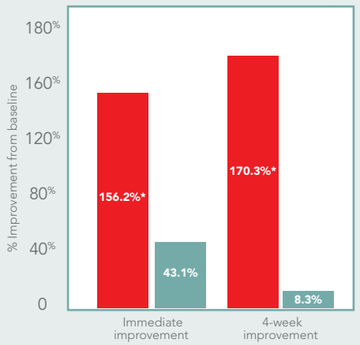
SCIENTIFIC EVIDENCE

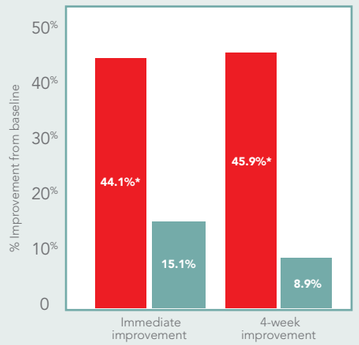
CLINICALLY PROVEN TO DELIVER INSTANT AND LASTING SENSITIVITY RELIEF AFTER SINGLE APPLICATION

Pro-Argin™ Technology desensitizing paste vs. **Negative control:** pumice fluoride-free prophylaxis paste

Significantly relieves **pressure-induced** sensitivity[4]

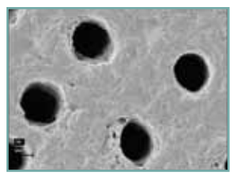


Significantly relieves **air-induced** sensitivity[4]

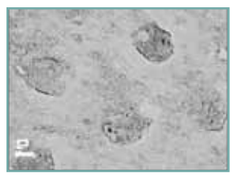


Double-blind parallel-design clinical study on adults, May 2008

*Significant improvement vs. negative control ($p < .05$)



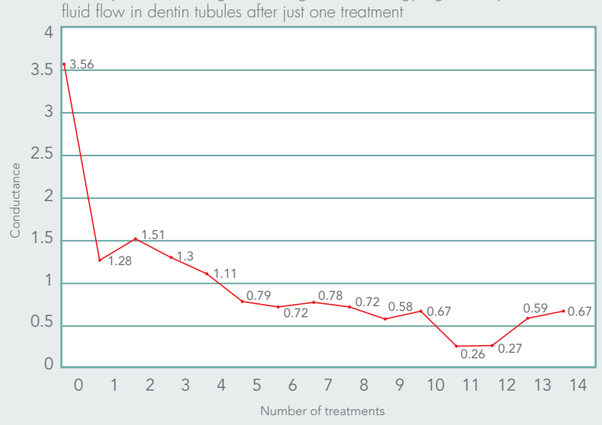
SEM photograph of untreated dentin surface with exposed tubules†



SEM photograph of dentin surface showing occlusion of dentin tubules after application of desensitizing paste with Pro-Argin™ Technology†

Hydraulic conductance test[4†]

A toothpaste containing the Pro-Argin™ Technology significantly reduced fluid flow in dentin tubules after just one treatment



†*In vitro.*

[1]Addy M. Dentine hypersensitivity: new perspectives on an old problem. *Int Dent J.* 2002;52(Suppl 5):367-375
[2]Brännström M. A hydrodynamic mechanism in the transmission of pain-produced stimuli through the dentine. In: *Sensory Mechanisms in Dentine*. Anderson DJ, ed. pp 73-79. Pergamon Press. London, 1963.
[3]Brännström M., Johnson G. Movements of the dentine and pulp liquids on application of thermal stimuli. *Acta Odontol Scand.* 1970;28:59-70.
[4]Data on file, Colgate-Palmolive, 2008.
[5]Kleinberg I. A new saliva based anti-caries composition. *Dent Today.* 1999;18:98-103.
[6]Kleinberg I. Sensistat: A new saliva based composition for simple and effective treatment of dentinal sensitivity pain. *Dent Today.* 2002;21:42-47.

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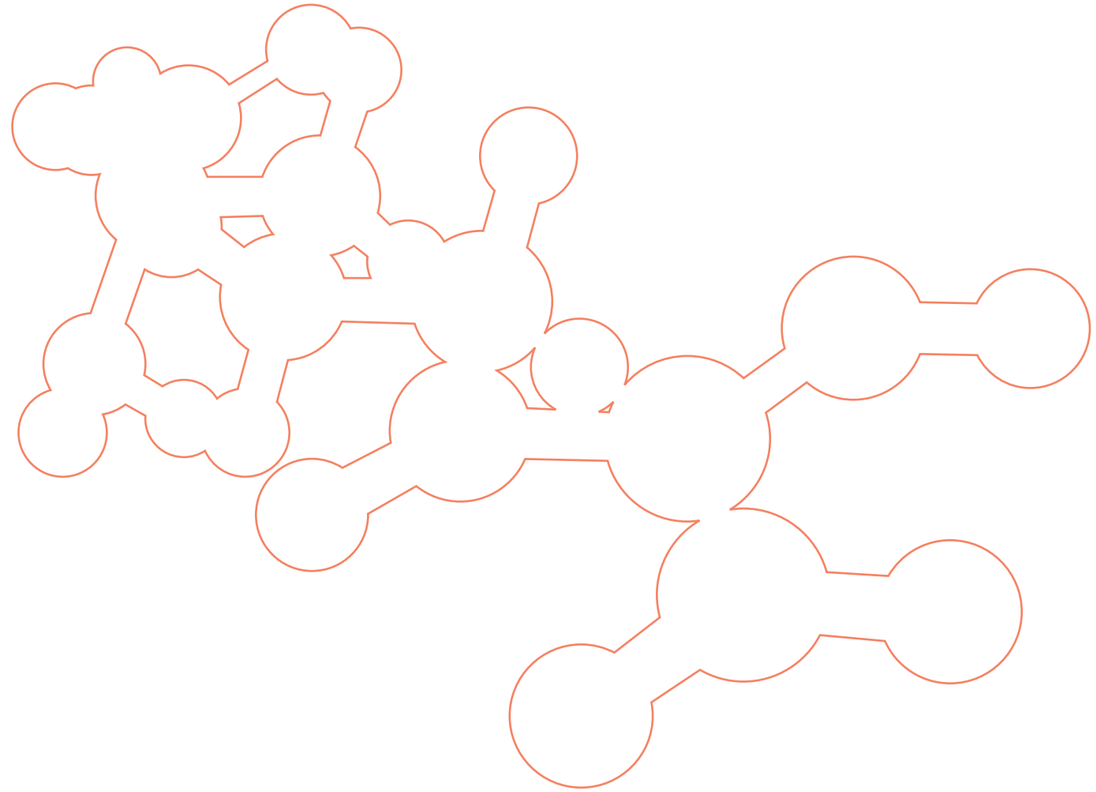
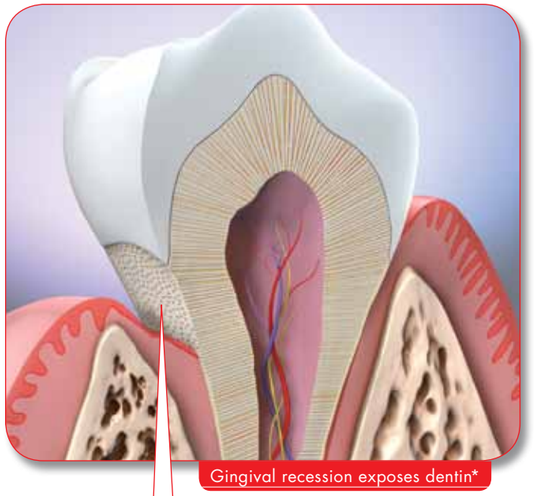


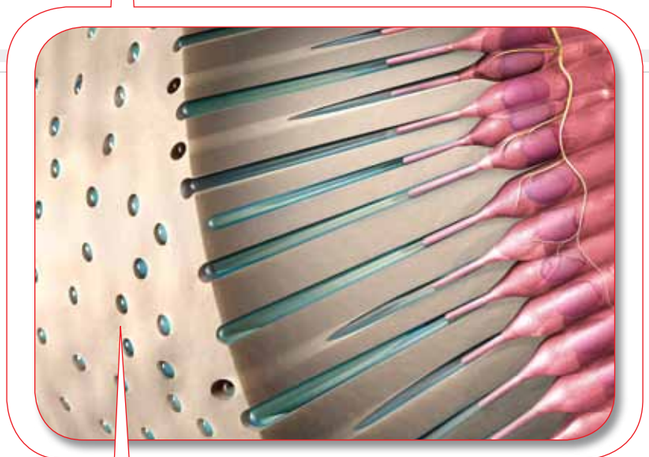
PRO-ARGIN™: A BREAKTHROUGH TECHNOLOGY FOR DENTIN HYPERSENSITIVITY RELIEF



DENTIN HYPERSENSITIVITY

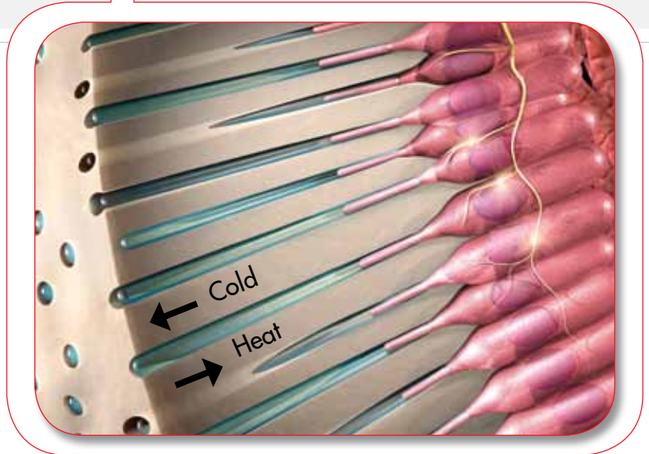
HYPERSENSITIVITY AND EXPOSED DENTIN TUBULES

Dentin hypersensitivity occurs when dentin becomes exposed and tubules are open at the dentin surface. Gingival recession is the primary way dentin is exposed in the cervical region of the tooth. Once the root is exposed, the protective layer of cementum is easily removed, resulting in open dentin tubules. Dentin hypersensitivity affects up to 57% of patients.[1]



FLUID DISTURBANCES WITHIN DENTIN TUBULES

Based on Brännström's Hydrodynamic Theory,[2,3] dentin hypersensitivity is caused by movement of fluid in open dentin tubules. Heat, cold, air and pressure can cause this rapid movement of fluid in open dentin tubules.



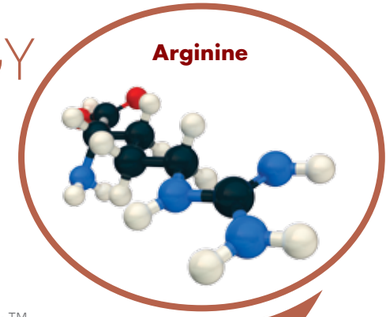
HOW PAIN OCCURS

Each of these stimuli produces a movement or disturbance of fluid in the dentin tubule (as shown by the arrows in the illustration). This change in fluid flow causes a pressure change within the dentin, which activates the intradental nerves causing a signal that is interpreted as pain.[1]

INTRODUCING PRO-ARGIN™ TECHNOLOGY FOR SENSITIVITY RELIEF

CONTAINS ARGININE, AN AMINO ACID NATURALLY FOUND IN SALIVA, AND CALCIUM CARBONATE

Research has revealed arginine provides naturally protective oral health benefits.[5,6] Colgate has harnessed this knowledge and added the Pro-Argin™ technology, consisting of arginine and calcium carbonate, to oral care products to deliver proven anti-sensitivity benefits.



Arginine, calcium carbonate and saliva

PRO-ARGIN™ TECHNOLOGY WORKS BY PLUGGING TUBULES

Latest research suggests that at physiological pH, arginine and calcium carbonate interact and bind to the negatively charged dentine surface to form a calcium rich layer on the dentin surface and in the dentin tubules to plug and seal them.

HOW PRO-ARGIN™ TECHNOLOGY BLOCKS PAIN

Pro-Argin™ Technology triggers occlusion of the dentin tubules that remains intact even after exposure to acids, preventing transmission of pain-producing stimuli.

*Graphical representation; for illustration purposes only