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Through knee amputation compared to above knee amputation

Submission date
13/02/2025

Recruitment status
Recruiting

Registration date
18/02/2025

Overall study status
Ongoing

Last Edited
18/02/2025

Condition category
Surgery

[X] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
Every 2 hours, someone in the UK has a leg removed and their life is changed forever. When undertaking an amputation, surgeons try and preserve the knee joint if possible. If this is not possible, an above knee amputation is usually performed. However, an amputation through the knee joint is an alternative. Compared to an above-knee amputation, a through-knee amputation may result in superior outcomes and improved rehabilitation, such as easier control of an artificial leg or balance in a wheelchair, but may also lead to issues with wound healing. Patients report positive and negative experiences with both above and through knee amputations. High-quality research is lacking and evidence to clearly define which of these two amputations results in the best outcomes for patients is urgently needed. This study will compare quality of life, complications, rehabilitation, and cost to the NHS following above and through knee amputations.

Who can participate?
Adults aged 18 years or older requiring a major lower limb amputation but who are unable to have a below knee amputation

What does the study involve?
Patients who are eligible and agree to join HAMLET will be allocated to have an above or through knee amputation based on chance rather than a patient or surgeon decision. They will have their allocated lower limb amputation and we will follow up the two groups every 4 months over 2 years to compare the impact of the amputations on their quality of life, wound healing, reoperations, rehabilitation, walking ability, and the cost to the NHS. Some patients (who provide consent) will be interviewed to assess their views about their amputation.

What are the possible benefits and risks of participating?
The information we get from this study may have a significant impact on helping people and healthcare professionals make more informed treatment choices in the future. Being in this study should not harm or limit care in any way. Amputation surgery will be offered whether patients choose to take part in the study or not.

This study only includes treatments that are already used in the NHS. As with many medical procedures, there are some potential risks with either of the amputation surgeries and these will be discussed as part of routine pre-operative care.

Where is the study run from?
Hull University Teaching Hospitals NHS Trust are running this study in conjunction with the York Trials Unit, the University of York and the University of Hull (UK)

When is the study starting and how long is it expected to run for?
June 2024 to August 2030

Who is funding the study?
This study is funded by the National Institute for Health and Care Research (NIHR) Health Technology Assessment Programme (Reference: NIHR157343) (UK)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Type(s)
Public

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Additional identifiers

Integrated Research Application System (IRAS)
330828

Central Portfolio Management System (CPMS)
57064

National Institute for Health and Care Research (NIHR)
157343

Protocol serial number
Grant Code:

Study information

Scientific Title
Through knee amputations impact on quality of life compared to above knee amputations - the HAMLET trial

Acronym
HAMLET

Study objectives
Quality of life is better following through knee amputation than following above knee amputation

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 10/02/2025, Yorkshire and Humber - Sheffield REC (NHS Blood and Transplant Blood Donor Centre, Holland Drive, Newcastle upon Tyne, Tyne and Wear, NE2 4NQ, UK; +44 (0)207 1048135; sheffield.rec@hra.nhs.uk), ref: 25/YH/0007

Primary study design
Interventional

Study design
Randomized; Interventional; Design type: Treatment, Surgery, Rehabilitation

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Major lower limb amputation

Interventions

Eligible and consenting patients will be randomly allocated to either a through knee amputation or above knee amputation. Participants will be informed of their treatment allocation.

As part of the retention SWAT participants will also be randomised to receive an unconditional £25 in the form of either a voucher or cash, to be received prior to the 12- and 24-month follow-up time points.

Postoperatively, patients will receive all other medical care as per standard of care.

The local research team will also approach patients (including both consenters and decliners to the main study) regarding their participation in a qualitative study interview and to provide consent to be contacted by a qualitative researcher. Consenting patients will then be contacted by a qualitative researcher who will provide further participation information. Following this, patients who provide consent to be interviewed will be interviewed initially within 8-10 weeks following their surgery. Patients will also be invited to participate in longitudinal interviews to understand the impact on quality of life and longer-term recovery (at 6, 12, 24 and where possible 36 months post amputation).

Intervention Type
Other

Phase
Phase III

Primary outcome(s)
Quality of life (QoL) measured using the EuroQol 5 Dimensions (5L) score (EQ5D-5L) via remote questionnaire (telephone, electronic or postal) at 24 months post-randomisation

Key secondary outcome(s)
Surgical outcomes:
1. Perioperative blood loss assessed using the Riddle formula alongside details of any products used in the perioperative period as documented in clinical notes
2. Planned or unplanned high observation or intensive care admission, assessed from the clinical notes at discharge
3. Procedural pain documented on a 0-10 numerical rating scale at baseline and over the first 5 days post-procedure
4. Within-hospital complications, specifically major adverse cardiovascular events, renal impairment and delirium, assessed from the clinical notes and recorded at the time of discharge
5. Impaired wound healing (including wound infection), assessed from the clinical notes and recorded at the time of discharge
6. Returns to theatre: requirement for revision surgery at either the same or a higher level of amputation, assessed from the clinical notes at discharge, 4, 8, 12, 16, 20 and 24 months
7. 30-day mortality assessed from the clinical notes
8. Total inpatient length of stay assessed from the clinical notes
9. Days alive and out of hospital (measured at 90 days) assessed from the clinical notes
10. Discharge destination, determined from discharge clinical notes and recorded as own home /rehab facility/respite facility/residential care/nursing care
11. Contralateral limb outcomes (minor/major amputation), self-reported at telephone follow-up or assessed from clinical notes at 4, 8, 12, 16, 20 and 24 months

Rehabilitation outcomes:
1. Early mobility measured using the completion of the Basic Amputee Mobility Score (BAMS) by the participants' clinical team at 5 days post-procedure
2. Prosthesis assessment measured using the Special Interest Group in Amputee Medicine Score (SIGAM), assessed from clinical notes review at discharge from hospital and discharge from rehabilitation
3. Referral or not referred for prosthetic assessment assessed from clinical notes during physiotherapy assessment (Note - there is no set timepoint for this assessment. A decision will be made during physiotherapy assessment which could occur at any time)

If referred:
1. Amputee mobility predictor without prosthesis score (AMPnoPRO) during early assessment at the prosthetic centre
2. Achieved expected level of rehabilitation (based on initial AMPnoPRO prediction) at completion of rehabilitation activity.

For prosthetic wearers only:
1. Prosthesis experience measured using the Trinity Amputation and Prosthesis Experience Score (TAPES) and the Socket Comfort Score at months 8, 16 and 24 and at discharge from rehabilitation services
2. Self-reported prosthetic wear time/use at months 8, 16 and 24

Patient-reported outcomes:
Quality of life (QoL) measured using the EuroQol 5 Dimensions (5L) score (EQ5D-5L) at baseline and 4, 8, 12, 16 and 20 months post-randomisation as recorded by the participant via remote questionnaire collected via phone call

The following additional measures will also be assessed by self-reporting via telephone follow-up for all participants:
1. Requirement for formal/informal care assessed using a bespoke/study-specific questionnaire at months 4, 8, 12, 16, 20 and 24
2. Social care related quality of life measured using the Adult Social Care Outcomes Toolkit (ASCOT) SCT4 Questionnaire at months 4, 12 and 20
3. Falls (self-reported number and complications of falls) at months 8, 16 and 24
4. Balance assessed using activity-specific balance confidence score (ABC) at months 4, 12 and 20
5. Activities of daily living measured using the Return to Normal Living Index (RNLI) at months 8, 16 and 24
6. Pain (0-10; Phantom pain assessments) at months 4, 8, 12, 16, 20 and 24
7. Wound healing assessed using a bespoke/study-specific questionnaire at months 4, 12 and 20

The following additional measures will also be assessed by self-reporting via telephone follow-up for prosthesis users only:
1. General prosthesis wear assessed using a bespoke/study-specific questionnaire at months 8, 16 and 24
2. Experience of prosthesis wear measured using the Trinity Amputation and Prosthesis Experience Score (TAPES) at months 8, 16 and 24
3. Prosthesis socket comfort measured using the Socket Comfort Score (SCS) at months 8, 16 and 24

Completion date
31/08/2030

Eligibility

Key inclusion criteria
1. Aged 18 years or older
2. Requiring unilateral major lower limb amputation (MLLA), including patients with a pre-existing below knee amputation (BKA) who require revision to a through knee (TKA) or above knee amputation (AKA)
3. Able to provide consent and willing to adhere to the follow-up protocol

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Key exclusion criteria
1. Suitable for a BKA – as determined by the local surgical team
2. Contraindication to either AKA or TKA – as determined by the local surgical team
3. Limited life expectancy (of ≤6 months)
4. Patients who require concurrent bilateral MLLA
5. Evidence that the patient would be unable to adhere to trial procedures or complete questionnaires
6. Previously recruited to the HAMLET Trial

Date of first enrolment
01/03/2025

Date of final enrolment
28/02/2028

Locations

Countries of recruitment
United Kingdom

England

Northern Ireland

Wales

Study participating centre
Hull University Teaching Hospitals NHS Trust
Hull Royal Infirmary
Anlaby Road
Hull
United Kingdom
HU3 2JZ

Study participating centre
Belfast Health and Social Care Trust
Trust Headquarters
A Floor - Belfast City Hospital
Lisburn Road
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United Kingdom
BT9 7AB

Study participating centre
Leeds Teaching Hospitals NHS Trust
St. James's University Hospital
Beckett Street
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LS9 7TF

Study participating centre
Mid and South Essex NHS Foundation Trust
Prittlewell Chase
Westcliff-on-sea
United Kingdom
SS0 0RY

Study participating centre
The Newcastle upon Tyne Hospitals NHS Foundation Trust
Freeman Hospital
Freeman Road
High Heaton
Newcastle upon Tyne
United Kingdom
NE7 7DN

Study participating centre
North Bristol NHS Trust
Southmead Hospital
Southmead Road
Westbury-on-trym
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United Kingdom
BS10 5NB

Study participating centre
Aneurin Bevan University Lhb
Headquarters - St Cadoc's Hospital
Lodge Road
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NP18 3XQ

Study participating centre
The Royal Wolverhampton NHS Trust
New Cross Hospital
Wolverhampton Road
Heath Town
Wolverhampton
United Kingdom
WV10 0QP

Study participating centre
St George's University Hospitals NHS Foundation Trust
St George's Hospital
Blackshaw Road
Tooting
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United Kingdom
SW17 0QT

Study participating centre
University Hospitals Coventry and Warwickshire NHS Trust
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Study participating centre
University Hospitals of Leicester NHS Trust
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Sponsor information

Organisation
Hull University Teaching Hospitals NHS Trust

Funder(s)

Funder type
Government

Funder Name
National Institute for Health and Care 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 data-sharing plans for the current study are unknown and will be made available at a later date

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes