

## تأثیر سه روش آماده سازی سطح آمالگام بر استحکام در برابر شکست بین آمالگام و کامپازیت

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**Title:** The effect of three different amalgam surface treatment methods on composite- amalgam fracture strength

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**Introduction:**

Following increasing people's demand for having aesthetic, functional and simultaneous benefits of composite and amalgam restorations, combined restoration of composite-amalgam has been introduced. The aim of this study was to evaluate the effect of these methods of surface treatment on composite-amalgam fracture strength.

**Materials & Methods:**

In this experimental invitro study, on thirty uniform and sound human maxillary premolar teeth mesiobuccal class II cavities were prepared so that in all specimens the thickness of buccal remainder enamel was one millimeter. They were divided randomly into three groups of ten and filled with amalgam. After 24h in each tooth, thin mesiobuccal enamel was removed and amalgam surface were veneered with Tetric Ceram composite by one of the three following methods. In A and B groups after etching with phosphoric acid, Scotchbond Multi-purpose and One Coat Bond were applied respectively. In group C after sandblasting and acid etching, margin bond unfilled resin was applied for adhesion of composite to amalgam. Finally for fracture strength measurement, the specimens were loaded under Instron testing machine at a crosshead speed of 1mm/min with 45° angle. Fracture areas were also considered from stand point of CEJ location and type of debonding (adhesive – cohesive – mixed). Data were analyzed with One Way ANOVA and Duncan tests.

**Results:**

Mean fracture strengths in three methods were significantly different (P=0.02). Group C had the highest and group B had the lowest fracture strength. In all three groups, the most common type of debonding was adhesive and above to the CEJ.

**Conclusion:**

The highest mean value of fracture strength was obtained in group with amalgam sandblasting followed by application of unfilled resin which did not differ significantly with Scotchbond Multi-purpose group. However it differed significantly with One Coat Bond group.

**Key words:**

amalgam veneering, fracture strength, adhesive system, sandblasting.

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### چکیده

مقدمه:

به دنبال تقاضای روزافزون افراد جهت داشتن ترمیم های فانکشنال، زیبا و نیز استفاده همزمان از مزایای ترمیم های آمالگام و کامپازیت، ترمیم های ترکیبی آمالگام - کامپازیت معرفی شدند. هدف از این مطالعه مقایسه اثر سه روش آماده سازی سطح آمالگام بر استحکام در برابر شکست بین آمالگام و کامپازیت بود.

مواد و روش ها:

در این مطالعه تجربی - آزمایشگاهی، بر روی ۳۰ دندان پره مولر مشابه و سالم فک بالای انسان، حفرات کلاس II مزو باکال