Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Comparison of Nylon and Monocryl Sutures for Skin Closure and Their Effects on Wound Healing Outcomes in Patients Undergoing Total Knee Arthroplasty: A Randomized Clinical Trial

Protocol summary

Study aim

Comparison of the Effectiveness of Nylon and Monocryl Sutures for Skin Closure Following Total Knee Arthroplasty: The primary objective of this study will be to compare nylon and Monocryl sutures in joint replacement surgery in terms of wound healing, complication rates (infection, inflammation, and bleeding), and patient satisfaction. Evaluation of the Effect of Nylon and Monocryl Sutures on Wound Healing Time: This study will assess the time required for complete wound healing in the two groups using nylon and Monocryl sutures.

Design

A prospective, randomized, interventional clinical trial involving two groups of patients.

Settings and conduct

At Imam Khomeini Hospital, following completion of joint replacement surgery, the skin will be closed with nylon sutures in one group of patients and with Monocryl sutures in the other group. Routine postoperative wound dressing and care will then be provided.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Patients requiring total knee arthroplasty. Age between 45 and 85 years. Confirmation that the patient is aware of the study and has provided informed consent. Exclusion Criteria: Patients with a history of previous surgery involving the target joint. Patients with inflammatory joint diseases. Patients who smoke or consume alcohol. Patients with hypoalbuminemia or severe anemia. Patients who are unable to provide informed consent.

Intervention groups

Group 1 (Nylon Suture): In this group, the wounds will be closed using nylon sutures with interrupted subcutaneous stitches. Group 2 (Monocryl Suture): In this group, the wounds will be closed using Monocryl sutures with interrupted subcutaneous stitches.

Main outcome variables

Wound pain intensity, Wound cosmetics, Wound complications, Wound healing time

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200305046700N20**
Registration date: **2026-10-21, 1405/07/29**
Registration timing: **prospective**

Last update: **2026-10-21, 1405/07/29**
Update count: **0**

Registration date

2026-10-21, 1405/07/29

Registrant information

Name

Mohammadreza Razzaghof

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-11-01, 1405/08/10

Expected recruitment end date

2027-07-01, 1406/04/10

Actual recruitment start date

empty

Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Comparison of Nylon and Monocryl Sutures for Skin Closure and Their Effects on Wound Healing Outcomes in Patients Undergoing Total Knee Arthroplasty: A Randomized Clinical Trial

Public title
The Comparative Evaluation of Nylon and Monocryl Sutures for Skin Closure
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
patients requiring knee replacement surgery, aged 45 to 85 years confirmed awareness of the study and provision of informed consent.
Exclusion criteria:
Patients with a history of joint surgery inflammatory joint diseases smoking alcohol consumption hypoalbuminemia severe anemia inability to provide informed consent
Age
From **45 years** old to **85 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Participant
- Investigator
- Data analyser

Sample size
Target sample size: **126**
Randomization (investigator's opinion)
Randomized
Randomization description
Randomization will be performed using the Sealed Envelope online randomization service. A computer-generated permuted block randomization sequence with variable block sizes of 4 and 6 will be used. The randomization sequence will be generated before recruitment and will not be accessible to investigators responsible for patient enrollment. For allocation concealment, each assignment will be associated with a sequentially numbered, sealed, opaque card. After confirming eligibility and enrolling the patient, the study secretary will open the next card in sequence and communicate the assigned group to the surgeon immediately before surgery. Thus, the treatment allocation will remain concealed until the patient has been enrolled and randomized.
Blinding (investigator's opinion)
Double blinded
Blinding description
Patients will not be informed of the type of suture used. The surgeon will be notified of the patient groups by the secretary on the day of surgery. Data will be categorized; post-operative data for groups A and B will be collected by assistants. The analysis remains blinded to the data analyst.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Tehran University of Medical Sciences
Street address
Tehran University of Medical Sciences, International Campus, Office of Vice-President for Educational Affairs, Number 25, Hojat Dost St., Felestin St., Keshavarz Blvd., Tehran , Iran.
City
Tehran
Province
Tehran
Postal code
1416634793
Approval date
2026-06-02, 1405/03/12
Ethics committee reference number
IR.TUMS.IKHC.REC.1405.143

Health conditions studied

1

Description of health condition studied
Total knee arthroplasty
ICD-10 code
Z96.6
ICD-10 code description
Presence of orthopedic joint implants

Primary outcomes

1

Description
Wound pain intensity
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
A visual numerical rating scale ranging from 0 to 10, on which the patient self-reports the intensity of pain.

2

Description
Wound cosmetics
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
POSAS (Patient and Observer Scar Assessment Scale), assessed by both the patient and the observer.

3

Description
Wound complications
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
Clinical assessment and reporting by both the patient and the physician.

4

Description
Wound healing time
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
Assessment of the time required for complete wound healing.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Group 1 (Nylon Suture): In this group, the wounds will be closed using nylon sutures with interrupted subcutaneous stitches.
Category
N/A

2

Description
Group 2 (Monocryl Suture): In this group, the wounds will be closed using Monocryl sutures with interrupted subcutaneous stitches.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Imam Khomeini Hospital Complex
Full name of responsible person
Seyyed MohammadJavad Mortazavi
Street address
Tehran, at the end of Keshavarz Boulevard, Imam Khomeini Hospital Complex.
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
Dr Mohammad Ali Sahraian
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Office of Vice-Chancellor for research, Central Building of Tehran University of Medical Sciences, No. 226, Qods St., Keshavarz Blvd.
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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
Tehran 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
Tehran University of Medical Sciences
Full name of responsible person
Mohammadreza Razzaghof
Position
Assistant professor of orthopedic surgery
Latest degree
Specialist
Other areas of specialty/work
Orthopedics
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Person responsible for updating data

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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
There is no further information
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