

# CURE FOR SENSITIVE TEETH MAY BE VERY SIMPLE



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## What causes cold sensitivity?

Teeth are very interesting anatomical structures, and the structures surrounding them are very complex. Actually, by definition, each individual tooth is in fact an independent organ of the body. A tooth is a group of organized and differentiated specialized cells and supportive elements working together to perform a certain function. The components of

teeth are enamel, dentin, and the pulp, and they are connected to the bone by a type of flexible ligament.

Enamel is the hard outer covering of the tooth that is about 1-2 mm thick on average; no sensation occurs in the enamel. The dentin is the "body" of the tooth composed of a bone-like substance with long water-filled tubes running from the enamel to the pulp; changes in the hydraulic pressure inside these tubes stimulates nerve endings within the pulp. The pulp of the tooth ("nerve") is the living portion of the tooth. Within the pulp, there are nerve cells, blood vessels that carry nourishment from the rest of the body, and special cells called odontoblasts that line the pulp chamber to make reparative dentin. The nerves inside the pulp can only sense pain; any stimulus whether it be cold, hot, or pressure, will cause pain in the tooth. Covering the root of a tooth is a leathery substance called cementum, which replaces enamel below the gum line; if it is eroded away like in cases of recession, the dentin tubes are directly exposed to the mouth, and the nerves inside can easily be stimulated to cause pain.

Each tooth is held attached to the bone with an elaborate network of fibers that make up what is called the periodontal ligament (PDL). These fibers run around the tooth as well as diagonally and horizontally between the cementum of the tooth and the bone of the tooth socket. Essentially, the tooth/socket apparatus is much like a trampoline where the tooth is the trampoline itself; the PDL comprises the springs that hold the trampoline in place; the bone is the frame. At the base of the tooth, a bundle consisting of a nerve, a supply artery, and a vein passes from the bone into the pulp chamber, directly through the PDL.

The physiologic mobility created by the anatomy of the PDL allows for minor trauma to occur without incident so that the enamel does not fracture during normal chewing forces. If unbalanced force is applied to the PDL by trauma or improper bite, the PDL can be stretched and cause injury. Since the PDL surrounds the nerve that enters the tooth from the jaw bone, the nerve endings inside the tooth can become hypersensitive.

Since the tooth/socket relationship in so

intricate and because the nerve endings inside the tooth can only sense pain, any disruption to normal harmony will cause dental pain and may simply be a normal, healthy response to something that is not right. This is why after a filling or a crown is placed, a tooth may be sensitive to cold while it may or may not be sensitive to biting directly down on it. The tooth simply cannot tell you anything about minor irregularities except that it hurts. Of course, there are many other problems that may cause toothaches, and you should certainly call any pain to your dentist's attention. However, he or she may attempt adjusting the bite first if no other cause is directly apparent before resorting to more drastic treatment measures. Quite often, the cure for tooth sensitivity is quite simple.

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