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## **10 REASONS FOR POSTOPERATIVE SENSITIVITY ON DIRECT COMPOSITE RESTORATIONS**

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Post-operative sensitivity from composite restorations is a complication most clinicians would like to avoid. Unfortunately, it happens a lot more often than most dentists and patients would like. Common causes exist for post-operative in composite restorations. Pulp considerations. The destructive effect of caries on the pulp varies from mild inflammation to pulpal death.

(All restorative procedures are also subject to pulp irritation.) The pulp has innate defense mechanisms that limit damage from stimuli. There is no material that can protect the pulp better than dentin. Dentin has excellent buffering ability to neutralize the effects of carious acids and also protects the pulp from increased temperatures during cavity preparation.

The residual dentin thickness (RDT) from the depth of the cavity to the pulp is the single most important factor in protecting the pulp from injury. Laboratory studies have shown that when the residual dentin thickness is 2 mm or more, a negative pulpal reaction occurs, and the greatest effect on the pulp is when the residual dentin thickness is no more than 0.25 to 0.3 mm. High-speed and high-pressure of bure and turbine can cause an inflammatory reaction in the pulp. Old and not sharp burs cause heat due to high pressure during work, and Heat causes the fluid in the dentinal tubules to evaporate, which in turn causes inflammation of the pulp. Rotating the bur on the dentin generates heat.

In cases of restorations with inadequate marginal sealing, the tubular fluid moves outwards towards the space between the tooth and the restoration. The result of applying direct thermal shock to the pulp due to the transmission of thermal changes from the oral cavity through the restorative material, especially when the remaining dentin is thin. Most restorations have a seam between the cavity wall and the restoration, which allows for the slow outward movement of dentinal fluid. Cold causes a sudden contraction of this fluid, resulting in a rapid increase in flow, which is felt by the patient as pain.

The use of various lasers, including free electron lasers on the tooth surface; have shown minimal pulpal reaction compared to high-speed rotating instruments.

There are many reasons for postoperative sensitivity on direct composite restorations. To prevent composite sensitivity, attention must be given to several factors. In particular, over-dryness of dentine, which causes dentinal fluid movement leading to postoperative sensitivity, utilization of effective acid etching gels and techniques, even distribution of adhesive, Effective polishing techniques, avoiding dry polishing to prevent frictional heat that can damage the pulp.