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**Title: Surface treatments for composite resin repair**  
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**Abstract:** Aim: In this presentation different mechanical and chemical surface treatments for composite resin repair will be reviewed and discussed.

Summary: Due to growing demands by patients for metal-free, esthetic restorations, the use of resin composites in restorative dentistry has markedly increased. With an increasing clinical service time, whether to repair or totally replace defective composite restorations is considered a challenging decision for dentists. In most cases, repair of an existing restoration is preferable to the complete removal of the entire restoration because complete replacement is time-consuming and involves the risk of removing sound tooth structure. A successful repair procedure depends on high bond strength between the existing composite restoration and the newly added composite. Bonding between two composite layers of materials polymerized with radical polymerization is achieved in the presence of an oxygen-inhibited layer of unpolymerized resin. Aged restorations do not contain an unpolymerized surface layer. Moreover, in laboratory composites with high degree of conversion the repair is challenging due to the reduced availability of unreacted methacrylate groups. Several techniques have been suggested to maximize the composite repair strength. The most common methods are increasing the surface roughness (with burs, air-abrasion and lasers), using a silane treatment and applying a low-viscosity bonding agent.

**Conclusion:** Numerous studies have investigated the effect of different surface treatments on composite repair bond strength. Mostly it has been reported that a proper bonding between the existing composite and the newly added one can be achieved by the combination of mechanical and chemical surface treatments.

**surface treatments, composite resin, repair**

**Presentation: Poster**