

***Removal Of Different Root Canal
Filling Materials Using Two
Nickel-Titanium Rotary Systems***

Thesis

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Dedication

To my dearest family

For their kindness and devotion

And for their endless support

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Root canal therapy, despite having a high degree of success, may not lead to the desired response, and failure may occur [1-3]. When root canal therapy fails, treatment options include conventional retreatment, periradicular surgery, or extraction. Whenever possible, the nonsurgical retreatment option is preferred because it is the most conservative method to solve the problem [4]. The main goal of retreatment is to regain access to the apical foramen by complete removal of the root canal filling material, thereby facilitating sufficient cleaning and shaping of the root canal system and final proper obturation [5-6].

Today it has not been proven that removing all obturation material will ensure success of endodontic retreatment and that remaining gutta-percha or sealer will cause the retreatment to fail [7]. However, removing as much sealer and core as possible from inadequately prepared and obturated root canal systems is critical in order to uncover remnants of necrotic tissue or bacteria that may be responsible for periapical inflammation and failure [8].

Many materials are being used for the filling of root canals, of which gutta-percha with a variety of sealers is the most common [9]. However, lately, various resin-based root canal filling materials have been developed to establish a core-sealer-dentin continuum to the end of preventing microleakage and improving the fracture resistance of root-filled teeth [10, 11].

A variety of techniques have been advocated for the removal of gutta-percha from the root canal system including manual endodontic hand instruments [12, 13] facilitated by solvents such as chloroform, xylol, eucalyptol, halothane, orange oil [14, 15], or