

Effect of XP-endo finisher on microbial root canal flora after using multiple irrigation protocols

Submission date 16/04/2025	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 28/04/2025	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 28/04/2025	Condition category 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

This study focuses on root canal infections, which are caused by bacteria and can lead to serious dental problems. The goal is to find the best way to clean the root canal using different solutions. Researchers are comparing three methods: using 5.25% sodium hypochlorite alone, combining it with 2% chlorhexidine, and combining it with QMIX. They are also looking at whether using a special tool called the XP-endo Finisher makes a difference.

Who can participate?

People who are between 20 and 40 years old, have no preoperative pain, have necrotic teeth, have a periapical radiolucency of 1-5 mm in diameter, and haven't taken antibiotics in the past three months.

What does the study involve?

The study involves treating 60 single-rooted teeth in patients and 60 freshly extracted single-rooted teeth in a lab. The teeth are divided into six groups, each using different cleaning methods with or without the XP-endo Finisher.

What are the possible benefits and risks of participating?

The main benefit is improved dental health and appearance. The risks are minimal and almost non-existent.

Where is the study run from?

Damascus University (Syria)

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

March 2021 to March 2025.

Who is funding the study?

Damascus University (Syria)

Who is the main contact?

Dr Farah Estefane, estefanfarah3@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

Nil known

Study information

Scientific Title

A comparative study of several final irrigation protocols and the use of XP-endo finisher in changing of the microbial root canal flora

Study objectives

H₁: There is no significant difference in bacterial count and antibacterial efficacy against *Enterococcus faecalis* after root canal irrigation using sodium hypochlorite (NaOCl) without XP-endo Finisher compared to irrigation using sodium hypochlorite with XP-endo Finisher.

H₂: There is no significant difference in bacterial count and antibacterial efficacy against *Enterococcus faecalis* after root canal irrigation using sodium hypochlorite (NaOCl) with XP-endo Finisher compared to irrigation using sodium hypochlorite without XP-endo Finisher.

H₃: There is no significant difference in bacterial count and antibacterial efficacy against *Enterococcus faecalis* after root canal irrigation using sodium hypochlorite (NaOCl) combined with QMiX without XP-endo Finisher compared to irrigation using sodium hypochlorite with QMiX with XP-endo Finisher.

H₄: There is no significant difference in bacterial count and antibacterial efficacy against *Enterococcus faecalis* after root canal irrigation using sodium hypochlorite (NaOCl) combined with QMiX with XP-endo Finisher compared to irrigation using sodium hypochlorite with QMiX without XP-endo Finisher.

H₅: There is no significant difference in bacterial count and antibacterial efficacy against *Enterococcus faecalis* after root canal irrigation using sodium hypochlorite (NaOCl) combined with chlorhexidine (CHX) without XP-endo Finisher compared to irrigation using sodium hypochlorite with chlorhexidine with XP-endo Finisher.

H₆: There is no significant difference in bacterial count and antibacterial efficacy against *Enterococcus faecalis* after root canal irrigation using sodium hypochlorite (NaOCl) combined with chlorhexidine (CHX) with XP-endo Finisher compared to irrigation using sodium hypochlorite with chlorhexidine without XP-endo Finisher.

Ethics approval required

Ethics approval required

Ethics approval(s)

approved 21/02/2022, The Biomedical Research Ethics Committee (BMREC) of Damascus University (Damascus University, Damascus, -, Syria; +963 1133923482; ap.srd@damascusuniversity.edu.sy), ref: DN-210224-185

Study design

Interventional randomized controlled trial

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Patients with necrotic pulp

Interventions

Root canal treatment. The study samples (both clinical and laboratory) were divided into six groups: Groups 1 and 2: Irrigation was performed using 5.25% sodium hypochlorite with and without the XP-endo Finisher, respectively. Groups 3 and 4: Irrigation was performed using 5.25% sodium hypochlorite with 2% chlorhexidine, with and without the XP-endo Finisher, respectively. Groups 5 and 6: Irrigation was performed using 5.25% sodium hypochlorite with QMiX, with and without the XP-endo Finisher, respectively.

The randomization process was performed using sealed opaque envelopes managed by an independent party.

Intervention Type

Other

Primary outcome(s)

To compare the bacterial count before and after clinical root canal preparation using three final irrigation protocols:

1. Sodium hypochlorite (NaOCl) alone
2. Sodium hypochlorite combined with chlorhexidine (CHX)
3. Sodium hypochlorite combined with QMiX

Key secondary outcome(s)

There are no secondary outcome measures

Completion date

14/03/2025

Eligibility

Key inclusion criteria

1. Patients medically free from any systemic diseases
2. Patients between the age group of 20 and 40 years old
3. Absence of preoperative pain
4. Necrotic cases only
5. Presence of periapical radiolucency 1-5 mm in diameter
6. No antibiotics in the past three months

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

20 years

Upper age limit

40 years

Sex

All

Total final enrolment

60

Key exclusion criteria

1. Teeth with symptomatic irreversible pulpitis
2. Teeth with open apices
3. Consumption of any type of antibiotics in the past three months
4. Systemic diseases
5. Pregnant and lactating females

Date of first enrolment

01/01/2022

Date of final enrolment

01/01/2023

Locations**Countries of recruitment**

Syria

Study participating centre**Damascus University**

Department of Endodontics, Faculty of Dental Medicine, Mazzah

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 datasets generated during and/or analyzed during the current study are/will be available upon request from Prof. Dr Kinda Layous (kinda.layous@damascusuniversity.edu.sy). All of the patients' data will be available upon request. Consent was obtained from the participants.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes