

Microsurgical nerve repair in adult patients with recent traumatic digital nerve injury

Submission date 26/02/2020	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 28/02/2020	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 13/02/2026	Condition category Injury, Occupational Diseases, Poisoning	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Digital nerves are small nerves that pass along the side of each finger and provide sensation to the fingertips. These nerves can be accidentally cut when handling sharp objects like a knife or broken glass. The NEON study aims to find out whether sewing the ends of the cut nerve surgically is beneficial or even needed. Thoroughly cleaning the cut wound before closing the skin is a much simpler procedure, and may be satisfactory for patients.

There is some evidence that both treatments give good results. There is also some evidence that patients may not fully recover the feeling in their injured finger, even after sewing the nerve. Research so far has been conflicting and is of varying quality. For example, some studies do not directly compare treatments, or do not ask patients about their views of recovery. The best way to find out if stitching the cut digital nerve is appropriate is to conduct a research study. NEON will compare surgical procedures for digital nerve injury, with or without stitches (also known as sutures). 478 patients will have one of these two treatment options by random allocation.

Who can participate?

Patients aged 18 years and above with a suspected complete digital nerve laceration in any single digit, including thumb and little finger, appropriate for surgical repair.

What does the study involve?

Patient questionnaires measuring fingertip sensation and quality of life will assess the benefit of each treatment up to 12 months after the operation. It will also be important to look into whether there is a difference in cost between the two treatments.

What are the possible benefits and risks of participating?

The researchers cannot guarantee a benefit to patients who take part in this study. The results from the study are likely to benefit future patients with nerve injuries.

Both procedures are already performed routinely in the NHS and there is no expected difference in risk between them, or to treatment outside of the study. Taking part in the study will not change the standard of care patients receive. If patients are concerned about the complications associated with this injury and surgery, the researchers advise they speak to their local care team

Where is the study run from?

University of Oxford Surgical Intervention Trials Unit (SITU) (UK)

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

April 2020 to December 2023

Who is funding the study?

National Institute for Health Research (NIHR) (UK)

Who is the main contact?

SITU-NDORMS team

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Contact information

Type(s)

Public

Contact name

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Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

Integrated Research Application System (IRAS)

258872

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

IRAS 258872

Study information

Scientific Title

A randomised controlled trial assessing if microsurgical nerve repair offers clinical benefit and cost effectiveness (in terms of patient-reported hand function, sensory recovery and adverse events) over exploration and washout without microsurgical nerve repair in adult patients with recent traumatic digital nerve injury

Acronym

NEON

Study objectives

The NEON study seeks to answer whether microsurgical digital nerve repair is clinically and cost effective.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 10/02/2020 South Central - Oxford B Research Ethics Committee (Level 3, Block B, Whitefriars, Lewins Mead, Bristol, BS1 2NT, UK; +44 (0)2071048046; nrescommittee.southcentral-oxfordb@nhs.net), ref: 20/SC/0018

Study design

Multi-centre parallel double-blinded (patient and assessor) two-arm randomized controlled trial including economic analysis

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Single unilateral digital nerve injury appropriate for surgical repair

Interventions

Patients are randomised in theatre after consent and after confirmation of eligibility through surgical exploration. A web-based randomisation system will be used and the allocations will be computer-generated with a 1:1 ratio, minimised by site, injury location and flexor tendon injury. The patient will receive one of the following treatments in theatre:

1 - Digital nerve surgery with microsurgical sutures

2 - Digital nerve surgery with realignment of nerve ends but no microsurgical sutures

Patients will be followed up for 12 months by completing questionnaires and by attending clinical assessments. Patients will be followed up for a further 12 months using medical records and routine data.

Intervention Type

Procedure/Surgery

Primary outcome(s)

Clinical effectiveness of microsurgical nerve repair measured by the Impact of Hand Nerve Disorders (I-HaND) Patient Reported Outcome Measure at 12 months post-randomisation

Key secondary outcome(s)

1. Neurosensory and functional recovery measured at 3 and 12 months post-randomisation by:

1.1. Hand Health Profile of the Patient Evaluation Measure

1.2. EQ-5D-5L index and –EQ-VAS

1.3. Static two-point discrimination test (2PD)

1.4. Tactile gnosis using Shape/Texture Identification (STI) test; and Touch thresholds using Weinstein Enhanced Sensory Test (WEST) monofilaments

2. Cost-effectiveness of microsurgical nerve repair, measured by Health resource use questionnaires and EQ-5D-5L index at 3 and 12 months post randomisation

3. Complications of surgery and clinically problematic neuroma rates measured at 3 and 12 months post-randomisation by:

3.1. Patient-reported complications

3.2. Clinical assessment (including Elliot score)

3.3. Complications and further procedures in medical records

3.4. Complications and further procedures based on medical records and routine data at 24 months post randomisation

Completion date

01/12/2023

Eligibility

Key inclusion criteria

Patients aged 18 years and above with a suspected complete digital nerve laceration in any single digit, including thumb and little finger, appropriate for surgical repair

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

18 years

Upper age limit

100 years

Sex

All

Total final enrolment

122

Key exclusion criteria

1. Bilateral injury (ie both radial and ulnar digital nerves)
2. Laceration outside the region between distal palmar crease and distal interphalangeal joint
3. Closed injury
4. Infected wounds
5. Injuries in which a significant nerve gap exists which would preclude direct tension free surgical end-end repair
6. Non-isolated or multi-level injury (ie common digital/wrist nerve injury, fracture)
7. Unable to give consent
8. Inability to comply with trial follow-up procedures
9. Date of surgery later than 10 days after injury

Date of first enrolment

15/09/2020

Date of final enrolment

11/11/2022

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre

Stoke Mandeville Hospital

Buckinghamshire Healthcare NHS Trust

Mandeville Road
Aylesbury
England
HP21 8AL

Study participating centre

Broomfield Hospital

Mid and South Essex NHS Foundation Trust
Court Road
Chelmsford
England
CM1 7ET

Study participating centre

University Hospital Coventry

University Hospitals Coventry and Warwickshire NHS Trust
Clifford Bridge Road
Coventry
England
CV2 2DX

Study participating centre

Royal Cornwall Hospital

Royal Cornwall Hospitals NHS Trust
Treliske
England
TR1 3HD

Study participating centre

Royal Derby Hospital

University Hospitals of Derby and Burton NHS Foundation Trust
Uttoxeter Road
Derby
England
DE22 3NE

Study participating centre

Queen Victoria Hospital

Queen Victoria Hospital NHS Foundation Trust
Holtye Road
East Grinstead

England
RH19 3DZ

Study participating centre

Basingstoke and North Hampshire Hospital
Hampshire Hospitals NHS Foundation Trust
Aldermaston Road
Basingstoke
England
RG24 9NA

Study participating centre

John Radcliffe Hospital
Oxford University Hospitals NHS Foundation Trust
Headley Way
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OX3 9DU

Sponsor information

Organisation

University of Oxford

ROR

<https://ror.org/052gg0110>

Funder(s)

Funder type

Government

Funder Name

National Institute for Health Research

Alternative Name(s)

National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

United Kingdom

Results and Publications

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.
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IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		02/09/2025	05/09/2025	Yes	No
HRA research summary			28/06/2023	No	No
Other publications	Embedded SWAT	11/02/2026	12/02/2026	Yes	No
Protocol file	version 3.0	02/07/2020	03/05/2023	No	No
Study website		11/11/2025	11/11/2025	No	Yes