

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

The Comparison of Implant Stability using Resonance Frequency Analysis between two different techniques of implant placement; Osteotome versus Conventional drilling: A controlled randomized clinical trial

Protocol summary

Summary

The aim of the present study was to compare implant stability in two different techniques of implant bed preparation in type III and IV bone which is usually found in posterior maxilla. In this controlled randomized clinical trial, patients who were referred to Department of Implant and needed to replace posterior missing teeth of maxilla were selected. Subjects with systemic diseases, heavy smokers and those required bone graft were not included in the study. 54 ITI dental implants were placed in 26 patients. Participants were classified into 2 groups: The osteotome technique (29 implants) and conventional drilling (25 implants). Implant stability was assessed at 4 time intervals; baseline, 1, 2 and 3 months after implant placement using Resonance Frequency Analysis (RFA) method with Osstell Device. Keyword: implant stability, osteotome, drilling, resonance frequency analysis

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201405274621N2**

Registration date: **2014-06-08, 1393/03/18**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2014-06-08, 1393/03/18

Registrant information

Name

Rokhsareh Sadeghi

Name of organization / entity

Shahed Dental School

Country

Iran (Islamic Republic of)

Phone

+98 21 8895 9210

Email address

sadeghi@shahed.ac.ir

Recruitment status

Recruitment complete

Funding source

Shahed University

Expected recruitment start date

2010-01-01, 1388/10/11

Expected recruitment end date

2012-01-31, 1390/11/11

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Comparison of Implant Stability using Resonance Frequency Analysis between two different techniques of implant placement; Osteotome versus Conventional drilling: A controlled randomized clinical trial

Public title

The Comparison of Implant Stability between two different techniques of implant placement

Purpose

Treatment

Inclusion/Exclusion criteria

inclusion criteria: posterior maxillary missing tooth / teeth; minimum; 8mm ridge height and 6mm width; good oral hygiene. Exclusion criteria: systemic diseases that affect host healing responses; Heavy smoking (more than 10 cigarette per day); need for bone grafting.

Age

From **20 years** old to **70 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **32**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Single blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Shahed University

Street address

Khalij-e- Fars Free way

City

Tehran

Postal code

Approval date

2008-06-22, 1387/04/02

Ethics committee reference number

174686

Health conditions studied

1

Description of health condition studied

implant placement in edentulous area

ICD-10 code

z96.5

ICD-10 code description

Presence of tooth-root and mandibular implants

Primary outcomes

1

Description

stability of dental implant

Timepoint

baseline (implant placement)-3 months

Method of measurement

ISQ value using resonance frequency analysis

Secondary outcomes

empty

Intervention groups

1

Description

intervention: using osteotome technique for implant placement

Category

Treatment - Surgery

2

Description

control group: use of conventional drilling for implant placement

Category

Treatment - Surgery

Recruitment centers

1

Recruitment center

Name of recruitment center

Shahed University, Dental School, Implant dept

Full name of responsible person

Dr.R.Sadeghi

Street address

Italia St., Vesal St., no. 39

City

Tehran

2

Recruitment center

Name of recruitment center

Tehran Uni. of Medical Sciences, Dental School, Implant Dept.

Full name of responsible person

Dr. A.R.Rokn

Street address

Resaerch center of dental school- Ghods St.- Keshavarz Blvd.

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahed University, Deputy of Research

Full name of responsible person

Dr. Z. Kiasalary

Street address

Khalij-e- Fars Free way

City

Tehran

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Shahed University, Deputy of Research

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

empty

Person responsible for general inquiries**Contact****Name of organization / entity**

Shahed University

Full name of responsible person

Dr R Sadeghi

Position

assistant professor

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Sharing plan**Deidentified Individual Participant Data Set (IPD)**

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty