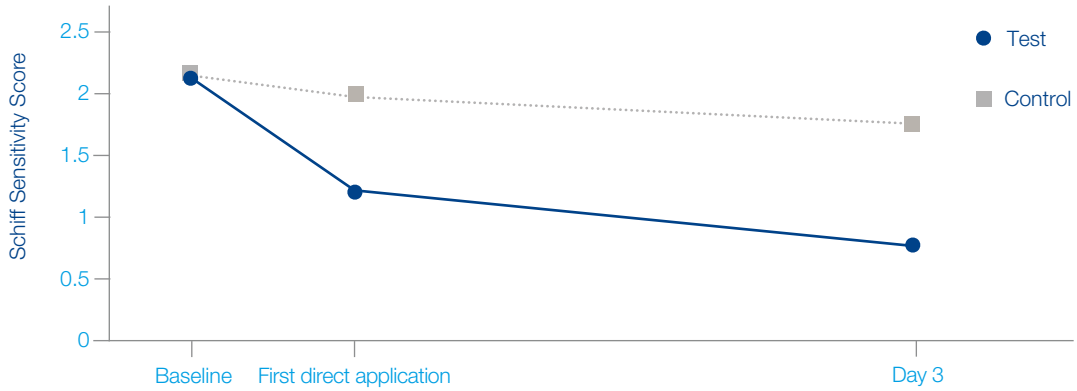
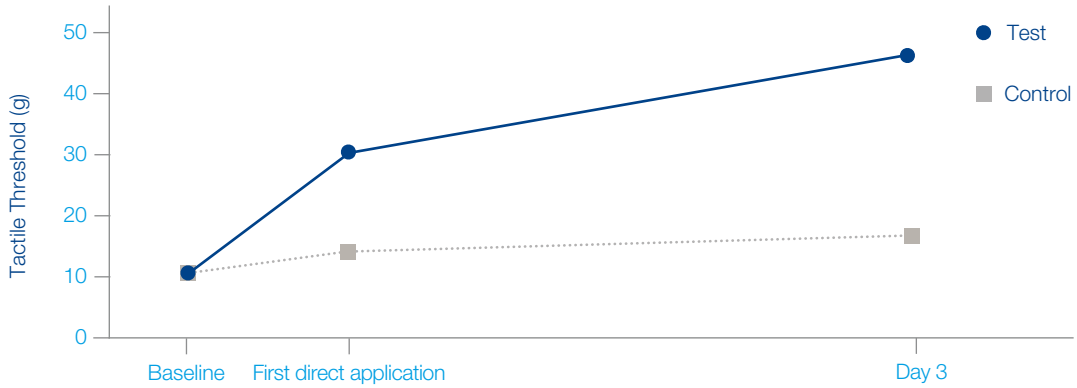


Figure 2. Tactile Threshold by Time and Treatment Group



Conclusion

This study demonstrated the efficacy of an anhydrous test toothpaste containing 0.454% stannous fluoride for the immediate relief of dentine hypersensitivity, when applied by rubbing a pea-sized amount directly onto sensitive areas, compared with a regular fluoride toothpaste control. The difference between test and control products was statistically significant and considered clinically relevant.

The degree of relief obtained from the 0.454% stannous fluoride test toothpaste treatment was observed to increase from first use, when followed by 3 days of twice-daily brushing. The magnitude of the difference between test and the regular fluoride control toothpaste also increased over this period. This difference was statistically significant and considered clinically relevant.