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Accelerating tooth movement with platelet-rich plasma

Submission date	Recruitment status	[ ] Prospectively registered
18/08/2024	No longer recruiting	[ ] Protocol
Registration date	**Overall study status**	[ ] Statistical analysis plan
27/08/2024	Completed	[ ] Results
Last Edited	**Condition category**	[ ] Individual participant data
27/08/2024	Oral Health	[ ] Record updated in last year

Plain English summary of protocol
Background and study aims
This study aimed to evaluate the effectiveness of platelet-rich plasma (PRP) in accelerating orthodontic tooth movement and reducing treatment duration.

Who can participate?
Patients aged 18 to 25 years with anterior teeth crowding.

What does the study involve?
Patients were randomly assigned to either the PRP group or the control group. The PRP group received PRP injections at 0, 7, and 14 days, while the control group received standard orthodontic treatment without additional interventions.

What are the possible benefits and risks of participating?
This study will evaluate the efficiency of using PRP injection to accelerate orthodontic tooth movement. There is a risk of not achieving optimal results in some cases but the study team can manage these cases with alternative methods.

Where is the study run from?
Tishreen University (Syria)

When is the study starting and how long is it expected to run for?
November 2021 to August 2023

Who is funding the study?
Damascus University (Syria)

Who is the main contact?
Dr May Alel, drmayakel@gmail.com

Contact information

Type(s)

Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title
Enhancing orthodontic treatment efficiency with platelet-rich plasma: a randomized controlled trial

Study objectives
Can platelet-rich plasma (PRP) accelerate orthodontic tooth movement?

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 07/12/2021, Damascus University ethics committee (Mazzeh Highway, Damascus, -, Syria; +963 (0) 113341864; manager@hcsr.gov.sy), ref: 22486

Study design
Comparative interventional randomized controlled study

Primary study design
Interventional

Study type(s)
Quality of life, Treatment, Efficacy

Health condition(s) or problem(s) studied
Anterior teeth crowding

Interventions

Patients were randomly assigned to either the PRP group or the control group. The PRP group received PRP injections at 0, 7, and 14 days, while the control group received standard orthodontic treatment without additional interventions.

Intervention Type
Procedure/Surgery

Primary outcome(s)
Little’s Irregularity Index: Dental models were obtained at four key stages: initial (T0), 5 weeks after beginning treatment (T1), 8 weeks into treatment (T2), and 10 weeks into treatment (T3). The Little’s Irregularity Index was calculated with precision using a digital caliper to measure the distances between the contact points of the six anterior maxillary teeth.

Key secondary outcome(s))
The duration of the orthodontic treatment was recorded in months, starting with the bonding of 0.022-inch brackets and concluding with the application of a 0.017 x 0.025-inch stainless steel archwire.

Completion date
23/08/2023

Eligibility

Key inclusion criteria
1. Eligible participants were individuals aged 18 to 25 years
2. The study focused on patients with anterior teeth crowding ranging from 3 to 6 mm
3. A prerequisite for inclusion was the maintenance of excellent oral hygiene and periodontal status
4. Candidates with no prior orthodontic treatment history were included

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
25 years

Sex
All

Total final enrolment

40

Key exclusion criteria
1. Individuals with any systemic medical conditions were not considered for the study
2. Excluded were patients with dental anomalies in tooth size or shape
3. The study did not include patients with skeletal discrepancies in the vertical, transverse, or anteroposterior dimensions
4. Those currently taking anti-inflammatory medications were also excluded from participation

Date of first enrolment
01/01/2022

Date of final enrolment
01/01/2023

Locations

Countries of recruitment
Syria

Study participating centre
Tishreen University
Faculty of Dental Medicine
Department of Orthodontics
Latakia
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 datasets generated during and/or analysed during the current study will be available on request from Dr May Alel (drmayakel@gmail.com) and in the publication related to it after the end of the research.

IPD sharing plan summary
Available on request