بسم الله الرحمن الرحيم

“قال رب اشرح لی صدری و یسر لی امری و احلل عقدة من لسانی یفقهوا قولی”

صدق الله العظیم

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CERVICAL MARGINAL ACCURACY AND FATIGUE STRENGTH AFTER DYNAMIC LOADING OF IPS EMPRESS 2 CROWNS USING CONVENTIONAL AND NOVEL MACHINABLE (CAD / CAM) TECHNIQUES

(In vitro study)

A Thesis

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Introduction

Materials selection is one of the most important factors for the success of crowns and other extra-coronal restorations. Some dentists are less than inspired by dental materials science. Nevertheless, many of the things that take their concern clinically with crowns and their alternatives are based on material properties, such as the strength of the restoration, how well it fits and its aesthetics, also wear and biocompatibility. Not least of their concerns are dental laboratory charges, which inevitably have to be passed on to the patient.[1]

All-ceramic crowns were introduced with the objective of eliminating the metal substructure and therefore allowing better translucency and more natural appearance of a tooth. Also to maintain their mechanical properties, the metal substructure may be replaced by a high alumina core or fused vitreous ceramic.[2]

There is insufficient knowledge of the strength of all-ceramic crowns bonded to natural teeth to warrant the use of all-ceramic crowns in place of metal-ceramic crowns.[3] Therefore strength of all-ceramic crown systems is an important consideration.[4]

Over the last years, current technologies in dental ceramics are strongly improved, constantly producing new materials for the restoration of the single or multiple teeth. Feldspathic porcelains fused to a cast metal substructure, the so-called "metal-ceramic crown," has