

*EFFECT OF SOLDERING ON
SHEAR BOND STRENGTH OF
PORCELAIN FUSED TO
METAL*
(In vitro study)

A thesis

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Abstract

The insertion of metal frameworks is critical during the fabrication of metal-ceramic restorations to ensure adequate fit to the abutments. When fit is inadequate, sectioning of the metal framework is required, which is then soldered in the dental laboratory. Soldering may also be used to add proximal contacts, repair casting voids, and connect attachments or retainers.

This study was carried out to evaluate the effect of soldering and water storage on shear bond strength of porcelain fused to metal. Forty cylindrical metal (Ni-Cr alloy) specimens were prepared; it has 8 mm diameter and 3 mm height. Half of these specimens were made in such a way so that it has perforation in the center of 1mm in diameter; the later group is then soldered.

All the samples were oxidized, and then sandblasted with aluminum oxide. The ceramic material (vita VMK 95) was applied, the final thickness of ceramic was 1.5 mm, and then the samples was finished and glazed.

Half of the soldered and half of non soldered samples were stored in distilled water for one week, and then shear bond strength was evaluated for all samples. After the testing, all samples were inspected visually and microscopically to detect the nature of failure.

The result revealed that the intact specimens (non soldered) has higher shear bond strength values than the soldered specimens, and there is no influence of the water storage on shear bond strength for both groups.

The visual and microscopical observations show that the non soldered groups have higher percentage of cohesive failure than soldered groups which has higher percentage of adhesive failure.