بسم اللة الرحمن الرحيم

و علمك ما لم تكن تعلم و كان فضل اللة عليك عظيما

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A CLINICAL STUDY ON THE EFFECT OF DIODE LASER THERAPY ON THE OSSEOINTEGRATION OF DELAYED-IMMEDIATE IMPLANTS

Thesis

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Introduction

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After tooth extraction alveolar ridge topography worsens due to the progressive and irreversible bone resorption. A condition that leads the patient to digestive problems in addition to the psychological ones. Throughout history many clinicians have attempted to use dental implants as a solution for complete and partial edentulism ***(Rasmussen, 1992).***

A dental implant is a surgically implanted device that replaces the lost teeth and to which an artificial prosthesis can be attached *(Lemons, 1998).* In the 25 years dramatic technological and biological advances in dental implants have occurred ***(Mckinney, 1991). Andersson et al, 1998 & Nir-Hadar, 1998*** stated that because of the excellent long-term prognosis of implants and its improved esthetic results there is a growing demand to replace lost teeth with implants.

The ability to achieve bone anchoring of implants has been a major interest in oral surgery ***(Guglielmotti et al., 1999).*** Osseointegration is defined by ***Branemark, 1989*** as a direct structural and functional contact between the living bone and the surface of the implant.

As there is a number of disadvantages associated with immediate placement of the fixture, e.g. the vertical and horizontal voids created between the bone and the implant ***(Ettinger et al., 1993),*** the infection that persists at the extraction site, and lack of gingival tissue approximation that endangers the fixture stability ***(Ibbott et al., 1993; Gher et al., 1994; Marrit et al., 1993; Rosenquist and Grenthe 1996).*** So a technique of delayed immediate

placement was introduced. In this technique the timing of the fixture placement was delayed after tooth extraction by 3-5 weeks. This new technique overcame the disadvatges of immediate implantation ***(Nir-Hadar et al., 1998). Evian et al., 1982*** added other advantages as benefiting of the osteoblastic activity present at the extraction site that helps to narrow the socket and improve the chances of osseointegration.

The last decade had seen an explosion of research work in the application of laser technology in the dental practice ***(Walsh, 1997).*** In vitro the data demonstrated that biostimulatory effect of laser irradiation can stimulate the release of the growth factors from the cells and increase the number of fibroblast ***(Van Breugel, et al., 1992 & Yu, et al., 1994).*** It accelerates intracellular metabolism and causes immunostimulation and vasodilatation leading to improved metabolism and overall stimulation of wound healing by selectively influencing connective tissue metabolism ***(Yu, et al., 1997).***

The present study was employed in an attempt to evaluate the effect of diode laser therapy on the osseointegration of delayed-immediate implants placed without the use of membranes or bone substitutes.

Review of Literature