



Republic of Iraq
Ministry of Higher Education
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University of Baghdad
College of Dentistry



**EVALUATION OF DENTAL IMPLANT STABILITY
UTILIZING SIMPLIFIED VERSUS CONVENTIONAL
DRILLING TECHNIQUE
A PRELIMINARY CLINICAL STUDY**

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ABSTRACT

Background: Conventional drilling technique may be more traumatic and time-consuming, especially when multiple implants are to be placed and unpleasant for the patient as the duration of the intervention may be excessively long causing discomfort, simplifying the drilling sequence would be meaningful for implant surgery if it does not exert a negative influence. This prospective clinical study was conducted to evaluate the stability of implant placements after simplifying the drilling sequence.

Aims: Evaluation of dental implant stability utilizing simplified versus conventional drilling technique and calculating the consumed time for simplified versus conventional drilling procedure.

Materials and Methods: This clinical prospective study was achieved between November 2019 and August 2020, it included 14 patients (9 females and 5 males). The patients ranged in age from 23 to 70 years with a mean age of 46.5 ± 12.73 and selected as straightforward cases in the maxilla or mandible indicated for delayed dental implant placement protocol. These patients were allocated in two groups, **group A (simplified drilling technique)** in which implant sites were prepared by only the initial and final drill and **group B (conventional drilling technique)** where implants were installed by sequential conventional drilling technique. Patients in this clinical study received 50 bone level dental implants with diameters 3.6, 4.0 or 4.5 mm and lengths 8, 10, 12 or 14 mm. Implant stability quotient was recorded immediately and 24 weeks after placement of dental implant. Preoperative clinical and radiographical evaluations were conducted for all patients who met the eligibility criteria. Preliminary orthopantomography was taken to measure height of the available bone taking in consideration the amount of magnification and important anatomical structures

(mandibular canal, mental foramen, maxillary sinus and floor of the nasal cavity).

Results: No implant was lost during the study follow up appointments with a survival rate of 100%. The primary stability values for dental implants placed in the maxilla and mandible with simplified drilling technique were (73.73 vs 74.95) respectively while for conventional one the means were (75.43 vs 73.23) for both maxilla and mandible. After 24 weeks there was a significant difference between both techniques in the maxilla only.

In the present study, there was a high significant association ($P= 0.00$) between drilling time required for simplified vs conventional drilling techniques independently of dental implant dimensions, recipient jaw and zones. The consumed time was longer in conventional drilling (74.88 ± 15.19 sec) than in simplified one (27.87 ± 7.80 sec).

Conclusion: Within the limits of this clinical trial, both drilling techniques produced successful results over a 24 weeks post-insertion follow-up period, however, the simplified drilling technique required less surgical time and lead to less postoperative morbidity.



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جامعة بغداد
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تقييم ثباتية زراعة الأسنان بعد استخدام طريقة الحفر المبسط مقابل الطريقة التقليدية

دراسة أولية سريرية

رسالة مقدمة إلى مجلس كلية طب الأسنان في جامعة بغداد كجزء من متطلبات
نيل شهادة الماجستير في جراحة الفم والوجه والفكين

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