THE EFFECT OF STIFFNESS OF IMPRESSION MATERIALS AND FLEXIBILITY OF TRAYS ON THE CASTING ACCURACY
(An In-Vitro Study)

Thesis
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بسم الله الرحمن الرحيم

وَأَنْزَلَ اللهُ
عَلَيْكَ الْكِتَابَ
وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ
تَكُنْ تَعْلَمُ
وَكَانَ فَضْلُ
اللهِ عَلَيْكَ
عَظِيمًا

صدق الله العظيم
سورة النساء آية
(113)

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Dedication

I'd like to dedicate this thesis to my mother & family; as it was only their love, encouragement and understanding that brought out the best of me.

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INTRODUCTION

The success of any fixed prosthodontic treatment plan depends on multiple phases and the impression making procedure is considered one of the key steps for reaching a successful final restoration. Its overall goal is to produce an exact three dimensional negative replica of the hard and soft tissues of the oral cavity and its quality significantly affects the accurate fit of the final restoration. Despite of the contemporary technical improvements in the field of computer-aided design / computer-aided manufacturing (CAD/CAM) systems and the three dimensional (3D) imaging procedures, the conventional dental impression process still plays an important role in transferring the relevant information from the patient to the dental laboratory.

The quality of dental impressions is influenced by many factors such as the impression technique and its correct application, the impression tray / impression material combination, local conditions in the oral cavity and finally the properties of the impression material used.

Since the introduction of the dual-arch impression technique, its popularity has steadily grown due to its wide range of advantages which includes patient comfort, efficiency, economy of materials and the convenience of capturing the prepared abutment, the inter-occlusal record and the opposing arch simultaneously. The technique has been referred to as the "dual-arch impression technique", "double-arch impression technique", "closed-mouth impression technique" or "triple-tray impression technique".

The accuracy of the castings generated from the dual-arch impression technique using impression materials of different stiffness along with impression trays of different flexibility however remains in question.