

**CE2**

## Biomechanics of composite restoration and post operative hypersensitivity

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Resin composites have been used increasingly for both anterior and posterior restorations because of their esthetics, improved physical properties, including wear resistance and environmental concerns over amalgam. In spite of the many advantages of the material, polymerization shrinkage, and its associated stress, continues to be a concern for direct resin composite restorations. The polymerization shrinkage stress may cause the movement of cusps, debonding or enamel cracks, and also has the potential to result in microleakage, postoperative sensitivity and secondary caries.

The postoperative hypersensitivity during mastication after composite restoration can make a stressful situation to both patients and dentists. This lecture presents some experimental observations and article reviews on the causes of the postoperative hypersensitivity, and the methods to reduce the problem in relation to the biomechanics of composite restoration. The lecture includes following subjects.

1. Type of tooth hypersensitivity
2. Causes and mechanism of tooth hypersensitivity
3. Treatment of hypersensitivity caused by noncarious cervical lesions
4. Biomechanics of composite restoration and its clinical importance in postoperative hypersensitivity
  - Polymerization shrinkage and geometric factor
  - Viscoelastic modulus development of composite during curing
  - Effect of instrument compliance on polymerization stress measurement
  - How to reduce cusp flexure
  - Dentinal fluid flow measurement and its application in biomechanical study
5. How to reduce the postoperative hypersensitivity



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