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# Analyzing the impact of injecting platelet-rich plasma on molar tooth movement

**Submission date**
24/03/2024

**Recruitment status**
No longer recruiting

**Registration date**
26/03/2024

**Overall study status**
Completed

**Last Edited**
26/03/2024

**Condition category**
Oral Health

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

## Plain English summary of protocol

Background and study aims
The utilization of platelet-rich plasma (PRP) in dentistry has been ongoing for several decades. However, its practical application in orthodontics still demands more thorough examination. The objective of this research was to assess the potential impacts of injecting PRP locally on the speed and nature of movement of mandibular second molars forward compared to a control group.

Who can participate?
Patients aged 17 - 25 years who require lower molar protraction

What does the study involve?
Patients were randomly chosen to participate in a study where their mouths were divided into two halves. One half received injections of platelet-rich plasma (PRP) before starting the protraction process (PRP group), while the other half received only saline solution (comparator group). To be eligible for the study, patients needed to have their lower first molars removed on both sides for at least a year, and their lower second molars needed to be ready for protraction. The main focus of the study was to measure how quickly the molars moved forward from the beginning of the protraction process until the end of the seventh month, using a digital gauge. Another aspect was to determine the type of movement of the second molars during protraction by examining side-view X-ray images before protraction (T0) and after seven months (TF). The decision about which side received the PRP injection was made randomly by selecting envelopes that were opaque and sealed. While it wasn't possible to keep the principal investigator unaware of the treatment, the patients were kept unaware by injecting saline solution on the other side.

What are the possible benefits and risks of participating?
Not provided at time of registration

Where is the study run from?
University of Aleppo (Syria)

When is the study starting and how long is it expected to run for?
September 2020 to February 2024

Who is funding the study?
University of Aleppo (Syria)

Who is the main contact?
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# Contact information

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Public, Scientific, Principal Investigator

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# Additional identifiers

### EudraCT/CTIS number
Nil known

### IRAS number

### ClinicalTrials.gov number
Nil known

### Secondary identifying numbers
researchregistry9722

# Study information

### Scientific Title
Evaluating the injection of platelet-rich plasma on second lower molars protraction: a randomized controlled clinical trial

### Study objectives
Injection of PRP accelerates lower molar protraction

### Ethics approval required
Ethics approval required

### Ethics approval(s)
Approved 08/03/2020, University of Aleppo Ethics Committee (Dental College, University of Aleppo, Aleppo, -, Syria; -; sr.srd@damascusuniversity.edu.sy), ref: UADS-2401-08032020/SRC-1036

### Study design
Interventional randomized controlled clinical trial split mouth design

### Primary study design
Interventional

### Secondary study design
Randomised controlled trial

### Study setting(s)
University/medical school/dental school

### Study type(s)
Treatment

### Participant information sheet
Not available in web format, please use the contact details to request a patient information sheet.

### Health condition(s) or problem(s) studied
Patients with bilaterally extracted mandibular first molars

### Interventions
Patients were randomly allocated in a split-mouth study design to receive PRP injections on one side (PRP group) immediately before the start of protraction, while the other side received only saline solution (comparator group).
20 ml of blood was directly collected by butterfly scalp vein from the patient to sterile tubes

with ACD-A as an anticoagulant. One millilitre of the blood sample was set apart to determine the concentration of platelets. PRP was prepared by the double-spin technique as described by Marx and Garg with modifications; initially, the blood was centrifuged at 1600 rpm for 4 minutes to separate the plasma containing the platelets from the red cells. The plasma was drawn off the top and centrifuged for an additional 6 minutes at 3500 rpm to get PRP.
Follow up for 7 months.

### Intervention Type
Biological/Vaccine

### Pharmaceutical study type(s)
Not Applicable

### Phase
Not Applicable

### Drug/device/biological/vaccine name(s)
Platelet-rich plasma

### Primary outcome measure
Rate of molar protraction from the beginning of protraction and the end of the seventh month, using a digital gauge

### Secondary outcome measures
Type of movement of second molar protraction by lateral cephalometric images before molar protraction (T0) and after seven months of molar protraction (TF)

### Overall study start date
01/09/2020

### Completion date
10/02/2024

## Eligibility

### Key inclusion criteria
1. Aged between from 17 and 25 years
2. Have all lower permanent teeth present, including intact third molar, but the bilateral first permanent lower molar were extracted and indicated mandibular second molars protraction, in which extractions were done at least one year ago to ensure complete extraction socket cortication and at most 3 years to avoid severely inclined second lower molars, or severely reduced alveolar bone height and width

### Participant type(s)
Patient

### Age group
Adult

### Lower age limit

17 Years

### Upper age limit
25 Years

### Sex
Both

### Target number of participants
18

### Total final enrolment
15

### Key exclusion criteria
1. Have undergone previous orthodontic treatment
2. Have poor oral hygiene
3. Systemic disease especially those with coagulation problems or who are being treated with anticoagulants and NSAIDS
4. Unilateral chewing or extra-functional habits.

### Date of first enrolment
01/09/2020

### Date of final enrolment
10/01/2022

## Locations

### Countries of recruitment
Syria

### Study participating centre
**Aleppo University**
Shahbaa street
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## Sponsor information

### Organisation
University of Aleppo

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**Sponsor type**
University/education

**Website**
http://www.alepuniv.com/

**ROR**
https://ror.org/03mzvxz96

# Funder(s)

**Funder type**
University/education

**Funder Name**
University of Aleppo

**Alternative Name(s)**
Aleppo University, , UOA

**Funding Body Type**
Government organisation

**Funding Body Subtype**
Universities (academic only)

**Location**
Syria

# Results and Publications

**Publication and dissemination plan**
Planned publication in a high-impact peer-reviewed journal

**Intention to publish date**
01/06/2024

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

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request
amerkhatib82@gmail.com

## IPD sharing plan summary

Available on request