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

**Submission date**
26/02/2020

**Recruitment status**
No longer recruiting

**Registration date**
28/02/2020

**Overall study status**
Completed

**Last Edited**
13/02/2026

**Condition category**
Injury, Occupational Diseases, Poisoning

[X] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] 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
situ@ndorms.ox.ac.uk
Associate Prof. Jain (scientific)
situ@ndorms.ox.ac.uk

# Contact information

### Type(s)
Public

### Contact name
Dr SITU-NDORMS Team

### Contact details
Surgical Intervention Trials Unit (SITU)
Nuffield Department of Orthopaedics Rheumatology and Musculoskeletal Sciences
University of Oxford
Botnar Research Centre
Windmill Road
Oxford
United Kingdom
OX3 7LD
+44 (0)1865 737929
situ@ndorms.ox.ac.uk

### Type(s)
Scientific

### Contact name
Prof Abhilash Jain

### ORCID ID
https://orcid.org/0000-0002-1799-5310

### Contact details
Surgical Intervention Trials Unit (SITU)
Nuffield Department of Orthopaedics Rheumatology and Musculoskeletal Sciences
University of Oxford
Botnar Research Centre
Windmill Road

Oxford
United Kingdom
OX3 7LD
+44 (0)1865 737929
situ@ndorms.ox.ac.uk

# Additional identifiers

### Integrated Research Application System (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

### Primary study design
Interventional

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

### 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
Headington
Oxford
England
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.
situ@ndorms.ox.ac.uk

## 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 |