Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 2026

Investigating the effect of topical Anethum graveolens Linn. seed (dill) oil on mild and moderate carpal tunnel syndrome a randomized, double-blind, placebo-controlled clinical trial

Protocol summary

Study aim

Determining the effect of topical Anethum graveolens Linn. seed (dill) oil on mild and moderate carpal tunnel syndrome

Design

A randomized, double-blind, parallel-design controlled clinical trial on 112 patients. Random allocation software 2.0 uses for randomization.

Settings and conduct

The study site is the clinics affiliated with Jahrom University of Medical Sciences.The study is double blind. patients and researchers are blinded.. Patients are followed up throughout the study and are visited at the beginning of the study and after 4 weeks of treatment.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Patients (18-65 years) with diagnosis of mild to moderate idiopathic carpal tunnel syndrome based on history, physical examination, and electrodiagnostic evidence. Exclusion criteria: Patients with severe idiopathic carpal tunnel syndrome- Pregnant or lactating women - HX of severe trauma or fracture of the wrist bones or surgery or injection into the carpal tunnel during the past 6 months - Thenar muscle atrophy- HX of rheumatological diseases- Diabetes or hypothyroidism- Recent or ongoing inevitable use of corticosteroids or analgesics

Intervention groups

112 eligible patients will be randomly assigned into two groups: the intervention group will receive dill seed oil and the control group placebo oil. The topical oil (drug or placebo) is applied twice a day (morning and evening) for 4 weeks to 5 drops per use on the palm and wrist area without massage. Also, patients in both groups use a wrist splint as standard treatment, every night and during sleep for 4 weeks. Moreover, patients in both groups are given two blister of 325 mg acetaminophen tablets as rescue analgesic to take PRN in case of pain due to CTS.

Main outcome variables

Severity of disease (symptoms and functional status) and electrodiagnostic parameters of the median nerve

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20150830023823N6**
Registration date: **2026-01-13, 1404/10/23**
Registration timing: **prospective**

Last update: **2026-01-13, 1404/10/23**
Update count: **0**

Registration date

2026-01-13, 1404/10/23

Registrant information

Name

Ali Tavakoli

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 71 3233 1028

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-03-06, 1404/12/15

Expected recruitment end date

2026-11-06, 1405/08/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Investigating the effect of topical Anethum graveolens Linn. seed (dill) oil on mild and moderate carpal tunnel syndrome a randomized, double-blind, placebo-controlled clinical trial

Public title

The effect of topical Anethum graveolens Linn. seed (dill) oil on mild and moderate carpal tunnel syndrome

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

1-Clinical diagnosis of mild to moderate idiopathic carpal tunnel syndrome by an orthopedic specialist based on history and physical examination as at least 2 symptoms or 1 symptom plus 1 sign (symptoms include: pain, paresthesia, hypoesthesia, numbness and tingling, and signs include: positive Phalen test or Tinel test) 2-Electrodiagnostic evidence of mild to moderate idiopathic carpal tunnel syndrome which includes the following : • SDL > 3/7 m/s2c• SNCV < 40 m/sec• MDL > 4/2 m/sec• CL > 2/4 m/sec 3-Voluntary acceptance of the terms of participation in the study and sign the informed consent form

Exclusion criteria:

Inability tto fill out the questionnaire. History of sensitivity to dill seed oil Severe idiopathic carpal tunnel syndrome based on electrodiagnostic tests History of severe trauma or fracture of the wrist bones or surgery or injection into the carpal tunnel during the past 6 months Thenar muscle atrophy Rheumatological diseases such as rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis, and amyloidosis Pregnant or lactating women Diabetes or hypothyroidism Recent or ongoing inevitable use of corticosteroids or analgesics Coexisting serious illness, such as renal and heart failure life-threatening diseases such as advanced cancer Diseases that can mimic carpal tunnel syndrome, such as multiple sclerosis Use of anticancer drugs and corticosteroids Clinical and electrodiagnostic signs of polyneuropathy

Age

From **18 years** old to **65 years** old

Gender

Both

Phase

3

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

Sample size

Target sample size: **112**

Randomization (investigator's opinion)

Randomized

Randomization description

In this study, we use permutation block randomization method with blocks of size 4 and an allocation ratio of 1:1.Therefore, according to the sample size (112 subjects), 28 blocks of size 4 can be considered. For this purpose, since we have two interventions, we initially will name them A and B. Then by using Random Allocation Software 2.0, we generate a list of 112 random sequences. Finally, based on this random list, 56 patients will be allocated to group A and 56 patients to group B.

Blinding (investigator's opinion)

Double blinded

Blinding description

The placebo will be made in color, odor, package and other characteristics similar to dill seed oil so that the patients and the researchers can`t distinguish between them

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Shiraz Medical School

Street address

Zand St.

City

Shiraz

Province

Fars

Postal code

7134845794

Approval date

2025-11-26, 1404/09/05

Ethics committee reference number

IR.SUMS.MED.REC.1404.471

Health conditions studied

1

Description of health condition studied

Carpal tunnel syndrome

ICD-10 code

G56.0

ICD-10 code description

Carpal tunnel syndrome

Primary outcomes

1

Description
Severity of disease (symptoms and functional status)
Timepoint
At the beginning of the enrollment to the study and after 4 weeks of intervention
Method of measurement
Boston Questionnaire (BCTQ)

2

Description
Electrodiagnostic indices of the median nerve
Timepoint
At the beginning of the enrollment to the study and after 4 weeks of intervention
Method of measurement
Electromyography device

Secondary outcomes

1

Description
Local side effect
Timepoint
Daily
Method of measurement
Adverse Drug Reaction Reporting Form

Intervention groups

1

Description
Intervention group: Patients in intervention group use a wrist splint as standard treatment, every night and during sleep for 4 weeks. In addition, the topical dill seed oil as the test drug is applied twice a day (morning and evening) for 4 weeks to 5 drops per use on the palm and wrist area, 2-3 cm above and below wrist crease of the affected hand/hands, without massage. Also, patients receive two blister of 325 mg acetaminophen tablets as rescue analgesic to take PRN in case of pain due to CTS.
Category
Treatment - Drugs

2

Description
Control group: Patients in control group use a wrist splint as standard treatment, every night and during sleep for 4 weeks. In addition, the topical placebo oil is applied twice a day (morning and evening) for 4 weeks to 5 drops per use on the palm and wrist area, 2-3 cm above and below wrist crease of the affected hand/hands, without massage. Also, patients receive two blister of 325 mg acetaminophen tablets as rescue analgesic to take PRN in case of pain due to CTS.
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
Clinics affiliated with Jahrom University of Medical Sciences
Full name of responsible person
Mohammad Nikbakhsh
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Shiraz University of Medical Sciences
Full name of responsible person
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Shiraz University of Medical Sciences
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Ali Tavakoli

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Traditional Medicine

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Position

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

for privacy

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available