

**EVALUATION OF THE SHEAR BOND
STRENGTH OF AN INTRA ORAL
PORCELAIN REPAIR SYSTEM USING
TWO DIFFERENT AIR ABRASION TIMES
AND DIFFERENT CURING SYSTEMS**

(In Vitro Study)

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Abstract

There has been increasing demand for ceramic restorative materials as ceramic restorations alone or fused with metal. This popularity is due to its good aesthetics and long durability.

As porcelain is brittle material, so some restorations failed and had to be repeated and this will require extra time from the dentist, and technician, and it adds extra cost to the patient. With the development of the composite restorative materials and the introduction of repair systems, most of these cases can be repaired intra orally, which means saving time and money to the dentist, technician and patient.

The purpose of this study is to evaluate the shear bond strength (S.B.S.) of the repair system after treating the fractured surfaces with two abrasion times and curing the composite with two different curing systems.

One hundred and twenty samples prepared from metal disks (8mm.in diameter, 4mm height) by cutting metal cylinder of wiron 99 nickel chromium alloy (Ni-Cr).

These samples were divided into three main groups which are:

Metal group (A), porcelain group (B) and metal and porcelain group (C).

Mono opaque, bonding agent and composite resin were applied to the exposed surface; each group was divided into four

subgroups according to the air abrasion times and curing system as follows:

A1, B1, C1: Air abrasion for 10 sec. and curing with conventional light cure.

A2, B2, C2: Air abrasion for 20 sec. and curing with conventional light cure.

A3, B3, C3: Air abrasion for 10 sec. and curing with soft start.

A4, B4, C4 : Air abrasion for 20 sec . and curing with soft start.

All samples were stored in (deionized distilled water) at 37 °C for seven days and during that period, thermocycling at 5-50 °C ten cycles per day.

The shear bond strength test was carried out by using Zwick universal testing machine. Statistical methods were used to analyze and assess the results.

The results revealed that the best results obtained when the fracture was limited to the porcelain only. Using air abrasion for twenty seconds gave higher bond strength than abrasion for ten seconds. The curing with soft start showed superior bond than in curing with conventional light curing system.