

# Effect of photofunctionalization of dental implants on implants stability at an early stage of healing

<b>Submission date</b> 17/01/2025	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 20/01/2025	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 20/01/2025	<b>Condition category</b> Oral Health	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Despite the high success rate of treatment with dental implants, the long healing period, especially in poor-quality bone, remains one of the most important limitations of its use. Therefore, efforts continue to reduce this time by improving the surface characteristics of the implant using various physical and chemical methods. UV photofunctionalization is defined as one of the methods of modifying the surface of titanium after UV treatment, including changes in physicochemical properties and improvement of biological features.

### Who can participate?

Patients aged 18 years old and over with bilateral edentulous area in the maxilla

### What are the possible benefits and risks of participating?

The possible benefits of using photofunctionalization of dental implant surfaces are to gain more implant stability in the early stage of the healing and accelerate osseointegration. However, the possible risks of participating may be related to the stress on the implants which may happen during measuring the implant stability using a dental device.

### Where is the study run from?

Oral and Maxillofacial Surgery Hospital, Faculty of Dentistry, Damascus University

### When is the study starting and how long is it expected to run for?

December 2021 to December 2024

### Who is the funding of the study?

Investigator initiated and funded

### Who is the main contact?

Dr Mohammad Kattaa, Mohammed.katta96@gmail.com

## Contact information

**Type(s)**

Public, Scientific, Principal Investigator

**Contact name**

Dr Mohammed Kattaa

**ORCID ID**

<http://orcid.org/0009-0001-4504-3907>

**Contact details**

MazzeH Highway

Damascus

Syria

0000

+963935982622

[mohammad96.kattaa@damasucsuniversity.edu.sy](mailto:mohammad96.kattaa@damasucsuniversity.edu.sy)

**Type(s)**

Public

**Contact name**

Dr Mohammed Kattaa

**ORCID ID**

<http://orcid.org/0009-0001-4504-3907>

**Contact details**

MazzeH Highway

Damascus

Syria

0000

+963949384376

[mohammed.katta96@gmail.com](mailto:mohammed.katta96@gmail.com)

## Additional identifiers

**EudraCT/CTIS number**

Nil Known

**IRAS number****ClinicalTrials.gov number**

Nil Known

**Secondary identifying numbers**

Nil Known

## Study information

**Scientific Title**

Effect the photofunctionalization on early osseointegration and Implant Stability of titanium dental implants in the maxillary

**Study objectives**

The null hypothesis was that no significant difference exists between the UV-treated and non-treated implants in terms of implant stability in the maxilla

**Ethics approval required**

Ethics approval required

**Ethics approval(s)**

Approved 02/02/2024, Damascus University (Oral and Maxillofacial Surgery Department, Faculty of Dental Medicine, Damascus University, Damascus, 4671, Syria; +96 11 33923011; verification. dicr@damascusuniversity.edu.sy), ref: DN-020624-237

**Study design**

Double-blind randomized controlled clinical trial

**Primary study design**

Interventional

**Secondary study design**

Randomised controlled trial

**Study setting(s)**

University/medical school/dental school

**Study type(s)**

Quality of life, Treatment, Efficacy

**Participant information sheet**

No participant information sheet available

**Health condition(s) or problem(s) studied**

Improving the stability of the dental implants in the poor quality bone

**Interventions**

This study is a randomized controlled trial, including 2 groups of implants which will be placed in the same patients - the control group will receive conventional commercial implants, and the experimental group will receive UV-irradiated implants. Implants will be randomized into 2 groups using <http://www.randomizer.org/>.

The follow-up for each patient is 3 months with 4 visits for each patient :

1. 2 weeks postoperative
2. 4 weeks postoperative
3. 8 weeks postoperative
4. 12 weeks postoperative

**Intervention Type**

Procedure/Surgery

**Primary outcome measure**

Implant stability measured using the Mega ISQ Implant Stability Meter at 5 endpoints: (T0) immediately after surgery, (T1) 2 weeks, (T2) 4 weeks, (T3) 8 weeks, and (T4) 12 weeks

**Secondary outcome measures**

Insertion torque measured using a Torque Ratchet immediately after surgery for all implants

**Overall study start date**

20/12/2021

**Completion date**

19/12/2024

## Eligibility

**Key inclusion criteria**

1. Patients with sufficient residual bone for conventional implant placement
2. Patients with bilateral Edentulous area in the maxilla
3. Patients displaying compliance with oral healthcare instructions and necessary visits

**Participant type(s)**

Patient

**Age group**

Adult

**Lower age limit**

18 Years

**Upper age limit**

65 Years

**Sex**

Both

**Target number of participants**

10

**Total final enrolment**

13

**Key exclusion criteria**

1. Patients having undergone radiotherapy or with diseases such as osteoporosis that are a contraindication to implant placement
2. Patients with inadequate bone height and width available for implant placement and requiring horizontal or vertical bone augmentation
3. Medically compromised patients with systemic conditions that can impede implant stability and influence the treatment outcome

**Date of first enrolment**

01/02/2023

**Date of final enrolment**

01/02/2024

## **Locations**

**Countries of recruitment**

Syria

**Study participating centre**

Oral and Maxillofacial Surgery Hospital, Faculty of Dentistry, Damascus University

Mazzeah Highway

Damascus

Syria

4671

## **Sponsor information**

**Organisation**

Damascus University

**Sponsor details**

Mazzeah Highway

Damascus

Syria

4671

+963944812030

vice.research@damascusuniversity.edu.sy

**Sponsor type**

University/education

**Website**

<https://www.damascusuniversity.edu.sy/>

**ROR**

<https://ror.org/03m098d13>

## **Funder(s)**

**Funder type**

Other

**Funder Name**

Investigator initiated and funded

## **Results and Publications**

**Publication and dissemination plan**

Planned publication in a peer-reviewed journal

**Intention to publish date**

19/12/2025

**Individual participant data (IPD) sharing plan**

The data sharing plans for the current study are unknown and will be made available at a later date

**IPD sharing plan summary**

Data sharing statement to be made available at a later date