

## Laboratory and Clinical Investigations for Titanium-Alloy Partial Denture-A :Shear Bond Strength with Acrylic Resin and Change of Bone Height

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This study was conducted to evaluate titanium alloy as a partial denture base. Laboratory specimens of titanium alloy (group 1) and cobalt chromium (group 2) were prepared. All the specimens were sandblasted then they were divided into two groups according to either the surface treated by silane coupling agent before packing of acrylic resin or not. The shear bond strength between both alloys and the acrylic resin was tested using a universal testing machine. The results revealed that surface treatment of both alloys with silane improves the shear bond strength than sandblasting alone. The effect of removable partial dentures constructed from two alloys namely, titanium and cobalt chromium on the supporting bone was evaluated. Bone height was measured distal to the last abutment tooth) and at the ridge area 1cm away from it. Twelve patients having lower bilateral free end edentulous spaces, opposed by completely dentulous arches participated in this study. The patients were randomly divided into two groups. Partial denture skeletons of the first group were cast from cobalt chromium alloy. Following the same skeleton design. Those of the second group were cast from titanium alloy. following the same skeleton design. Standardized periapical radiographs were done at the time of denture insertion, six and twelve months using Degora system. Bone height changes were assessed. No significant difference was detected between the two groups, regarding the changes in bone height.