

Clinical Trial Protocol

Iranian Registry of Clinical Trials

18 Sep 2026

evaluation the effect of low energy laser irradiation on the rate of mandibular molar protraction in orthodontic patients

Protocol summary

Summary

objective: evaluation the effect of low energy laser irradiation on the rate of mandibular molar protraction. this study will be randomized, single blind and controlled with placebo. 28 young patients (14 male and 14 female) will be participated in this study. 1. All patients signed the informed contest to participate in this study. 2. all patients will have normal growth pattern. 3. Based on treatment plane, every patient need mandibular second premolar extraction on both sides. Patients with tooth missing, horizontal growth pattern and any previous second premolar extraction were excluded. mandibular first molar protraction will be done by T-loop on both sides, but one side will receive laser and other side placebo. laser irradiation will done on first time, after one month and second month. The amount of molar protraction will be evaluated by dental cast.

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Recruitment status

Recruitment complete

Funding source

orthodontic research center of shiraz dental school

Expected recruitment start date

2015-04-30, 1394/02/10

Expected recruitment end date

2015-06-21, 1394/03/31

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015030921406N1**

Registration date: **2015-06-16, 1394/03/26**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2015-06-16, 1394/03/26

Registrant information

Name

Sepideh Rezapour Gavareshki

Name of organization / entity

Orthodontic Department of Shiraz Dental School

Country

Iran (Islamic Republic of)

Scientific title

evaluation the effect of low energy laser irradiation on the rate of mandibular molar protraction in orthodontic patients

Public title

evaluation the effect of low energy laser on rate of tooth movement during orthodontic treatment

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: 1- all patients had the same vertical growth pattern-normal pattern- which was verified by evaluating Jaraback index and sum of Bjork on their lateral cephalometric images (Jaraback index 65-70 % and sum of Bjork 390°-400°). 2- There was no missing tooth in the lower arch. 3- Based on treatment plane, every patient need mandibular second premolar extraction on both sides to treat open bite dentally or correct molar relationship. 4- All patients signed the informed contest to participate in this study. Patients

with tooth missing, horizontal growth pattern and any previous second premolar extraction were excluded.

Age

From **16 years** old to **25 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **56**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Single blinded

Blinding description

Placebo

Used

Assignment

Single

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Shiraz University of Medical Sciences

Street address

central building of Shiraz University of Medical Sciences, opposit of felestin ST, zand Blv

City

Shiraz

Postal code

14336 - 71348

Approval date

2011-02-06, 1389/11/17

Ethics committee reference number

T-P-89-2251

Health conditions studied

1

Description of health condition studied

Injury, poisoning and certain other consequences of external causes

ICD-10 code

S00-T98

ICD-10 code description

S00-S09

Primary outcomes

1

Description

amount of mandibular first molar movement

Timepoint

at the begining of study, at the end of first , second and third month

Method of measurement

milimeter measurement with gauge on dental cast

Secondary outcomes

empty

Intervention groups

1

Description

intervention group: at first cession T-loop will be activated for first mandibular molar protraction. at same time irradiation will be done at mocusa of left first molar in mesiobuccal, mid buccal, disto buccal, mesio lingual, mid lingual, disto lingual and mesial of first molar. every point will be irradiated for 45 seconds. this will be repeat at the end of first and second month.

Category

Treatment - Devices

2

Description

control group: at first cession after T-loop activation on both side of patient, on left first molar we will put laser tip on the same points of right first molar but will not push the pedal. we will use the dark shield over the laser tip and the person who will activate loop will be different from person who push laser pedal. consequently first person will be blind to irradiation side. this will be done as well as laser side and will be repeated at the end of first and second month.

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center

Private orthodontic office

Full name of responsible person

Street address

City

Shiraz

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Orthodontics research center

Full name of responsible person

Dr Hamodreza Pakshir, chief of Orthodontics research center

Street address

shiraz dental school,ghom abad Ave, ghasro dasht St

City

shiraz

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

Yes

Title of funding source

Orthodontics research center

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**

orthodontic department of shiraz dental school

Full name of responsible person

sepideh rezapour gavareshki

Position

post graduated student

Other areas of specialty/work**Street address**

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Person responsible for scientific inquiries

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Full name of responsible person

Dr parisa salehi

Position

professor of orthonontic department

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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