

# Does i-PRF (injectable platelet-rich fibrin) improve the quality of periodontal tissue and accelerate orthodontic tooth movement?

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<b>Registration date</b> 15/04/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 23/06/2025	<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

Mandibular incisor crowding is a frequent issue that prompts many adults to seek orthodontic treatment. When teeth are crowded together, it can lead to various problems such as the wearing away of the roots, a reduction in the height and density of the bone on the outer side of the teeth, gaps forming between teeth, and the development of window-like gaps in the bone. Additionally, the width of the protective tissue around the teeth may decrease. Platelet-rich concentrates, like injectable platelet-rich fibrin, have been shown to have positive effects on both soft and hard tissue healing. They may serve as a beneficial self-derived material to prevent these complications.

### Who can participate?

Adults aged 18-28 years old with skeletal class I malocclusion.

### What does the study involve?

Participants will be divided randomly into three groups:

1. Experimental Group 1: In this group, platelet-rich fibrin (i-PRF) will be injected once into the space between the cheeks and the teeth on the lower jaw, specifically around the mandibular incisors.
2. Experimental Group 2: In this group, platelet-rich fibrin (i-PRF) will be injected four times into the same area around the mandibular incisors, with a 30-day gap between each session.
3. Control Group: Participants in this group will receive injections of a saline solution into the same area around the mandibular incisors. This is done to prevent any tingling sensation that might occur.

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

Using this modified device may enhance the efficiency of crowded incisor alignment. There are no expected risks of participating.

### Where is the study run from?

Damascus University (Syria)

When is the study starting and how long is it expected to run for?  
June 2022 to April 2025

Who is funding the study?  
Damascus University (Syria)

Who is the main contact?  
Dr Mohamad Idris, mohammad.idris@damascusuniversity.edu.sy, mohamad.ed.1997@gmail.com

## Contact information

### Type(s)

Public, Scientific, Principal investigator

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# Additional identifiers

## Clinical Trials Information System (CTIS)

Nil known

## ClinicalTrials.gov (NCT)

Nil known

## Protocol serial number

2723

# Study information

## Scientific Title

Effect of repeated injection of platelet-rich fibrin on crowded mandibular incisor alignment efficiency: a randomized controlled clinical trial

## Acronym

i-PRF

## Study objectives

1. I-PRF enhances the efficiency of crowded mandibular incisor alignment.
2. I-PRF accelerates orthodontic tooth movement.

## Ethics approval required

Ethics approval required

## Ethics approval(s)

approved 20/06/2022, Scientific research and postgraduate studies council of Damascus University (Mazzeh highway, Damascus, 80789, Syria; +963 (0)993303359; ap.srd@damascusuniversity.edu.sy), ref: 2723

## Study design

Interventional single-center single-blinded randomized parallel-group controlled trial

## Primary study design

Interventional

## Study type(s)

Treatment

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

Malocclusion, Angle Class I; Crowded Teeth

## Interventions

Patients will be randomly allocated into two groups using Microsoft® Excel electronic randomization:

Arm 1:

Experimental group 1: I-prf will injected in the buccal sulcus of the mandibular incisors 1 session

directly after lower arch bracket adhesive. Orthodontic wires will be sequenced till reach to 19×25 ss.

Arm 2:

Experimental group 2: I-prf will injected in the buccal sulcus of the mandibular incisors 4 sessions with 30-day interval. Orthodontic wires will be sequenced till reach to 19×25 ss.

Arm 3:

Control group: . Saline serum will injected in the buccal sulcus of the mandibular incisors, to avoid the tingling effect. Orthodontic wires will be sequenced till reach to 19×25 ss.

### **Intervention Type**

Biological/Vaccine

### **Phase**

Not Applicable

### **Drug/device/biological/vaccine name(s)**

Platelet-rich fibrin

### **Primary outcome(s)**

Dentoalveolar changes before and after treatment will be assessed using cone-beam computed tomography:

1. Dentoalveolar changes including:
  - 1.1. Dehiscence in the buccal alveolar bone.
  - 1.2. Fenestration in the buccal alveolar bone.
  - 1.3. Height and thickness of alveolar bone.
2. Keratinized tissue width.
3. Lower arch alignment time.

### **Key secondary outcome(s)**

There are no secondary outcome measures

### **Completion date**

04/04/2025

## **Eligibility**

### **Key inclusion criteria**

1. Adult patients.
2. Class I malocclusion with moderate crowding (4-6) mm.
3. Good oral hygiene and periodontal health.
4. No severe skeletal discrepancy.
5. Normal or inclination for the upper and lower incisors.
6. No congenitally missing or extracted teeth (except for the third molars).

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 years

**Upper age limit**

28 years

**Sex**

All

**Total final enrolment**

54

**Key exclusion criteria**

1. Patients with syndromes or craniofacial abnormalities.
2. Patients with vertical growth patterns.
3. Poor oral hygiene.
4. Previous orthodontic treatment.

**Date of first enrolment**

01/08/2023

**Date of final enrolment**

04/04/2024

**Locations****Countries of recruitment**

Syria

**Study participating centre****Damascus university**

Department of orthodontics

Faculty of Dentistry

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Damascus

Syria

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**Sponsor information****Organisation**

Damascus University

**ROR**

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

## **Funder(s)**

**Funder type**

University/education

**Funder Name**

Damascus University

**Alternative Name(s)**

University of Damascus, , DU

**Funding Body Type**

Government organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

Syria

## **Results and Publications**

**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