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BRITISH ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS IN LIMB ABSENCE REHABILITATION

SPRING 2023 **ISSUE 59**

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BACPAR

CHARTERED SOCIETY OF PHYSIOTHERAPY

NEW OPPORTUNITIES

Louise Tisdale

BACPAR Chair

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CHAIR'S MESSAGE

Welcome to the Spring 2023 journal. The executive committee met for their 2-day committee meeting in Birmingham (some joining virtually) to discuss the aims and objectives for the 30th Anniversary year and to plan the work.

Some of the proposed work plan was shared at the AGM in Brighton last November, the meeting held within the Vascular Societies' ASM. The BACPAR programme was well attended, and it was an excellent opportunity to network with fellow BACPAR members and others in the MDT. A good number of historical BACPAR sponsors were also present. A new format of World Café was trialled and will be further developed for future programmes.

The next BACPAR programme will again be held within the VS ASM in Dublin this year, 22nd–24th November 2023. Planning for this event has started and we will aim to put BACPAR related items into each day of the programme in collaboration with the Vascular Society and Society of Vascular Nurses (SVN): more collaboration with BACPAR at this event has been requested by said societies.

Following election at the 2022 AGM (see the summary of the AGM in this Journal – there were 62 members present), Shaun Fryett is being inducted into the membership secretary role by Lynsey Matthews, the role facilitated by automatic renewal process regarding which you will have received an email from BACPAR admin in February. As requested in that email please ensure that your details re your membership are correct, and correspondence has been consented to so we can keep you up to date. Our thanks and very best wishes to Lynsey.

The public relations officer was not elected to, so we have reviewed this role alongside that of the social media officer. Julia Earle will take on the PRO alongside that of vice-chair for the current term. Thanks to Hayley Crane for her input into the committee, we wish you all the best for your PhD completion.

We have a new journal officer to support Sue Lein's continued work in this role. Carolyn Wilson has handed over her Northern Ireland regional rep role to Helen and has now been elected as the other journal officer. It is good to keep you on the committee Carolyn!

And finally, the executive committee said goodbye to Mary Jane Cole who has retired from the committee roles she was in. We were able to give her an appropriate thank you at the AGM and she will continue to support the production of the journal alongside others in the sub-editorial group.

One of the new projects to come from the 2021 and then the 2022 BACPAR programme presentations will be the ongoing development of patient stories to facilitate patients' adjustment to their limb loss, BACPAR members will be involved in this project.

At the AGM members voted to support the funding of literature searching by academic partners to enable the update of BACPAR's guidelines – however monies have since been secured from the CSP to undertake this activity. The Guidelines Officers have held a meeting with interested individuals to form the guideline's update working parties, more support to this group is needed if you are interested contact the BACPAR guidelines coordinators.

The Vascular Society is keen to carry out some joint educational sessions with BACPAR in addition to those with the VS ASM programme. Ideas have been gathered and will be shared with the VS by the Education Officers.

BACPAR is a growing organisation in 2013 – the membership was 229 – at the AGM in 2022 we are 320, and at the start of the new membership year – we are 335.

Happy 30th birthday BACPAR!!

WELCOME

EDITORIAL

Welcome to the Spring 2023 Edition… …and to BACPAR's 30th anniversary year! We hope to produce a special 30th anniversary feature in the autumn edition and so would be keen to hear from you if you were part of the early days or the history of BACPAR.

We are enjoying working together as one new – and one old…or is that just experienced….joint journal editors! We want to say a special thank you to our retiring journal officer Mary Jane for her help with this edition and bringing many of the rolled-over articles to fruition.

Very exciting news is that, following our appeal in the last journal, we now have a new sub-editorial board for the journal. Four members – Sally Finlay, Mary Jane Cole, Fiona Gillow and Linsay Clark have volunteered, and we had our first virtual meeting in January. This group will assist with proofreading of submissions and help to develop ideas and possible contacts for future journal features.

You will find some content in this edition relating to our highly successful conference at the Vascular Societies Annual Scientific Meeting in November 2022. We also have two great features on paediatrics showing the range of work our members are involved in.

On page 24 there is an article which our chair Louise Tisdale was involved in producing with colleagues at The Royal Wolverhampton NHS Trust, first published by the Institute of Health and Social Care Management in September 2022. We have been given permission to reproduce it here in the hope it will inspire you to write something for a future BACPAR Journal. We look forward to hearing from you!

Sue and Carolyn

GUIDANCE FOR SUBMITTING CONTENT FOR THE BACPAR JOURNAL

DEADLINES for the biannual journals (Spring and Autumn) will be announced via iCSP and our 'BACPAR Members Only' Facebook page.

CONTACT the Joint Journal Officers via email: **bacparjournal@gmail.com**

WORD COUNT The approximate word for major articles is 2000 or 1500 words if you have the addition of figures and/or tables, photos, and references.

PICTURES & LOGOS should be supplied as SEPARATE FILES – high resolution (240ppi) jpegs or PDFs as images. They should ALSO be placed in the text to show where they should be located. You may want to include your Trust/ Organisation logo. **You must have permission to use all images you supply for publication.**

INCLUDE YOUR NAME NAME (AND ANY CO-AUTHORS), JOB TITLE AND WORK SETTING AT THE TOP OF YOUR ARTICLE (after the feature heading).

USE OF CAPITALS use capitals for job titles only in the feature heading or within the text if after someone's name e.g. Joe Bloggs, Clinical Specialist Physiotherapist. Otherwise use lower case for job roles within the text e.g., physiotherapist, prosthetist.

LETTERS TO THE EDITORS

Dear Editors,

Thank you and congratulations on the 58th edition of the BACPAR journal. As with BACPAR and prosthetic rehab it has been improving & growing steadily since that first 'newsletter' in 1994.

I am impressed with the breadth & depth of the contents, all relevant to limb absence rehab but covering so many topics and including so many individuals. I especially like the article corner… …so easy to keep up to date when new articles are highlighted for you.

Resources such as this depend on the hard work and continued enthusiasm of the people who put it together and also those that read it & contribute….. keep up the good work!

Thanks again,
Penny Broomhead

Dear Editors,

As a Band 5 Rotational Physiotherapist, it can sometimes feel that you are thrown into the deep end as you learn a new ward, a new team, a new plethora of terms only used by the new rotation. With my rotation into the amputee rehabilitation team this was no different, however the pool felt a lot shallower due to the support of the team and the vast number of resources available to help you feel you can float. The BACPAR journal is no exception, with its variety of articles, posters, and inspirational stories.

I found myself drawn to articles that included the view of the therapist and patient experiences, and it is great to see a journal that covers the cohort so holistically. The journal is a great source of information to provide to patients and to personally reflect on whilst I develop my skills working with a cohort that prior to this rotation I have had very limited exposure to.

The pinboard page of the journal is a clever way of providing information to all readers. Being at Queen Mary's Hospital, Roehampton it has also been great to read articles in both the Spring and Autumn 2022 editions that have been written by staff of the hospital, which adds a personal point of interest to the journal which I'm sure others can relate to when a poster or journal article or poster is included from their team within the journal.

There are few areas of the journal which I feel there is scope for improvement. One area I feel could improve is the spacing of the posters. The posters are a main point of interest as they provide a great insight into current research in a bitesize and digestible format. Most of the posters are real eye catchers, however when they are placed side by side, they slightly lose their punch. A suggestion from an outsider looking in, would be to space the posters throughout almost as the adverts are, to ensure they keep their attention catching appeal.

Limb absence rehabilitation has truly been one of my favourite rotations and is the first rotation I have completed with emphasis on a special interest group within physiotherapy. The fact that the group has a yearly conference, and a biannual journal is a great resource, makes you feel part of a true community, and part of a team that I have thoroughly enjoyed and have been inspired to become a BACPAR member.

Zachary Boughton
Band 5 Physiotherapist
Queen Mary's Hospital, Roehampton, London

REGIONAL REPORTS

East Anglia Regional Report
Jessica Withpetersen

Anna Cue remains on maternity leave from this role following the birth of gorgeous Alfie.

We have continued to meet virtually due to the geographical vastness of East Anglia. We planned a face to face meeting in January 2023 but unfortunately this was postponed due to the lack of availability of our speaker. We look forward to our next face to face meeting.

As a region, we are reflecting and reviewing our management of pressure injuries as a result of prosthetic use, following the excellent presentation at the BACPAR conference. We are also reviewing the collection of outcome measures for microprocessor knee trials.

Addenbrookes are starting to undertake their outcome measures in the gait lab with the plan to see if they can facilitate the gait lab technician to undertake them with a physiotherapy constructed proforma, stopping the need for the physiotherapists to collect the data.

South Thames Region Report
Fiona Gillow and Sally Finlay

The South Thames Region has a large membership with 48 members. We ran a study day at Kent and Canterbury Hospital in September 2022 on 'yoga for limb loss rehabilitation' with an excellent yoga teacher Pip McDaid and 13 attendees. We were left feeling stretched, exhausted and inspired to put what we had learnt into practice. Alicia Bunn has written a reflective summary of the day which is included in this journal edition.

An exciting project started within the region at Queen Mary's Hospital on using stories in practice is now being rolled out nationwide. By the time you see this, you will have hopefully attended the 20th March webinar.

We are now using feedback from the yoga study day to plan the next South Thames Region study session. We would also welcome any new ideas for future sessions, so please do get in touch with us if you have any suggestions.

EDITORS: Apologies to the South Thames Reps and membership that we omitted their report in the last journal.

Scotland Regional Report
Grace Ferguson

Scotland currently has 19 full BACPAR members, 1 departmental membership and 1 student membership. We now have a rehab coordinator in place for Lanarkshire in order to assist with repatriation of patients. There will likely be a B7 position coming up in FV for a similar role.

Glasgow are currently monitoring our primary clinic slots and are exploring our KPI's in relation to the patient journey and flow through Westmarc services. Edinburgh have secured a full time static Band 6 in Vascular, helped by the data collected by SPARG.

Fiona Davie-Smith is doing a symposium with Laura Ritchie from Blatchford – looking at bilateral TTA's on self-aligning ankle/feet.

We are currently piloting the DSTF in Edinburgh and Glasgow. We have seen mixed results in WestMARC – possibly due to patient selection, but also have had a few issues with valves. Edinburgh is having a positive experience with this, especially with out of area patients.

We are currently going through an MPK replacement process. The serviceable life cycle of MPK's is 6 years. Our service is over 7 years old now, so we are currently having to review our MPK users and consider replacements or exit from MPK use. This is being reviewed on a monthly basis. We are hoping to generate a qualitative paper from this. We have also found out that the Quattro knee is not waterproof.

OsseoIntegration – 4 patients have had this via the NHS GGC since 2017 using the Australian method. All are unilateral TFA. We are submitting a business case for national designation. Fiona Davie-Smith and Elena Harris (prosthetist) are presenting at Southampton next week on the OI service.

UL service: This has started in Glasgow and Edinburgh. MAH reviews have not started yet, but will be the same process as described above for the MPKs.

Ossur Running training was carried out by Rachel Humpherson on Rheo XC users in WestMARC with Aberdeen centre joining via video link. Staff and patients all found this very useful. Further training dates on 23rd and 24th June.

WestMARC have reintroduced their strength and balance classes for low level activity limb users and started advanced rehab classes (replacing the previous running classes) for higher level activity limb users. These will be reviewed later this year.

South Central
Tim Randell

There has been a slight reconfiguration of therapy services for people with amputations within the South Central region. I continue to work closely with the leaders of the various teams to try and optimise the services they provide. In addition, we completed two training sessions that included information on the updated BACPAR guidelines, early prosthetic rehab, and an introduction to prosthetics. These sessions were online and open to BACPAR members and were well attended.

Unfortunately, we did not manage to complete any peer support sessions. These have been very useful in the past and therefore we do plan to reintroduce them again this year. Further communication links were established across the region to try and improve therapy for people with amputations.

If any members do have any questions or queries, then do please contact me.

Yorkshire/North East Regional Report
Jack Cawood

We held our latest regional study at the start of February which was held at Seacroft Hospital in Leeds. This was a full day's agenda with a range of speakers discussing topics from Graded Motor Imagery to Encouraging Behavioural Change in Rehabilitation. This was well attended by approximately 10–15 members throughout the day and it was great to see some familiar and some new faces joining the group. I would like to send a big thank you to all the speakers and organisers and an extra big thank you to Clifton and Lianne from the Limbless Association for coming and supporting our teams and sharing some very useful insight!

Moving forward the group have agreed to look towards alternate virtual and face to face meetings, therefore the next meeting will be virtual in May time (date yet to be confirmed). As always if anyone is interested in helping organise or host a Regional BACPAR event please feel free to get in touch!!

BACPAR West Midlands region
Louise Tisdale

The region has 26 members at present and all but 1 are full members.The West Midlands regional members had its first face to face meeting in Wolverhampton on the afternoon of the 19thJanuary 2023. The meeting was attended by in and outpatient clinicians alike and represented the group well. An option was offered to join remotely but this was not taken up.

Kim Ryder and Geoffrey Yu have written an excellent summary of the meeting for this Journal (see page **). Our visitors Emma Holly (Educator and Clinical Scare Specialist, Restore Therapy Ltd) and Adam Withey (Juzo UK Ltd who supplied lunch) were well received.

The group plans to meet again in August or September and Birmingham's amputee rehabilitation centre has offered to host it. I have been asking if the membership is interested in attending a 'scar therapy management' study day and there has indeed been some positive feedback. We will keep you informed about the plan.

Trent Regional Report
Peter Robinson

I have recently taken up the role of Clinical Specialist Physiotherapist at the limb centre in

Sheffield following Gillian Atkinson's retirement. As a region we currently have 28 members and continue to meet virtually. Our members work across a variety of inpatient, outpatient, private, NHS and research settings. Our last meeting was held in February and we laid out a plan for learning and development over the coming year. We hope to continue to utilise the accessibility of virtual meetings and aim to bring in guest speakers to deliver specific teaching sessions.

Amirah Essop-Adam will shortly be recruiting for her qualitative research project with the aim of developing a non-ambulatory assessment tool for limb absent patients.

North West/Mersey
Jayne Watkins

Jayne Watkins replaced Sophie Racz as regional rep in September 2022. She has been in touch with Bacpar members and held a face-to-face BACPAR study day in February 2023 at Aintree University Hospital, Liverpool. The focus of the morning was 'Assessment of the amputee' from the perspective of consultant, psychologist, and podiatrist. The afternoon centred around updates on prosthetic knees and feet with a patient demonstration. The day was very well received, and it was good to see familiar faces and network with friends. There were many ideas put forward for future study days.

Vascular acute services were relocated from The Royal Liverpool Hospital in early 2023 to the Aintree Hospital site potentially making the transition for patients to the prosthetic service easier. However, the physiotherapy service in Liverpool limb centre remains understaffed despite more pressure on the service. This is due to local physiotherapy services for outpatient amputees in the region dissolving. It is possible that a part time band 6 post at the centre will be advertised in the future

North Thames
Eve McQuade

As our region is geographically big and after seeking feedback from members, we have decided to alternate face to face meetings with virtual meetings. We also plan to alternate the face-to-face meetings between Stanmore and Billericay in Essex.

We had our first face to face meeting on 14th September, with one member joining virtually. The topic was an introduction to transfemoral amputation assessment, prescription, and limb fitting. The session was well received, and it was good to see everyone again.

We had a virtual meeting on 25th January which encouraged attendees to share anything they were proud of in a 'brag and steal' session. We included a case study of a patient with multiple limb loss following sepsis.

The next face to face session will be hosted at Billericay with the date to be confirmed.

Ireland
Helen Brannigan

A 'Sporting highlights / Activity Day' is planned for 19/5/23 at a local sports centre. Disability Sport NI have been assisting in the planning of the day. At present, we will have representation for the following sports: Wheelchair basketball, Sitting volleyball, Inclusive cycling, Boccia, Wheelchair GAA, Golf, Pilates, Wheelchair Tennis, and Badminton. All our adult service users will be receiving invitations to attend.

Currently some work is happening with a research team in the University of Ulster and applications are being made for grants for a research project in the area of temperature sensors and early detection of skin breakdown. Other centres have been approached to become involved.

Also, a project is being set up to look at the amputee pathway and specifically the phase between when a patient is discharged from the acute setting and comes for an assessment at the Regional Amputee Unit. Initial plans are to carry out some PPI for some baseline information from our service users.

FEEDBACK ON BELFAST REGIONAL AMPUTEE STUDY DAY NOVEMBER 2022

Suzanne Mirfield, Physiotherapist, Royal Victoria Hospital, Belfast

As a frontline trauma physiotherapist, I was very lucky to have been given the opportunity to attend the Amputee Study day at MPH on 11th November 2022.

The day was structured with full encompassing care of the amputee patient – PT, OT, Consultant in Rehabilitation, Podiatrist & Prosthetist. It also focussed on the psychological impact for the amputee as an individual affected, and for us as caregivers.

The emphasis was very much on full holistic care and teamwork. The team fully demonstrated the pathway journey from immediate post op management and complications to the patient's lifelong rehabilitation and needs.

It was very engaging to meet with 3 patients and discuss their journey, perceptions and how we can make it better for them. This will undoubtedly create change and a positive impact.

The practical involvement was excellent, with input from patients. This provided useful tips to those not familiar with treating this client group in the acute stages in the community. I certainly feel it will complement the technical skills I have developed over the years.

I enjoyed the networking and look forward to building on relationships between our teams.

Overwhelmingly a successful day and great to be a part of it.

FEEDBACK ON THE BACPAR WEST MIDLANDS REGIONAL MEETING

Kim Ryder
The West Midlands region of BACPAR came together on 19th January for its first face-to-face meeting since the start of the pandemic, although we have met regularly using Zoom and Teams since then. The meeting was well-attended, with representation from all three of the Midland's prosthetics centers, three of the region's satellite clinics, and one of our acute trusts.

Adam Withey from Juzo kicked off the afternoon by providing a very pleasant lunch, and after that he gave us an overview of some of the new products that Juzo are releasing onto the compression therapy market. This first of these are some larger sizes, and soon both the above-knee and below-knee shrinker socks will be available in XXXL and XXXXL, which is great news for our larger patients and should reduce how many made-to-measure products we need to order.

Adam also talked about some of the Juzo products that contain silver, which can be helpful for its anti-fungal and anti-bacterial properties. For those of you working with Osseointergration patients, Juzo can also do a custom-order for a shrinker sock with a hole at the distal end to fit around the bone abutment, and the shape of the standard shrinker socks is about to change to accommodate the difference between the shape of longer and shorter residual limbs. Watch this space for the new measurement chart when it comes out.

The final product that Adam discussed was the Juzo adjustable compression wraps, which he demonstrated on the Juzo stand at the Brighton conference. These are ideal for residual limbs that are an unusual shape, but they can deliver up to 40-60 mmHg compression if they are not fitted properly, so the patient needs to be taught how to don them correctly to avoid excessive pressure, and they are only really suitable for compliant patients.

The next session was all about scar massage, and we were lucky enough to have Emma Holly with us for the afternoon. Emma is a clinical scar massage specialist, and she talked to us about different techniques to help lift adherent scars. We practiced using a variety of these, and it is fair to say that we soon realised that the good old-fashioned residual limb and scar massage techniques that we have all been using for many years might not be doing what we would like them to do. We are hoping to put on a one-day training session with Emma, and if we have space to open this out to non West-Midlands members, it will go on the website and the Facebook page etc.

Our final session was led by a patient from Stafford, who has recently been provided with a Genium X3 MPK through the private sector. His first NHS prosthesis was fitted with a KX06 knee, with which he did very well, but within 12 months, he was awarded private funding for his prosthetic care because his limb-loss had been caused by an RTC that was not his fault. This was an informal Q&A session, and the patient talked to us about the difference between the two knees, and how much further he had been able to progress with his rehabilitation with his MPK. He also showed us the knee in action on a variety of terrains, which was very impressive. What then followed was a totally unplanned session where Emma had a look at the scars on his residual limb and got to work on some massage to help release some areas of adherence, and it was lovely to see her hands at work on a 'real' residual limb.

Geoffrey Yu
After 2 years, the West Midlands Region had its first face to face meeting in Maltings Mobility Centre organised by Louise Tisdale again, with our familiar sponsor Adam Whitley, from JUZO.

The meeting was kicked off with an informative presentation from Adam, who demonstrated the use of compression therapy for different conditions ranging from different levels of amputation, to conditions such as proteus syndrome. Stump shrinkers with new knitting techniques to prevent slipping off will obtain a CE mark soon. We look forward to trialling it with our clients and to provide JUZO with feedback.

A practice-changing talk on scar management was provided by scar management specialist Emma Holly. She linked the scar assessment and mobilisation technique with the scar physiology. Treatment using vacuum-cups of different sizes, and manual technique was demonstrated on a client with a knee disarticulation. I must admit that many of us were pleasantly surprised how gentle the technique can be to provide effective treatment. Circular motion on the scar line is not always effective depending on the scar. The message was, "Let's lift the skin and wiggle it!" Emma will return to provide a full day training of scar management, so watch this space.

A gentleman with knee disarticulation due to RTA was invited to share his experience using the Genium Knee. He demonstrated different functionalities of the Genium by negotiating a ramp, stepping backwards, and going up and down stairs with a step over step pattern, with excellent technique. This showed how important it is to have a complete rehabilitation in order to maximise the benefits of using such technology.

REPORT OF BACPAR'S AGM 2022

Wendy Leonard, BACPAR Secretary

This year's AGM was held on Wednesday 23rd November at the BACPAR conference in Brighton.

Full minutes can be found on the BACPAR website **http://www.bacpar.org/data/Resource_Downloads/2022AGMminutes.pdf**

62 members were present and 3 apologies.

The previous minutes were agreed as a true record.

Matters Arising: The name change agreed at last year's meeting has been actioned and all stakeholders have been informed and communications updated.

Treasurer: Sue Lein prepared a recorded presentation to deliver the finance report and was available for questions – though none were asked. BACPAR continues to be in a healthy financial position.

Bursaries have been paid out, but the funding allocated has not been fully utilized.

The last year: A few of the highlights from the BACPAR year are given here:

- The BACPAR website is now fully operational.
- Membership numbers remain strong.
- The executive committee has been reviewing its response to the Equality, Diversity and Belonging guidance from the CSP and engaging with the membership about this.
- The Guidelines update continues and generates a lot of work and will need help to continue this activity from the membership, two working parties will be needed from January 2023.
- We have been represented at ISPO led meetings and within the Vascular Societies (VS), including on the VS Journal editorial board.

SPARG report: was presented. BACPAR funds support the development of the SPARG reports which are added to the BACPAR website when they are available.

Questions asked of the BACPAR membership during the 2022 AGM

1. To do the guidelines we need to spend money to allow the literature search to be done externally with annual updates also being done on alternate years. Discussion around time scales and costs.

Majority vote in favour to allow the committee to proceed with this.

POST AGM note – BACPAR were successful in gaining funds from the CSP to support this in the immediate future.

2. Do BACPAR want to be part of the Vascular Society's Annual Scientific Meeting in 2023? The VS are holding next year's ASM in Dublin so do we wish to join them or hold our own as we have in other years.

Over half the members agreed to the conference being held in Dublin with the VS.

Elections

- PRO – no nominations received – Gemma Boam agreed to merge with her current Social Media role. The role outline to be discussed at the next Exec meeting.
- Membership Officer – Shaun Fryett.
- Joint Journal Officer – Carolyn Wilson.

Thanks were expressed to those stepping down from their committee roles this year; Lynsey Matthews and Hayley Crane.

Special thanks were expressed to Mary Jane Cole for all her invaluable support in numerous committee roles over the years.

Any Other Business

There was no other business.

NEW BACPAR COMMITTEE OFFICERS

Here, the new officers appointed at the recent AGM introduce themselves.

JOINT JOURNAL OFFICER – Carolyn Wilson

I have been a specialist physiotherapist working in amputee rehabilitation at Musgrave Park Hospital for the past 18 years and have a special interest in prosthetic rehabilitation.

I was the BACPAR Regional Representative for Ireland and a member of the executive committee for 10 years and have been on the BACPAR Conference planning committee for several years. I was a co-author of the 2021 Evidence based clinical guidelines for the physiotherapy management of adults with lower limb prostheses.

I have been involved in teaching therapists working with amputees in Cambodia in association with EXCEED Worldwide.

MEMBERSHIP OFFICER – Shaun Fryett

I work as the Clinical Lead Physiotherapist in Surgery and Amputee Rehabilitation at the Royal Devon University Healthcare NHS Foundation Trust. I have worked at RDUH (Formerly Royal Devon and Exeter Hospital) for the past 13 years and with amputees for the past 10 years. My job role is currently split between the acute vascular surgery ward and outpatient prosthetic rehabilitation. I am the Southwest Regional Rep looking to link our region closer for the past few years.

GUIDELINES UPDATE

Rachel Humpherson – BACPAR Guidelines co-ordinator
Kate Lancaster – BACPAR Guidelines Vice co-ordinator
bacpar.guidelines@gmail.com

Following on from the BACPAR membership's agreement at the November AGM in Brighton to provide funding for the Guidelines literature search updates to University of Southampton, we received the excellent news that we were successful in applying for a CSP Professional Network grant. This provides funding of the full sum of this initial set of searches, plus some additional costs associated with the update group.

The Southampton Health Technology Assessments Centre (SHTAC) carried out the searches and returned the results to us at the start of March. Work will begin mid-April to start the literature appraisal process with the Guideline Update Group for the 'Clinical guidelines for the pre and post operative physiotherapy management of adults with lower limb amputations'.

We are looking to further expand the Guideline Update Group, for both this guideline and the 'Evidence based clinical guidelines for the management of adults with lower limb prostheses'. Volunteers are well supported throughout, and we have training available for those wanting to join the literature appraisal teams. A quote from a previous member of the Prosthetics guideline 2021 update "It was a very valuable and fun process to be part of, and I learnt a lot". If you are interested in finding out how you may support these in any way, don't hesitate to get in touch on the email above.

A membership survey will be sent out shortly to gain feedback into the current usage of the Guidelines, audit tools and public information leaflets and what you would like from these tools to help you in your clinical practice. As always, your participation and support in any feedback is important and much appreciated.

Keep an eye out for Article Corner in the autumn journal to see some of the latest articles that will be making it into the Guidelines updates.

Our Experience of the Short Term Effects of Microprocessor Controlled Knees at Swansea ALAC

Laura Carter, Specialist MPK Physiotherapist and Hannah Hughes, Specialist Prosthetist

GIG CYMRU NHS WALES

Introduction

Swansea Artificial Limb and Appliance Service is an NHS centre that can prescribe a limited number of microprocessor controlled knees (MPKs) annually under the new Welsh MPK policy. The MPKs we are able to provide are; Rheo XC, C-leg 4, Orion 3 & Plie 3.
The MPK policy in Wales was published in 2021 states that outcome measures must be collected on current prescription (baseline) and then again after 4 weeks of trialling MPK (then 6 months and 1 year). We thought it would be interesting to look at this data to see if there are any obvious changes between baseline and post 4 week trial which would indicate any short term benefits of using an MPK.

Introduction:

Cohort data

In the first year of the MPK service, 11 participants completed the 4 week trial.
All were established patients that met inclusion and exclusion criteria set out in Wales MPK policy.

- 10 males, 1 female.
- Average age 53.43yo (range: 14-74).
- 10 transfemoral amputees & 1 through knee amputee.
- Reason for amputation: 7 x Road traffic collisions, 3 x cancer & 1 x congenital.
- MPKs trialled: 3 x Rheo XC, 2 x Orion 3 & 7 x C-leg 4

MPK pathway

Joint initial MPK assessment appt with Physio and Prosthetist. All baseline outcome measures completed on current prescription.

↓

MPK prescription discussed and selected for trial, ordered by Prosthetist.

↓

Limb manufactured and fitted by Prosthetists. Trial commenced.

↓

4 weeks of training with Physiotherapist

↓

Reviewed at 4 weeks and outcome measures repeated on MPK.

Outcome Measures used – mandatory and self-selected.

- **Prosthesis Evaluation Questionnaire (PEQ)** – questionnaire specific to prosthesis-related changes in quality of life.
- **Reintegration to Normal Living Index (RNLI)**- self reported ability to achieve reintegration into normal social activities.
- **Activities-specific Balance Confidence (ABC)**- self reported measure of balance confidence in specific activities.
- **Number of falls and stumbles.**
- **6min indoor walking test –** assesses distance walked over 6 minutes on a flat surface.
- **2min outdoor walking test –** assesses distance walked over 2 minutes over uneven terrain.
- **Timed Up and Go (TUAG) –** assesses speed of transfers, gait and turning.
- **L-test**- Modification of TUAG - longer course including more turns.
- **Video Analysis** - Visual comparison pre, during and post provision.

Results

On comparison of recorded scores at baseline and at 4 weeks results showed improvements in all outcome measures as shown in the table and graphs in figure 1 and figure 2.
Subjectively looking at the video footage, gait symmetry improved with a decreased amount of deviations and decreased effort noted. Technique and ability to negotiate stairs and ramps also improved.

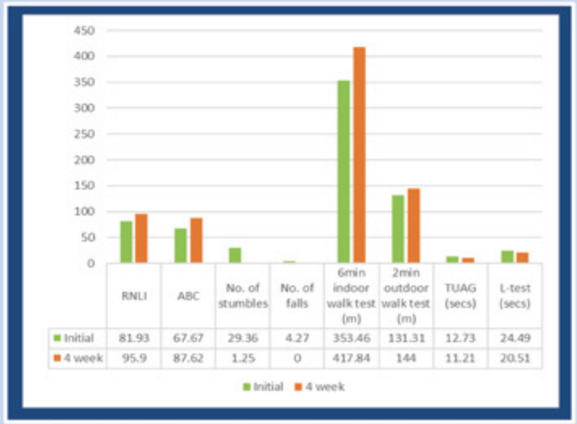


Figure 1. A Graph to Show the Average Outcome Measure Scores Pre and Post 4 Week MPK Trial

Although we recorded several objective measures to support the provision of these devices the most impactful data recorded was the 'patient impact statements'. We generated a word cloud from the written feedback from patients shown in figure 3. This highlighted some strong themes with confidence being the main one.

Figure 2. Comparison of PEQ scores at baseline and after 4 week MPK trial

Figure 3 . Word cloud created from the patient impact statements collected at 4 week review. The bigger the word the more common the theme.

Experience

We found during the 4-week trial period that reassurance and repetitive but varied training exercises were essential to gain the patients trust in the MPK.
Patients quickly became safe and proficient enough to take the MPK home to use in the 'real world' but required further training to learn to use individual features of the knees consistently in order to maximise the benefit of having the MPK.
Some patients transitioned onto the MPK much more easily than others. This largely depended on previous prosthetic prescription and personal factors (confidence). It was challenging to amend long term gait deviations and habits as some patients had been amputees for over 20years.
Comfortable and well-fitting sockets were key to a successful trial.
The most common feedback from patients was their increased confidence and how effortless walking felt (on the flat and slopes).
The first year of providing MPKs has been a really positive experience for patients and staff at Swansea ALAC and it would be interesting to look at the longer term effects (6months-1year).

What is the role of physiotherapy in post-thrombotic syndrome?

Heather Waring[1]
[1]Guy's & St Thomas' NHS Foundation Trust (GSTFT) Physiotherapy Dept
BACPAR NATIONAL CONFERENCE 2022, Brighton, UK

Introduction

Post-thrombotic syndrome (PTS) is a complication of deep venous thrombosis, occurring in 20-50% of patients [1]. A common predictor of PTS is the site of the initial deep venous thrombosis [2].

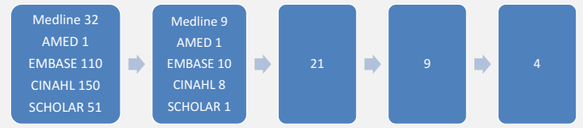
Conservative management techniques, such as compression and exercise, have been cited for the treatment of post-thrombotic syndrome [3], as well as surgical techniques. The way exercise affects the calf pump within venous insufficiency is well defined in the literature, however there is less evidence of the effectiveness of exercise when looking specifically into post-thrombotic syndrome.

Aim

What is the role of physiotherapy is in patients with post-thrombotic syndrome managed conservatively? Are there any recommendations?

Method

A literature review was carried out with the following search terms; iliac vein or deep venous thrombosis or DVT or venous claudication or may thurner syndrome AND exercise or walking or physical activity. MEDLINE, EMBASE, AMED, Google Scholar were searched. Search limiters included; english text, dates published 2009-present, full text. Abstracts and duplicates were removed.



Results

Study	Study Type	Participants	Method	Outcome Measures	Results	Discussion
Shrier et al 2009	Prospective cohort study – multi-centre	59% female Mean age 56 70% proximal DVT 387 participants	Questionnaires completed at @ 1,4,8,12,24 months	VEINES-QOL Godin Questionnaire Villalta Score SF-36 Questionnaire	Physical activity was not statistically significantly associated with the risk of PTS. An association of lower activity levels at 2 years on those with higher PTS severity.	Early physical activity does not increase the chance of PTS.
Kurstens et al 2016	Case control, consecutive participants	86% female Mean age 42 90% L ileofem DVT C3+ PTS moderate + 24 participants	Supine, calf raise + treadmill 3.2km/hr + slope increase 2%/120sec	Intravenous pressure CFV + DV	< p0.001 increase in pressure in affected limb ~ 20mmHg compared with control ~ 6mmHg	Substantial difference between CFV pressures may help explain venous claudication.
Khan et al 2011	Feasibility randomised control trial – blinded randomisation	Exercise group 50% female Control group 65% female Mean age 47 43 participants	Control group – 1hour educational workshop + phone call @ 1,2,4,5 month Exercise group – 15 1:1 sessions	VEINES-QOL SF-36 Villalta Scale Leg strength Leg flexibility Time on treadmill	Statistically significant changes in VEINES-QOL, SF-36 and leg strength at 6 months. P=0.021 in favour of exercise group with improvements in PTS symptom severity at 3 months	Demonstrates improvements in quality of life and PTS severity.
Gürdal Karakelle et al., 2021	Prospective, RCT	33% female across both groups Characteristics between groups p > 0.05 except for baseline exercise capacity p < 0.035 24 participants	Control group – compression only Exercise group 2 session/week – 20min aerobic activity, calf strengthening + stretching	CIVIQ-20 Sf-36 Duplex Doppler US imaging Venous clinical sevirty score Muscle strength Pain – VAS Circumference measuresments 6MWT Gait velocity	Statistically significant changes in all parameters exercise group vs control in CIVIQ-20, SF-36, muscle strength, VCSS, pain VAS, 6MWT + 10MWT, but nil statistically significant changes between groups. Baseline vs post Rx there were statistically significant changes in circumference measurements and reflux in the exercise group.	Demonstrated an improvement in symptom burden, quality of life and functional status. Limited sample size.

Discussion and Conclusion

- Limited literature
- Limited sample size
- Variable demographic

Between the four studies there was some evidence to suggest that physical activity can improve symptom burden and quality of life. Mechanism of improvement is unknown within this cohort. The 2 RCTs suggest improvement in symptom burden may be due to an increase in exercise capacity, muscle strength or a placebo effect. However, the evidence is limited and more research is needed to explore the long-term outcomes of increasing physical activity in patients with PTS in the UK demographic.

References

1. Kahn, S. R. (2010) The post-thrombotic syndrome, Hematology, 2010 (1), pp. 216-220. DOI: 10.1182/asheducation-2010.1.216.
2. Kahn SR, Shrier I, Julian JA, et al. Determinants and time course of the postthrombotic syndrome after acute deep venous thrombosis. Ann Intern Med. 2008;149:698–707
3. Schleimer K, Barbati ME, Gombert A, Wienert V, Grommes J, Jalaie H. The Treatment of Post-Thrombotic Syndrome. Dtsch Arztebl Int. 2016 Dec 16;113(50):863-870. doi: 10.3238/arztebl.2016.0863. PMID: 28098065; PMCID: PMC5273589.
4. Shrier, I., Kahn, S. R. and Steele, R. J. (2009) Effect of early physical activity on long-term outcome after venous thrombosis, Clinical Journal of Sport Medicine, 19 (6), pp. 487-493. DOI: 10.1097/JSM.0b013e3181bd11a3.
5. Kurstjens, R. L. M., de Wolf, M. A. F, Konijn, H. W., Toonder, I. M., Nelemans, P. J., de Graaf, R. and Wittens, C. H. A. (2016) Intravenous pressure changes in patients with postthrombotic deep venous obstruction: Results using a treadmill stress test, Journal of Thrombosis and Haemostasis, 14 (6), pp. 1163-1170. DOI: 10.1111/jth.13333.
6. Kahn, S. R., Shrier, I., Shapiro, S., Houweling, A. H., Hirsch, A. M., Reid, R. D., Kearon, C., Rabhi, K., Rodger, M. A., Kovacs, M. J., Anderson, D. R., Wells, P. S., Kahn, S. R., Shrier, I., Shapiro, S., Houweling, A. H., Hirsch, A. M., Reid, R. D., Kearon, C. and Rabhi, K. (2011) Six-month exercise training program to treat post-thrombotic syndrome: A randomized controlled two-centre trial, CMAJ: Canadian Medical Association Journal, 183 (1), pp. 37-44. DOI: 10.1503/cmaj.100248.
5. Gürdal Karakelle, S., Ipek, Y., Tulin, O. and Alpagut, i U. (2021) The efficiency of exercise training in patients with venous insufficiency: A double blinded, randomized controlled trial, Phlebology, 36 (6), pp. 440-449. DOI: 10.1177/0268355520985759.

PHYSIOTHERAPY Rehabilitation Team

Guy's and St Thomas' NHS Foundation Trust

A DAY IN THE LIFE OF A CLINICAL PSYCHOLOGIST

Dr Suzanne Carson. Consultant Clinical Psychologist, Musgrave Park Hospital, Belfast

Hi, I'm Dr Suzanne Carson, a Consultant Clinical Psychologist in the Amputee Rehabilitation Centre in Musgrave Park Hospital, Belfast. I have been a clinical psychologist within the amputee and spinal cord injury teams for the past fifteen years. Prior to this, I had a background working in chronic pain services. I love working closely with other professionals and having a range of responsibilities such as working with families and staff, teaching, training, supervision, research and specialist assessments and consultations. Therefore, there is a basic structure to my day but no two are ever the same.

My work tends to involve helping individuals reflect on and articulate their experiences and to develop their own ways of coping drawing on psychological treatments such as cognitive behavioural therapy, compassion focussed therapies and trauma interventions.

My day typically involves visiting the rehabilitation wards where patients stay for their prosthetic or spinal rehabilitation. New patients are often still shocked by what has happened to them, tired and sore from rehabilitation but often very positive about using a prosthesis. They will often want to talk about what has happened to them and reflect on what the future may bring. They may be anxious, low in mood or displaying trauma symptoms that require specific psychological interventions. Their families may also be displaying difficulties adjusting and I may meet with them. I find the patients who need my attention most are patients who have sustained their amputations very suddenly through trauma or perhaps a tumour, or upper limb amputees.

I also see outpatients, either face to face or, since Covid-19 via a 'virtual' appointment. Outpatients may be having ongoing difficulties adjusting to life after an amputation and often display depressive symptoms or continuing trauma symptoms. For example Daniel, a man who sustained a lower limb amputation 20 years ago through an accident and has been a successful and well-adjusted individual until a recent car accident. He was largely unhurt, however developed symptoms of anxiety and was experiencing flashbacks to his initial accident. Often I find that a recent trauma can trigger old trauma and losses and may require psychological intervention to target the trauma and build on coping mechanisms to allow adjustment to take place. Daniel is now doing well and managing his panic attacks much better. His flashbacks are reducing in frequency and we would be hopeful that he would make a good psychological recovery.

I also provide supervision to other clinical psychologists and the opportunity to allow them to reflect on their practice is something I find very rewarding.

I am part of an MDT and this involves working very closely with my social work, nursing, medical, physiotherapy, occupational therapy and prosthetist colleagues. The benefits of a team approach to rehabilitation are numerous.

Working as a clinical psychologist is an immensely rewarding and challenging profession. Patients open their hearts to me and this requires trust and honesty. I am hugely privileged to walk alongside them for a time as they work with me towards psychological recovery.

SHAPING OUR FUTURE WITH CONVERSATIONS THAT MATTER

Professor Lindsay Bearne, Miranda Asher, Melissa Day, Fi Leggat, Siobhan Strike, Emily Taylor and Ross Wadey

At the recent BACPAR conference, we tried a new session format to debate some key topics relevant to rehabilitation of people with limb absence and (metaphorically) travelled the world! So how did we achieve this on a rainy day in Brighton? Well, we used a World Café approach.

What is a World Café?

A World Cafe is a way to create a space that supports 'good conversation'. Using this approach, we could draw on the wisdom and creativity of our members to help us tackle some of the challenges that we encounter in our practice.

To do this, the conference room was organised in the style of a café with circular tables and tablecloths. Each table had a host that introduced a topic for discussion, and everybody offered suggestions, opinions and talked around the issues raised for about 15 minutes… before moving to the next table to consider a new discussion topic. We talked about lots of different things! Here is a snapshot of some of the issues discussed on each table.

Supporting clinical practice through research (hosted by Siobhan Strike)

We tackled the challenge of how to conduct good meaningful multi-centre research that is value for money. We talked about some of the aspects that are crucial for good research. One hotly discussed topic was the identification of the outcome measures that are most appropriate to assess the effect of rehabilitation interventions. Delegates felt that the existing outcome measure toolbox library needed reviewing and a smaller number of tools that could be used at different stages of rehabilitation identified so they could help with goal setting.

We discussed that analysing data from lots of centres may help us understand the factors that are associated with good outcomes for different patients and health care professionals. We discussed that many different factors could influence outcomes such as posture, flexibility, strength, coordination, and prosthetic interaction across a range of functional tasks. Understanding these in more depth may help us target the functional factors that could be treated and modified with rehabilitation and influence prosthetic prescription in our patients.

Finally, we talked about the lack of evidence for the effectiveness of many rehabilitation interventions for prosthesis-users and how this would really help us to provide evidence-based multidimensional rehabilitation and exercise training programmes.

Improving walking in people with Peripheral Arterial Disease by implementing the MOSAIC intervention: challenges and opportunities (hosted by Lindsay Bearne)

Understanding the best way to implement an effective programme to help people with intermittent claudication walk more was the focus of the discussion on this table. The MOtivating Structured walking Activity in Intermittent Claudication (MOSAIC) intervention includes two in-person and two telephone physiotherapy sessions and it is a promising alternative to the recommended supervised exercise therapy.

First, we shared stories of how supervised exercise programmes had been closing across the country (with a few notable exceptions) and that, after the COVID pandemic, some supervised programmes were unlikely to re-start. Most people recognised that this gap in service provision should be addressed.

Next, we discussed the factors that may influence whether MOSAIC could be offered within vascular

services. Delegates highlighted that support from the whole vascular team was needed, particularly the medical staff. We talked about how the back log in vascular services made adoption of new treatments difficult and that limited resources such as space/ location, funding, and staff time were important considerations.

Finally, we talked about the opportunities to deliver treatments like MOSAIC in different ways. This included training other professionals (e.g., vascular or community nurses), technical instructors or fitness professionals. We also highlighted that setting up services in non-clinical environments such as leisure centres or exploiting the potential of GP exercise on referral schemes could improve accessibility of treatment. We also spoke about integrating MOSAIC with cardiac or pulmonary rehabilitation services and the opportunities offered by new formats like video conferencing.

In summary, we agreed that by harnessing the enthusiasm of the multidisciplinary team and using creative approaches new rehabilitation services such as MOSAIC could be implemented.

Considering the role of a clinicians and experts national forum
(hosted by Miranda Asher)

Another World Cafe table debated the issue of whether a national network for the wide range of clinicians working with people with limb difference would be beneficial, support knowledge sharing and treatment. Delegates highlighted the following minimum requirements for such a network:

- Robust vetting of persons giving advice
- Robust data privacy, as patients may be identifiable from case descriptions
- Virtual peer support in complex case treatment sessions
- Access to properly indexed and regularly reviewed case studies and protocols
- Inclusion of more remote clinicians and the wider MDT in a welcoming manner
- Connections to in-person support and training
- Communication through a trusted and familiar point of contact
- Encouragement of less experienced individuals to ask questions without fear
- Facilitation of communication channels to those with specific experience / expertise
- Easy to use, with minimal resource burden on clinics
- No additional membership requirement

Current resources meet some of these requirements and give scope for a foundation to build upon.

Reflections on narrative videos
(hosted by Emily Taylor)

Within this world café table, stories that therapists heard from patients during limb

absence rehabilitation were discussed. Many typical aspects of a rehabilitation

journey, including patients' and therapists' thoughts and feelings, were identified, and used to illustrate a common rehabilitation story. Through talks and illustrations, it was shown that a key challenge encountered by therapists was helping pre-amputation patients cope with their fear and uncertainty about the future. This included dealing with their postoperative pain and the inevitable changes in their life. During the post-amputation and prosthetics periods, it was highlighted that one of the most challenging factors to overcome were the unrealistic expectations of some patients. This may be due to self-imposed pressure "to get back to normal", because they wanted to follow "unrealistic peers", due to inappropriate expectations of family members, or inconsistent messaging during their rehabilitation. After limb provision, patients' well being fluctuated due to a lack of acceptance and understanding, and the feelings of "letting clinicians and family down" despite an increase in function. Overall, therapists supported the emotional and psychological needs of patients who navigated inconsistent messaging and unrealistic expectations.

The Power of Stories: Managing and Navigating Problematic Stories Following Amputation
(hosted by Melissa Day and Ross Wadey)

Our table focused on the powerful impact that stories have in the rehabilitation environment. We started by exploring how delegates used stories with patients. We found that storytelling was appreciated by patients and allowed for empathetic and emotional interactions. Yet listening to stories had an emotional impact on practitioners, who felt frustrated when they could not solve problems and experienced empathetic burnout, noting 'patients can take a little piece of you in each interaction'. Next, we explored stories told by others in rehabilitation. This included the families of patients, who sometimes placed 'pressure on the patient to succeed' as well as the dangers of story sharing between patients with different physical capabilities. Finally, we explored the impact of stories in the media and on social media. Our discussions highlighted that while public storytelling could allow people to feel 'part of a wider community', such platforms often only depict positive experiences. Further, that 'one person's inspirational story is another person adversely comparing themselves'. In conclusion, we recognised the empowering potential of storytelling, yet noted that while this naturally happened in practice, professional guidance on how to manage this process was limited.

Factors which may influence the implementation of narrative videos
(hosted by Fi Leggat)

The different factors that may influence the implementation of new resources, such as narrative resources, into limb loss rehabilitation were discussed around this world café table. Multiple factors were shared. This included aspects pertinent to the rehabilitation setting, the resources (e.g., type), therapist capabilities, and the wider NHS system. Regarding the rehabilitation setting, workload pressures was a key concern as limited time was available for learning and understanding about resource use. Service infrastructures, such as satellite and remote facilities, physical space and IT provision were also considered possible barriers. Factors related to resources included complexity and user-friendliness for both therapists and patients, and the adaptability of resources (e.g., Can they be used flexibly? Are they accessible for those with sensory and/or learning difficulties? Can they be translated into different languages?). For narrative resources specifically, the appropriateness of resources across different settings and patient readiness were mentioned. For therapists, perceived value, and training and support for resource use were considered facilitators. Similarly, support from management was considered helpful. Finally, system wide pressures and financial restrictions to obtaining and using resources were noted.

Overall, when integrating new resources into practice, perceived resource value and patient benefit were considered paramount, and delegates recommended working with therapists to anticipate and overcome potential barriers to implementation.

So, we travelled the world and broadened our horizons in a couple of hours – all without leaving Brighton! Along the way, we met new people and shared our thoughts on how we could support our practice and deliver services in different ways. We hope you enjoyed the journey, and we look forward to seeing you on our travels next time.

Miranda Asher, BACPAR's joint research officer has commented:
The world cafe is a great way to facilitate one of BACPAR's key objectives; To encourage, promote and facilitate interchange of knowledge, skills and ideas between members of BACPAR.

At this year's Annual Scientific Meeting we aim to have even more world cafe tables and an even broader spectrum of themes. If you have a discussion topic or conversation starter you'd like to lead on, then send your ideas to **ASM.BACPAR@gmail.com**.

THE BEST FROM BACPAR IN BRIGHTON

Heather Waring, Vascular and Amputee Physiotherapist, Guys & St Thomas' NHS Trust

NHS
Guy's and St Thomas'
NHS Foundation Trust

It was great to be back in the room after a two-year hiatus at the joint BACPAR / Vascular Society's Annual Scientific Meeting / Society of Vascular Nurses conference 2023 – even if it was a bit soggy to start with. I was fortunate to receive a bursary from BACPAR to attend this year's meeting.

The Hilton was buzzing with people from all over the UK showcasing their work from over the last few years. Working in the acute setting it gave me a good opportunity to attend a variety of talks on a variety of topics; outcomes of limb ischaemia and diabetic foot ulcers, health literacy within the vascular population, deep venous disease and treatment options, frailty within the vascular population…the list goes on.

An area that sparked interest was targeted muscle reinnervation (TMR). There were two presentations on TMR – one focusing on upper limb amputees on innovations in upper limb prosthetics and the implications for physiotherapy by Ruth Nicholson and Lauren Newcombe. Physiotherapist Hayley Freeman's presentation won the best speaker prize for 'Should TMR be performed routinely?'. Hayley's presentation sparked interesting discussion and food for thought.

Introduction
TMR was first introduced in 2004 to help with myoelectric control of upper limb prosthesis: there were incidental findings that phantom and residual limb pain were reduced.

Evidence
NICE guidelines for phantom limb pain
1. Neuromodulators

Surgical approach
2. Neuro excision

Therapy approach
3. Graded Motor Imagery, mirror therapy, acupuncture

It is acknowledged it is difficult to get a strong body of evidence within this cohort as pain is subjective to the participant.

Procedure
1. Nerve preparation – cut off neuroma, keep nerve as long as they can
2. Motor point identification – Pick muscle that is redundant close by
3. Coaption – transfer of nerve to newly divided motor nerve (sensory nerve to motor nerve – less likely to develop a neuroma)

Primary vs secondary operation
Indication for primary – to prevent PLP or stump pain developing.
Indication for secondary – to reduce PLP or stump pain.

Surgery and Recovery
Surgical time 2-4 hours
Reinnervation occurs 8-12 weeks
Recovery – up to 1 month neuropathic pain++, 6 months neuropathic pain settling, 2 years full recovery

Based on Hayley's literature review and research it is clear that there are promising outcomes for TMR in lower limb amputees. There is some evidence to suggest stump numbness is evident post-operatively.

Reflection
A very interesting field of work which shows promising outcomes. TMR and upper limb research shows pattern recognition training is important to help with cortical reorganisation, is this something that should be explored within the lower limb population?

As stated by the title of the presentation 'Should TMR be routinely available?' working in an acute vascular hub, I am not so convinced that vascular patients with their comorbidities are the right patient cohort to have "extra surgery time" during their primary procedure. That being said, perhaps it should be offered as standard to a specific cohort of patients who are robust enough to withstand extra surgery time. I am very intrigued to learn more about TMR in the lower limb population and the impact it has on neuromodulators and whether these can be reduced as a result of the surgery.

Thanks to Hayley and all the presenters and organisers at the BACPAR 2022 conference.

REFLECTIONS ON CONFERENCE 2022

Luke Tobin Physiotherapist, Artificial Limb and Appliance Service, Cardiff

I have been working full time with people with limb absence in an outpatient setting since April 2022. Back in November, I was fortunate to be supported by BACPAR to attend the conference, which was my first time attending a specialist scientific conference. Being early in my career working in limb absence and prosthetic rehab, I jumped at the opportunity to attend. The conference felt like a great way of trying to get to know more of the nitty gritty of prosthetic rehab early on, as well as an opportunity to network with therapists from other centres around the country. An important part of this for me was to develop an understanding of the challenges being faced elsewhere, to draw parallels and help me reflect on our own service. I would be lying, however, if I said I wasn't experiencing a bit of imposter syndrome and felt a little nervous attending!

The presentation by Amy Jones and Lauren Joseph from Guy's and St Thomas' came at a perfect time, as we were in the process of reviewing our pressure related wound care pathway. It was encouraging to see that we had taken similar steps towards a more standardised care pathway for managing prosthetic device related pressure wounds. I have since made contact with Amy and hope to continue to learn more from the way their service is provided.

Similarly, I was impressed by the courage shown by Damien McGovern. Through being a real patient advocate, he helped a patient with a difficult post amputation wound to avoid revision surgery and remain a transtibial amputee. I have no experience of using the PPAM aid with open or dehisced wounds and where I have worked for so far, and there hasn't been a structured approach to early mobilisation to aid wound healing. Through close liaison with the surgical and tissue viability teams, Damien and his team used the PPAM aid regularly with this patient, documenting the changes to their wound meticulously with a raft of photographs. These photos were shared at conference with the patient's permission and the changes seen through a combination of VAC dressing and PPAM aid were astonishing. The best outcome was achieved for that patient, keeping his knee joint and being able to mobilise safely with his four wheeled walker – something which may not have been possible had he become a transfemoral amputee.

So, what was I so worried about? Any anxieties quickly abated and I was soon left wishing that I had attended BACPAR conference before, when I was still working as a general rotational physio or when I was still a student with an interest in prosthetics.

Through other's experience, I now realise that there is much more that can be done with patients that have early surgical wounds and that physiotherapists can have a significant impact on healing. Reflecting on my own practice, I have previously erred on the side of caution when it comes to wound management. This is in part because of a lack of specific training in management of wounds, as in many areas of physiotherapy practice we are not so hands on in that regard. This also led me to reflect on our service; when I joined the team, we didn't have a nurse in post and there was anxiety within the team regarding wound management and monitoring. We now have a clinical nurse specialist, who has been a great help in developing our wound care pathway and helping the rest of the team to develop their skills within their scope.

For us in Cardiff and in at least some of our spoke health boards that are part of our major arterial hub, there is no specific guidance agreed with the surgical teams regarding early mobilisation in patients using the PPAM aid with open wounds. So, based on the experiences shared by others this is something myself and the team are interested in researching further.

So, what happens next? As with any learning experience, the more you learn, the more you realise you don't know. Getting comfortable with that in the early stages of my career in prosthetic rehab I feel is important – every day will continue to be a school day! I will also be actively encouraging my colleagues in non-specialist roles and students that are on placement with us to attend conference or a regional study day if they have the chance – I wish I had taken the opportunity earlier!

I plan to study the available research on early mobilisation in patients with open wounds. I hope to do this co-productively with our clinical nurse specialist, the inpatient vascular physio team and the surgical team to write local guidance for this patient group. As part of this process, the links made with other BACPAR members will be vital and I am thankful for Amy, Lauren and Damien's willingness to link up following the conference.

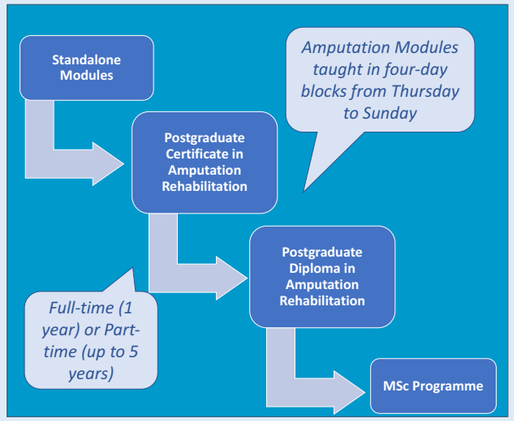
The final point of reflection I wanted to share is that I felt there was something for everyone at BACPAR. For me as a relative novice, it introduced me to the broad scope of practice within this specialist field and it was a fantastic opportunity to learn from others with much more experience than me. I hope that this will be the first of many conferences that I will be able to attend, and I hope to meet more of you along the way.

The 'MSc in Amputation Prosthetic Rehabilitation': an overview and opportunity to hear your views.....

Background

- The 'MSc Amputation and Prosthetic Use Programme' was developed in partnership with BACPAR
- Aims to provide a range of flexible multidisciplinary 'Continued Professional Development' (CPD) opportunities in 'amputation rehabilitation'
- Two bespoke modules were created to align with existing MSc modules offering a single CPD module through to an entire MSc Programme
- We are now in our 7th year and the aim here is to provide an overview for reflection and planning for programme revalidation!

Flexible Course Delivery



MSc Programme Structure

Amputation & Prosthetic
- Amputation Rehabilitation and Prosthetic Use (40 CATS)
- Contemporary Issues in Limb Loss (20 CATS)

Research Development Skills
- Research Methods and Evidence Based Practice (20 CATS)
- Dissertation (60 CATS)

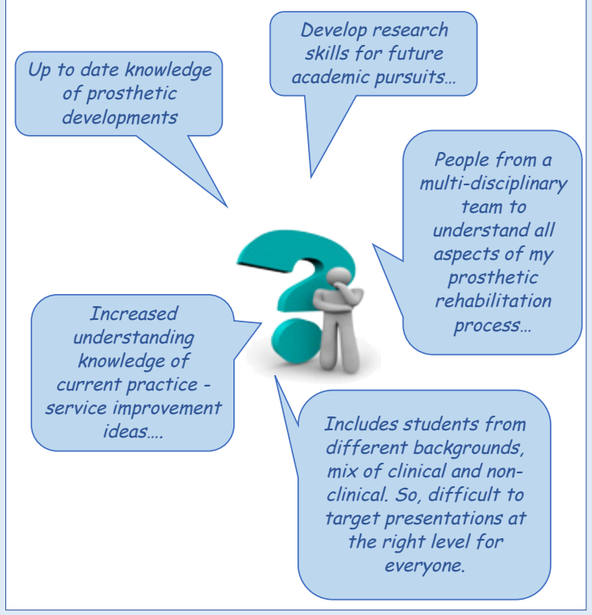
Option Modules
- Select option modules worth 20 CATS in diabetes, leadership & management modules, psychosocial issues, health psychology etc...

Bespoke Amputation Modules

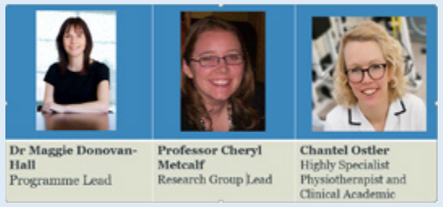
Module 1: Amputation and Prosthetic Use (40 CATS)
- An opportunity to gain an in-depth understanding of the patient journey from pre-amputation to prosthetic rehabilitation exploring both the physical and psychosocial aspects of patient care.
- Involves exploring the different views and perspectives of the patient, family, carers and clinicians involved in the rehabilitation process.

Module 2: Contemporary Issues in Limb Loss (20 CATS)
- Explore current issues facing the delivery of amputation and prosthetic rehabilitation in a wide range of different settings.
- Topics are updated year and recently included: new insights into 'limb disposal', sports at grass roots & paralympic levels, contemporary issues in communication, technological advances, and taking part in a 'super socket day'!

Some student feedback?



What are your views and what can we do differently in the future?



For further details and feedback, please contact: Maggie Donovan-Hall (email: mh699@soton.ac.uk

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@Mdhall

The Amputation Rehabilitation Research Network (ARRN)

Supporting clinicians to shape the future of research

The Amputation rehabilitation evidence base is not well established. A recent systematic review of randomised controlled trials (RCTs) in prosthetic and orthotics found only 4 RCTs in the past 20 years. (Healy et al.,2018). This paucity of research has led to the use of consensus techniques, such as Delphi, to inform clinical practice guidance (Smith et al.,2016), and many clinicians feel that research does not address issues that are important to their patients, or clinical practice. Fewer clinical trials also leads to a research skills gap with few clinicians in the field who have the capacity and capability to deliver NHS based research.

The ARRN aims to address this by:

Building a network of clinicians, academics and researchers interested in amputation and prosthetic rehabilitation research

Providing a forum for clinical input into new research to ensure studies are meaningful, and feasible to undertake

Growing research knowledge and skills amongst the amputation and prosthetic rehabilitation clinical community

Enabling multi-disciplinary collaboration for future research to support and promote evidence based practice

Chantel.ostler2@porthosp.nhs.uk **GET IN TOUCH** Fiona.Davie-Smith@ggc.scot.nhs

THE BENEFITS OF WRITING ARTICLES AND SHARING OUR KNOWLEDGE AND EXPERIENCE

Dr Nicky Eddison, Catherine Mckeown, Louise Tisdale, Dr Ros Leslie, Kate Pugh, and Gail Parry

You've been asked to write an article about something you know a lot about. The deadline is approaching. You try to get started but decide the car needs to be washed instead. Procrastination triumphs. The deadline is tomorrow. You sit down at your computer; you write a sentence. You delete it. You're just not cut out for it; writing is for other people. Nothing makes sense. It's so stressful. Many people are probably familiar with this scenario. Yet, we know that sharing knowledge and experience is important in healthcare. At The Royal Wolverhampton NHS Trust (RWT), we are passionate about supporting our staff to share their opinions, knowledge, personal journeys, successful stories, and achievements.

We have worked closely with our colleagues over the past few months. Supporting them to write articles about the fantastic work they have done in their services[1], their journeys[2,3], how their services impact public health[4,5], research projects they have completed6, their roles within the Trust[7] and their opinions[8]. Their articles have been published in the Trust's Care to Share magazine, the Institute of Health and Social Care management's website, regional magazine and national magazine, and a range of professional body magazines. The articles have had fantastic feedback and staff have contacted us for more information or to thank the author for sharing their work.

Writing an article can help encourage people to consider another perspective, maybe opening people's eyes by proving the status quo wrong. It can enable you to share a solution to a difficult problem or help explain a difficult topic in a more simplistic way. It's a great way to get people talking about issues that people know exist, but no one is talking about. Writing can help the reader learn new knowledge.

There are also benefits to the writer. Writing can be a powerful way to relieve stress, forcing you to process your thoughts and feelings. It can be a vehicle for getting something off your chest, maybe something you feel passionate about. The process of writing makes you think more deeply about a topic you might think you know very well. Helping you gather new information and take on board new knowledge. Critiquing what you already know and looking at the topic from a range of different angles. Writing frequently exercises your ability to get tasks completed within a set time frame and work under pressure. It helps develop and refine your vocabulary. When you first start writing, finding the right words to describe your thoughts, seems challenging but over time, your skills develop, and the process will seem much easier. Most importantly, writing can be cathartic. It allows you to contemplate your thoughts, something we don't often have time for in our busy lives. Contemplation often unlocks great ideas!

Gail Parry's experience

When I was approached to write an article, my initial reaction was yes of course; swiftly followed up by oh no! and panic. I felt exposed and vulnerable and that my words wouldn't be good enough and I'm going to be judged. Incredibly, my job has always involved writing, whether it be letters, reports or leaflets, policies, reports etc but I thought writing an article, well that's different, isn't it?

I am a reflective person and I write all the time. I've been told I'm quite good at making up stories. One of my relatives keeps telling me to write a children's storybook. Writing helps me to problem solve and is a therapeutic process. I've been writing letters since I was very young, and I still prefer sending written cards and letters to posting on social media and worrying about saying something inappropriate or misspelling something.

So, having the opportunity to share my own experiences in a published article alongside such inspiring, clever people, made me feel proud and joyful. I love reading other people's musings and hope my simple contribution has ignited a shared experience in someone else. A colleague recently said, "I can officially reference you now" and I thought wow! that's so cool. The thing that helped was the encouragement and a leap of faith in myself. I'll keep practising and I will probably still feel nervous, but for me, it was a very powerful experience.

Kate Pugh's experience

Getting involved with writing articles can be daunting at first. When Dr Nicky Eddison got in touch with me, I was nervous and excited. I had never done anything like this before and although I was thrilled to be given an opportunity to share my experiences, I felt slightly intimidated. I didn't need to be of course, as I submitted my article and received great support. This in turn gave me the confidence to put myself forward for other articles. Seeing my published work gave me a fantastic sense of achievement. I felt proud that I had learnt a new skill and pushed myself into new territory, however daunting. I also felt empowered that my experience was worth sharing. I will continue to write articles, become more eloquent and confident along the way, and hopefully encourage others to step out of their comfort zone to do the same.

Catherine Mckeown's experience

I had the pleasure of contributing to an article with Nicky recently and found this process both insightful and rewarding. We were able to meet remotely to discuss the topic and within a day or so the article was completed and accepted for publication! It was really nice to be able to collaborate with her and it has motivated me to consider other topics within my clinical field of orthoptics that could be written about now that I have a contact within the Trust such as Nicky to offer guidance and support. The only excuse I have now is time!

Louise Tisdale's experience

One of the first articles I wrote was for the British Association of Chartered Physiotherapists in Amputee Rehabilitation (BACPAR) Journal in 2011. I was the Chair of this professional network and I had completed acupuncture training to support my role in Wolverhampton's amputee rehabilitation service. I had not had a lot of experience in writing for publication, so I had considered writing for this friendly journal a good place to start. Anticipating that a small percentage of the membership had undertaken and were using acupuncture in this speciality. I aimed to gain some peer support for myself in using this new skill as well as increase the number of case studies that had been published. As ever, the BACPAR community were encouraging, and the article was well received. In 2012 I followed it up by writing another article, jointly with a colleague[9].

So, if you are nervous about writing, then a good place to start is by doing lots of reading. Get a feel for the different styles of writing and think about which style would suit you best. Take inspiration from others, they may even inspire you to create a style of your own. Next, read around your chosen subject and gather your thoughts into a word document. From there you can move sentences around, you can delete extraneous information and add to it. Then edit it, proofread it, and repeat the process until you are happy. Write about something you know, and you feel others may benefit from finding out about and share it with some like-minded individuals.

Summary

Why not take up the challenge of writing an article? Don't be afraid of making a mistake, writing is a process. The first draft of any article is just that, a draft. It will be imperfect; you will learn to be comfortable with imperfection. Choose courage over comfort and give it a go!

References

1. Eddison N McKeown C and Leslie R. Using reflexivity to improve team performance. Br Assoc Prosthetists Orthotists BAPOConnect Issue 1.

2. Eddison N, Pugh K, Benyahia S, Scott, S, Mupawaenda N. Why early research skills matter: An exploration of personal journeys. Inst of Heal Soc Care Manag. **https://ihm.org.uk/2022/07/15/why-early-research-skills-matter-an-exploration-of-personal-journeys/**.

3. Cook S and Eddison N. PhD, should I, shouldn't I? Institute Heal Soc Care Manag Reg Hub Mag Ed.

4. Williams J and Eddison N. How does Speech and Language contribute to public health? Br Assoc Prosthetists Orthotists BAPOConnect Issue 1.

5. Whitehouse G and Eddison N. Health protection – How do Radiographers contribute? Care to Share R Wolverhampton NHS Trust. 2022.

6. Cawdell D and Eddison N. Interventions to support youth violence: Giving young people a voice. Inst Heal Soc Care Manag. **https://ihm.org.uk/2022/07/07/interventions-to-support-youth-violence-giving-young-people-a-voice-by-danielle-cawdell-and-dr-nicky-eddison/**.

7. Eddison N. Leslie R and Tisdale L. Non-medical prescribing by Allied Health Professionals. Inst Heal Soc Care.

8. Eddison N Leslie R and Parry G. The merit of lifelong learning. Inst Heal Soc Care Loop Q Mag. **https://issuu.com/ihmpublish/docs/the_loop_issue_6_july-september_2022/2**.

9. BACPAR. Br Assoc Chart Physiotherapists Amputee Rehabil. 2012; Spring Iss(36).

ARE MICROPROCESSOR KNEES AN OPTION FOR CHILDREN WITH LIMB DIFFERENCES?

Mary Tebb, Clinical Specialist Physiotherapist, Dorset Orthopaedics

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ottobock.care

We are reminded throughout our physiotherapy training that children are not small versions of adults and that their needs are very different in regards to managing life following limb loss. At Dorset Orthopaedic, we have been supporting two children with limb loss. One is an eight-year-old quad amputee following meningitis at the age of one. The other is a traumatic amputee following a crush injury at the age of eight. Both have been provided with Kenevo microprocessor knees and have achieved independent walking.

Case 1 – Harmonie Rose

We first met Harmonie when she was three years old and her parents were querying the possibility of her being able to walk. As a quad amputee, with no joints below the shoulders or hips, she mobilised by bottom bouncing and shuffling around the room at considerable speed. She was able to pick up objects between her neck and shoulder girdle and balance food on the end of her longer left arm to eat solid objects independently.

Harmonie was first provided with exoskeletal prosthetic legs that had no knees for her to learn to gain standing balance and take her first steps. Following this, lower limb prosthetics consisted of locked knees with a cable lever that she could reach to in order to release them when sitting down. Initial challenges were the amount of abduction at the hips and the increased lumbar lordosis. As a quad amputee, Harmonie had to provide considerable forward momentum through rotating the shoulder and pelvic girdles against each other. Falling over has, and will always be, a problem, in particular because of the lack of upper limb support.

Harmonie's early prosthetics

Over time, Harmonie has had everyday prosthetic legs, blades and reinforced end-bearing silicone liners. The latter have enabled her to walk on the ends of her residual limbs and have a tread on them for increased friction. Above are a few examples of her prosthetic legs over time.

At some point in childhood, children with transfemoral amputations normally progress onto mechanical knees to enable a more natural gait involving knee flexion in swing phase. These knees are designed to be fairly robust, accommodating the more vigorous activities of the younger person. The drawback with mechanical knees is that there is less stability when ambulating and hence a greater tendency to fall. In Harmonie's case, with her short arms, falling often resulted in injury and this was a significant factor in choosing microprocessor knees for her. Also, we wanted to reduce the amount of abduction in her gait to reduce strain around her spine. Further, microprocessor knees would enable her to sit down safely as they yield under load. Prior to this, Harmonie had had to sit down by falling backwards into her chair. A decision was therefore made to trial two Kenevo microprocessor knees over four days in the summer of 2022. In order to manage expectations, we advised Harmonie and her parents that she would most probably be the youngest bilateral microprocessor knee user in the UK and that this was simply a trial to see how she managed with them with no pressure to succeed but rather to make an informed decision as to their usefulness.

Initial fitting with Kenevo knees

Harmonie's sockets were fabricated prior to commencing the trial and we were fortunate enough to have members of the Ottobock Academy team attending for the initial set up.

We commenced rehab in mode A (locked knee but will yield on sitting down) and moved first one leg and then the other onto mode B within the first day. Mode B allows for knee flexion during the swing phase of gait, releasing from a locked knee right at the end of toe-off. The sensors within the knee are looking for a forward shin inclination and a roll over the forefoot in order to release the knee. Because Harmonie's gait had always been very abducted, gaining the forefoot rollover has been a challenge but there has been improvement over time. Encouraging Harmonie to walk further distances in order to practise her gait pattern over the four days that she was with us was really helpful. Taking her out and about into busy areas to the riverside and play parks helped to maintain motivation.

Outdoor walking practise

Harmonie did well over the four days, progressing to independent walking with both Kenevo's staying in mode B. Her gait has become less abducted since that time due to further work with her local physiotherapist, and we felt that she would be able to move onto mode B+. In this mode, there is a small amount (10°) of stance flexion on heel strike to foot flat, which both promotes a more natural looking gait and accommodates shallow slopes. Harmonie attended in December 2022 for two mornings of rehab to progress to this mode. Again, she was initially nervous but soon realised that her prosthetics remained safe to walk on. She is almost at the point where she can manage a shallow slope without the need of an arm hold and is likely to also manage a shallow step. Harmonie has a local physio in Bristol whom she will continue with to work on this.

Final prosthetic sockets, walking independently

Future plans

Harmonie may be able to progress onto mode C sometime in 2023 to enable her to descend a step by yielding the knees. It may be prudent to try one leg at a time for safety, keeping the other leg in mode B+.

As she is now older and heavier, her silicone stubbies do not last very long and we are likely to also offer her standard stubbies. She does have one leg slightly shorter than the other so providing standard stubbies will allow us to correctly align her leg length when using stubbies.

Case 2 – Julia

Julia sustained a crush injury to her left leg at the age of 8 during the summer of 2021 which resulted in a short transfemoral amputation. She had commenced her prosthetic rehab within the NHS but was in between prosthesis and therefore a full-time wheelchair user when she was first referred to us at Dorset Orthopaedics. Her NHS leg had been attached to a mechanical knee but the socket was problematic and she had not been able to take the leg home.

Our normal practise is to first meet the family and provide an opinion as to the patient's likely prosthetic needs over six to twelve months. A Kenevo microprocessor knee was recommended by the treating prosthetist and twice a week rehab by the physiotherapist. The main initial challenge was attaining comfort in her socket and managing perspiration. Secondly, keeping her leg in situ, which was achieved by the use of a Boa lanyard system for security.

Julia's prosthetic rehab has been largely play-based due to her age and she is now comfortably ambulating in mode C, making use of the yielding mode for descending stairs and slopes. We have taken her out into The New Forest on gravel tracks, around grassy areas where she helped plant a tree and ice-skated with assistance. She has also had a session on accessible bikes as the Kenevo has an intuitive bike mode, releasing all resistance when pedalling is detected. Whilst the Kenevo knee has "stumble recovery", which is essentially a stiffening up of the knee if the foot catches, Julia has fallen a few times but has not hurt herself and can get up independently. The Kenevo has continued to function well despite being used daily at school and at home.

The plan for Julia is for her to engage further with local activities whilst attending formal physiotherapy less frequently. The long term goal is that she remain a prosthetic user throughout her formative years, using her prosthetic on a daily basis for most of the day.

Julia's rehab activities

Conclusion

Presented here are two examples of successful provision of microprocessor knees to children which have resulted in them being able to ambulate independently and wear their prosthetics all day. Most microprocessor knees have a lifespan of five to six years but a child will require a number of sockets during this time to accommodate their growth. We chose the Kenevo because it is relatively lighter than other microprocessor knees at around 900g and because its various modes allow the user to progress at their own pace.

REFLECTIVE CASE STUDY: A PAEDIATRIC TRANSTIBIAL AMPUTEE AND HER REHABILITATION JOURNEY

Jessica Hughes, Rotational Physiotherapist, ALAS Swansea Bay Health Board

Introduction

Alys in her wheelchair on the paediatric ward a few days post amputation

Alys (age 8) underwent a right transtibial amputation following a traumatic accident in June 2022. Alys was cared for on Morriston Hospital's children's ward. The Artificial Limb and Appliance Service (ALAS) multidisciplinary Team (MDT) including Consultant, Specialist Nurse, Specialist Physiotherapist, Specialist Occupational Therapist and Prosthetist were notified and visited Alys on the ward 4 days' post amputation. The MDT discussed with her parents what support she could receive from the ALAS, including basic advice regarding exercises and exposing Alys to the residual limb. Paediatric books about amputation were also gifted to start off a strong relationship with the ALAS team. The books could be used for Alys herself to read, her siblings, friends and for the school to use to gain a wider understanding of amputation. Alys was discharged home quickly and followed up in a Consultant clinic a week later, where the MDT were present to begin her prosthetic journey.

Physiotherapy findings

Alys was protective of her residual limb and used a pillow under her knee whilst in her wheelchair, keeping her knee in flexion. Unfortunately, there was difficulty in suitable wheelchair provision for Alys. As you can see in Figure 1, the wheelchair that was initially provided was too large for Alys, pillows were needed to aid but this created a kyphotic posture. Pillows/towels were also used under the knee to aid comfort but of course this encourages knee flexion. The photograph further along in the case study shows Alys sat out in a chair on the paediatric ward. As you can see here pillows were again needed to support Alys due to the chair being too large for her. The MDT advised weaning off the pillow which Alys did manage but unfortunately when assessed a week later by the Physiotherapist and Prosthetist, Alys had a 40-degree flexion contracture of her knee. Alys was unwilling for anyone to handle her residual limb and kept hip and knee flexed throughout all her activities, whether this be in sitting, playing on floor or crawling on the floor holding her residuum in the air. Alys' enjoyment of dance was incorporated into her sessions to gain a good rapport and also to complete stretches which Alys was familiar with and understood the purpose of. Wound healing was delayed due to Alys' non-traditional skin flap due to the trauma leading to the amputation and limited viable skin and her habitual knee flexion.. Alys was very active, she was able to crawl on the floor and show off her gymnastics skills to the team!

Intervention

Alys continued to have weekly physiotherapy input to encourage improvement of the knee and hip and also maintaining strength globally. Alys' parents were completing a strict home exercise programme of stretches at home and were trying to wean Alys off the pillow under her knee. Due to difficulty with residual limb hypersensitivity and Alys holding her residual limb in flexion to protect it, it was discussed that the possibility of splinting would be useful. Alys had a joint assessment with a Specialised Occupational Therapist from the Burns and Plastics department at Morriston Hospital and a thermoplastic splint was created for Alys to wear at night. Alys was measuring 35 degrees' knee flexion contracture at this point. Alys engaged well with the splint and complied with advice, wearing the splint every night. After one week using the thermoplastic splint and daily stretches at home, Alys' knee extension improved by 10 degrees, leaving a 25-degree flexion contracture. It was felt that Alys now had enough range of movement to begin the prosthetic assessment process.

By mid-August 2022, Alys was fitted with a prosthesis and had also been given a new thermoplastic splint to use. Alys completed twice weekly physiotherapy with the focus on equal weight bearing and knee control. By the end of August, Alys was able to mobilise with a zimmer frame and was safe to take the prosthesis home. By early September, Alys was measuring 10 degrees knee flexion contracture and was wearing the prosthesis for the majority of the day. She had also returned to school full time. Knee control was still an issue so exercises to target this were drilled including step ups and Theraband strengthening exercises. Due to the poor knee control, Alys was unable to complete a single leg stand on the prosthesis. By mid-September, Alys had reduced the flexion contracture to 5 degrees', the knee control was much improved and we were able to start working on single leg stands, jumping, skipping and reciprocal gait on the stairs. By the end of September, Alys achieved full knee extension, was able to step over mini hurdles and completed ladder based floor exercises, but was feeling some discomfort at the posterior aspect of her prosthesis. It was thought this may be due to the prosthesis being created to accommodate her flexion contracture which had now dramatically improved, thus, by mid-October, a new prosthesis was manufactured and issued. Alys was discharged from physiotherapy at this point, as she was able to complete all mobility and manoeuvres she wished and had returned to her dance classes with no issues. During the physiotherapy sessions, it was important to check in on how the family were feeling about the process and give the parents an opportunity to discuss any concerns or worries as this was a lifestyle change for the whole family. The MDT discussed with the family about accessing amputee support groups such as the Limbless Association and Limb Power where they could meet children who had gone through similar events to Alys. Alys' siblings often joined the physiotherapy sessions and played therapeutic games with Alys such as throwing and catching a ball in standing and completing the stretching exercises together. Physiotherapy also made the family aware about the Health Disability Wales programme, which could support Alys in joining other sports teams and activities.

Problem Solving

As an MDT, we were aware of the complications of Alys' deteriorating knee range of movement, her reluctance to engage in the knee extension exercises and her need to protect her residual limb from the start. It was clear that Alys' family were very supportive and completing the exercises that had been advised by the team but we needed to improve Alys' overall 24-hour posture management. Between the team, we discussed the possibility of rigid splinting and bracing. We wanted to maintain a positive relationship with Alys and did not want any splinting or bracing to create a negative association with the limb centre, thus the team in Burns and Plastics were asked to manufacture and maintain this splint as her care with them was a short one compared to her lifelong care with ALAS.

Alys wearing her thermoplastic knee splint

When the MDT was exploring how to create the best 24-hour position pattern possible, a lot of different ideas were discussed, for example an off the shelf cricket splint (too cumbersome and rigid, probably have low compliance); an Uria inflatable splint (can only be used for short time periods of time) or the thermoplastic custom moulded splint. It was decided to try the thermoplastic splint seen in Figure 3 and Alys tolerated this very well, with huge improvement in knee range of movement quickly evident. It also had the added benefit of allowing the Occupational Therapist to handle her residual limb which allowed desensitising to occur.

Discussion

Alys has already had excellent outcomes with her prosthesis in only a short amount of time. Alys has been well motivated throughout and has a 'get on with it' attitude which I feel impacted greatly on her rapid progress. Building a good rapport with Alys and her family was our main initial objective and to educate Alys and her parents on their journey ahead. I believe we achieved this quickly and having the MDT attend the ward so soon after the amputation helped with this. Even though we did have early intervention, on reflection, I think it would have been more beneficial for the ALAS physiotherapy team to in reach onto the ward more often whilst Alys was an inpatient, in order to correct Alys' 24-hour limb patterning to prevent the contracture from developing. Of course, this is not possible to complete with all inpatient amputees due to the high number at Morriston Hospital, but this is something that should be prioritised for paediatric cases especially where the child, once healed, has no boundaries regarding mobilising.

Utilising the expertise of the Burns and Plastics Occupational Therapist for the thermoplastic splint complemented the advice that we were striving towards in physiotherapy regarding the stretches. The thermoplastic splint is a tool that the physiotherapy ALAS team hadn't explored previously and it has highlighted the potential benefits for the correct patient.

Alys' mum works in a school and so their ability to attend appointments in a frequent and flexible manner, had a positive impact on Alys' ability to return to school so quickly after the amputation. It also allowed her regular access to her friends throughout the summer holidays, which in turn had a positive impact on her emotional wellbeing.

Conclusion

Rapid improvements were made during Alys' rehabilitation journey in a short space of time which allowed Alys to continue with her schooling and dance activities within months of the amputation.

Due to the low number of traumatic paediatric amputees treated by ALAS, Alys was a subject of learning for everyone involved. The importance of achieving a good 24-hour posture and having the correct equipment readily available can be seen in this case study. Upon reflection, seeing the effect of early intervention with the traumatic paediatric population, collaborative working between the whole ALAS MDT

Alys ringing the physiotherapy discharge bell

and the Burns and Plastics Occupational Therapist for the creation and monitoring of the thermoplastic splint, will pave the way for future paediatric amputees.

An excellent outcome was achieved for Alys in a reasonably short period of time, she rang the physiotherapy discharge bell as seen in Figure 4 and we look forward to seeing her again with a view to provide a running blade!

SPARG Report: March 2023

Meetings: Last SPARG meeting took place on the 27th October 2022, as previously feedback at the AGM. Our next meeting is on 27th April 2023.

Reports: The data for 2020 has been cleaned and the report is currently being written. The data for 2021 has all been extracted and is currently being cleaned.

We are currently on track to publish both the 2020 and 2021 data in the spring. This will allow us to explore the impact of COVID-19 on the amputee pathway.

PPAM aid guidelines: Out for review from 1 SPARG member, 1 BACPAR exec member – Lou Tisdale – and possibly 1 vascular society member. Deadline: End of March.

PPAM aid paper published:
Lee, J., Davie-Smith, F., Hebenton, J., Sharp, K. and Seenan, C., 2022. Impact of PPAM aid use on the time to prosthetic limb delivery in patients with unilateral transtibial amputation: a retrospective analysis. *Prosthetics and Orthotics International*, pp.10-1097.

Compression Therapy NHS Scotland: This document is complete and is in this edition of the BACPAR journal.

Exercise videos: Ongoing project between Damien and Finding your Feet.

Next looking at toilet transfers as this seems to be a common issue when people go home.

Links for current videos sent to Julia.
To go on BACPAR website.

COMPRESSION THERAPY NHS SCOTLAND – IS THERE CONSENSUS?

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Introduction
SPARG (Scottish Physiotherapy Amputee Research Group) is a group of physiotherapists working across Scotland who are involved with amputee rehabilitation. Pan Scotland there are multiple different models of practice (in-patient, out-patient and part in-patient: out-patient). It transpired over a number of SPARG meetings there were some similarities in the compression stocking protocols and provision; however there were also differences.

SPARG agreed that a review of compression stocking protocols and provision would help provide greater clarity, and this would facilitate more equitable care across NHS Scotland.

Figure 1. Map of geographical location of SPARG respondents
**Glasgow's SPARG members come from 3 different hospital sites*

Current guidelines:
The BACPAR guidelines "The Management of post-operative residual limb management oedema" can be divided into 4 areas: rigid dressings, PPAM Aid, Compression and Wheelchair stump boards (BACPAR, 2012).

Compression: *"Although compression socks are widely used (3) as a form of oedema control there is very limited evidence on aspects such as timing of application, who should assess appropriateness and the frequency it should be worn for. It is suggested that further research is required in order to offer more clarity for clinicians in these areas"* (BACPAR, 2012).

BACPAR guidance for MDT on the management of postoperative residuum oedema in Lower Limb –

Compression Socks
A conical, graduated, sock like compression garment for residual limbs
Grade of recommendation D

Types available
Manufactured by Juzo and Otto Bock. Available for trans-tibial and trans-femoral amputations in a variety of lengths and circumferences.

Application
When – Within 10 days post-operative (3)
Who – No evidence is documented in the literature to suggest who should measure and fit a compression sock.
Duration – A regime for wearing a compression sock is not documented in current literature or manufacturer's instructions.

Further Considerations
- Compression socks should be used in preference to elastic bandage wrapping (2)
- Trans-femoral and trans-tibial socks available (24)
- Compression sock size selection as per manufactures' guideline (24)
- Bespoke compression socks can be ordered from the manufacturers
- Frequent donning and doffing of socks in the early post op stages can create excessive distraction pressure over the distal end therefore the GDG suggest the use of a bandage applicator for ease of application and to reduce this effect
- Manufacturers' guidance does not say when compression socks can be initially applied

Benefits
- Reduction in oedema (1,2,10)
- Reduced time to prosthetic casting (3)
- Easy donning and doffing (10)
- Helps to shape into cylindrical shape for casting (10)

Table 1. *BACPAR guidance for MDT on the management of postoperative residuum*
Oedema in Lower Limb – Compression Socks

Method

It was discussed and agreed that SPARG members would submit any compression sock protocols they used at their hospital site and complete a short online questionnaire. Seven of the eleven hospital sites responded to the questions in Table 2.

Initial Questionnaire Compression Stocking Protocol
1. How many days from amputation to compression stocking application?
2. What size of compression stocking would you apply?
3. When would re-measurement occur?
4. What method of application would you prefer e.g. cage, 2 people,1 person?
5. Do you provide an information sheet? Yes or No
6. What do you believe to be contraindications to application of compression stocking?
7. Any miscellaneous comments?

Table 2. *Initial Questionnaire*

The initial feedback at a SPARG meeting generated extensive debate. Further robust discussion resulted in an agreement that a second extended questionnaire would be sent out to all members that would address the additional topics that had arisen, including:

- *Would a compression sock be applied over PICO/VAC dressings?*
- *How long would a patient be recommended to wear the compression sock for?*
- *Would overnight use be encouraged?*

Final Questionnaire Compression Stocking Protocol
1. How many days from amputation to compression stocking application?
2. What size of compression stocking would you apply?
3. When would re-measurement occur?
4. What method of application would you prefer e.g. cage/2 people/1 person?
5. Do you provide an information sheet? Yes or No
6. What do you believe to be contraindications to application of compression stocking?
7. Do you promote wearing compression stocking overnight?
8. Do you apply a compression stocking over PICO dressings/VAC dressings?
9. How long would a patient be recommended to wear the sock for– graded duration or patient comfort/pain?
10. Dependent on clinical presentation both physically and cognitively, would you consider applying a compression sock over a residual limb that was measuring above the maximum circumference noted by the manufacturer?
11. Any miscellaneous comments?

Table 3. *Final Questionnaire*

There was an increase in the response rate to the second questionnaire with SPARG members from all 11 hospital sites replying.

Results

In some cases, there were multiple responses to the individual questions.

Question	**Consensus from survey 1**	**Consensus from survey 2**
1. Days from amputation to compression stocking application?	Full consensus 100% (n=7) to aim for application by day 10 post op – as soon as possible post theatre dressings/rigid dressings/wound allows (some variation with this re aetiology / level of amputation)	Full consensus 100% (n=11) to aim for application by day 10 post op – (some variation with this re aetiology / level of amputation)
SPARG members comments: ✓ *The consensus is to apply as soon as is possible post-op. The patient's residual limb condition including pain and wound status are factors that are considered* ✓ *Where possible, compression stocking application by Day 10 post amputation is aimed for, or immediately after removal of rigid dressing* ✓ *There is some differentiation dependent on whether TTA or TFA level and also aetiology of amputation (vascular or non-vascular)*		
2. What size of compression stocking would you apply?	Full consensus 100% (7) that initial provision is for as-measured or one size up – dependent on wound condition / pain tolerance of patient	Full consensus 100% (11) that initial provision is for as-measured or one size up – dependent on wound condition / pain tolerance of patient
SPARG members comments: ✓ *The compression sock issued is either as measured or one size greater* ✓ *Consideration is given to sizing if the patient is complaining of pain or tenderness, whether clips have been used, beading is in place or patient is anxious* ✓ *Reluctance to provide the longer 18"/38cm length sock (n=1)*		
3. When would re-measurement occur?	Partial consensus (n=5) • 40% (n=2) "regularly" • 40% (n=2) 2 or more times per week • 20% (n=1) weekly	Full consensus 100% (n=11) by all centres to re-measure/replace as clinically indicated
SPARG members comments: ✓ *All physiotherapists re-measure regularly (i.e. daily, every couple of days, weekly, when loose)* ✓ *Frequency of re-measurement is affected by patient appointment*		
4. What method of application would you prefer (e.g. cage/2 people/1 person)?	Partial consensus (n=4) • 50% (2) 2 people (either 2 staff or 1 staff/1 patient) • 50% (2) use of cage	Partial consensus (n=6) • 86% (6) 2 people (either 2 staff or 1 staff/1 patient) • 71% (5) use or consider use of cage
SPARG members comments: ✓ *Use of application cage or two persons (patient and physiotherapist) is common practice especially for the first time and if tender* ✓ *Independence in self-application is encouraged as soon as is possible* ✓ *Four sites did not have a cage available*		
5. Duration of wearing sock on initial provision	Not asked in first round	Full consensus (n=11) • 86% (n=6) dependent on comfort/ "as pain allows" • 28% (n=2) all day and night if tolerated • 14% (n=1) gives specific daily timings

SPARG members comments: ✓ *Encourage patients to be guided by comfort, removing it if residual limb becomes uncomfortable or painful in any way* ✓ *Suggest increasing use gradually as comfort allows until wearing all day* ✓ *If a patient is fitted with a prosthetic limb, they are encouraged to continue wearing compression sock when not wearing limb*		
6. Do you promote wearing compression stocking overnight?	Partial consensus (n=3) • 67% (n=2) encourage wearing compression sock overnight as comfort allows • 33% (n=1) once wound healed	Partial consensus (n=8) • 100% of respondents encourage wearing of compression sock overnight if comfortable
SPARG members comments: ✓ *25% encourage wearing older / larger sock if more comfortable* ✓ *12.5% after first week post-op and 12.5% once healed*		
7. Do you provide an information sheet? Yes or No	Partial consensus (n=4) • 33% (n=2) provide written information • 67% (n=4) no written information provided	Partial consensus (n=9) • 55% (n=5) Information sheet provided • 45% (n=4) no information sheet provided
8. What do you believe to be contraindications to application of compression stocking?	Partial consensus (n=4) • 75% (n=3) pain (infection / ischaemia) • 100% (n=4) leaky or deteriorating wound	Partial consensus (n=8) • 100% (n=8) pain /infection / ischaemia • 75% (n=6) wound concerns
SPARG members comments: ✓ *Whilst pain and concern about a deteriorating wound were the main contraindications to compression sock use there were other responses generated included larvae therapy, known or suspected DVT, significant cognitive impairment and oedema due to CCF*		
9. Do you apply a compression stocking over negative pressure dressings?	Not asked in first round	Full Consensus **PICO Dressing:** • 100% (11) consensus to apply compression sock over PICO dressings **VAC Dressing:** • More cautious over VAC dressings: overall 50:50 split • 45% (n=5) would not apply over • 27% (n=3) would apply over vac dressing • 18% (n=2) would apply (under guidance from vascular nurse) • 9% (n=1) don't use VAC dressings
10. Application out-with sizing guide **Question: Dependent on clinical presentation both physically and cognitively, would you consider applying a compression sock over a residual limb that was measuring above the maximum circumference noted by manufacturer?**	Not asked in first round	Partial consensus • 82% Yes (n=9) • 18% No (n=2)

SPARG members were asked for any miscellaneous thoughts, and this generated the following responses:

- *Liaise with consultants prior to use*
- *Always assess wound first and liaise with MDT*
- *Dependent on wound soakage*
- *Issue in morning, check tolerance in afternoon*
- *Issue 2 socks (but note that this practice is reducing due to financial costs)*
- *Patient's tolerance of wearing shrinker in conjunction with early walking aid is an indication of patients readiness for limb fitting referral*
- *Never apply longer 18" sock initially*
- *Encourage seam of sock to be perpendicular to the wound*

Summary

- Full consensus (100%) that days to initial application aim is by day 10 post op/ as soon as possible post theatre dressings/rigid dressings/wound allows. Aetiology and level of amputation factor in this decision
- Full consensus (100%) that once measured the compression sock issued is either as measured or one size greater
- Method of first application of compression sock
  - 86% use 2 people
  - 71% use/consider use of a cage
- Initial advice on the duration of the compression sock to be worn
  - 86% advise as long as comfort dependent/ pain allows
  - 14% suggest structured times over several days
- 100% promote wearing compression sock overnight if comfortable
- Not all services provide written information about compression sock use
- Contraindications when compression sock not to be used:
  - 86% due to pain (ischaemic / infection / residual limb)
  - 56% wound concerns (deteriorating / excess exudates / open)
- 100% would apply over a PICO dressing
- 45% would apply over a VAC dressing

This audit has demonstrated that SPARG has partial consensus around compression stocking protocols and provision. Advances in wound management and dressings have created some variations in practice as therapy staff gain knowledge and experience within their differing services. SPARG discussions identified key areas for future research in this field i.e. use of silicone topped socks; negative pressure dressings; patient information; tolerances of adhering to the exact measured size of residuum.

With many thanks to my physio colleagues at Astley Ainslie Hospital, Edinburgh and Dr Fiona Davie-Smith and Ms Rosie Carr at Westmarc, Glasgow for their support.

References

British Association of Chartered Physiotherapists in limb Absence Rehabilitation (BACPAR) (2012). Guidance for the multi-disciplinary team on the management of post-operative residuum oedema in lower limb amputees [online] Available at: **https://www.bacpar.org/Data/Resource_Downloads/OedemaGuidelines.pdf?date=21/09/2022%2009:12:44**

CONGRATULATIONS!

Congratulations to the winners of our speakers prize and poster prize at our November conference, voted for by the participants.

£100 Speaker's Prize: Hayley Freeman for her presentation 'Should targeted muscle reinnervation be performed routinely?'

£50 Poster Prize: Fiona Gillow for her poster 'A case study to explore physiotherapist's experiences of using removable rigid dressings with patients post transtibial amputation in the UK'

VASCULAR SOCIETY
The Vascular Society for Great Britain and Ireland

See you in Dublin in 2023!

The 2023 Vascular Societies' Annual Scientific Meeting will be held in Dublin, 27th – 29th November

WE HAVE HYPERLINKS!

Don't forget the online version of this journal – available to logged-in members only on the bacpar.org website – is fully hyperlinked making it easy to go straight to articles and other resources referred to.

BACPAR

BACPAR Bursary Awards Spring 2023

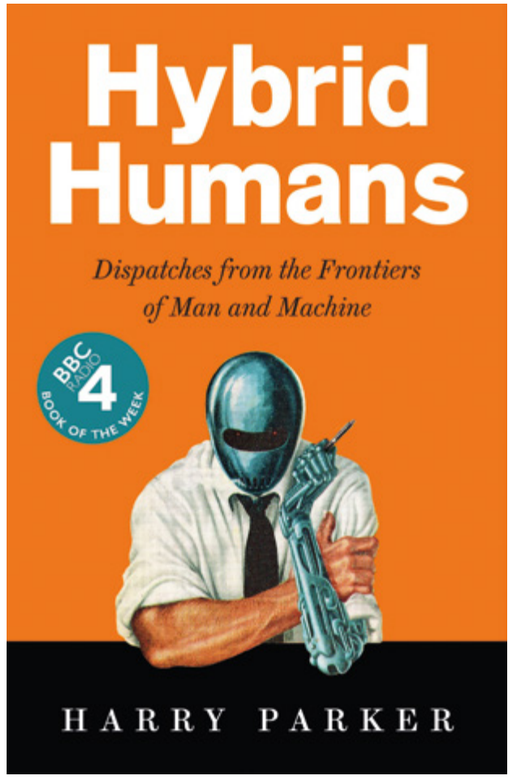
£250 CPD
- Carolyn Wilson for VS ASM 2022
- Carolyn Hirons for ISPO 2023
- Laura Burgess for ISPO World Congress 2023
- Charlotte Dodd for VS ASM 2023

£500 RESEARCH
- Fiona Davie-Smith
- Miranda Asher

We have had a request from Mary Jane Cole asking members to contact her if they are being deployed to either Ukraine, Turkey or Syria. Mary Jane has invaluable experience in-country post conflict and post-earthquake, and is happy to be contacted as a resource or for advice. **maryjrcole@aol.com**

HYBRID HUMANS BY HARRY PARKER

A BOOK REVIEW by Sally Finlay. Clinical Specialist Physiotherapist, Queen Mary's Hospital, Roehampton and The London Prosthetic Centre



Prior to reading Mr Parker's book Hybrid Humans, I was anticipating an account of his rehabilitative experience after sustaining traumatic bilateral lower limb amputations when inadvertently triggering an IED in Afghanistan while serving with the British Army in 2009. Whilst Mr Parker's personal experiences of becoming a prosthetic user are cleverly weaved into his narrative throughout the book, the overarching theme is Mr Parker's thought-provoking insight into humanity's evolving relationship with technology, specifically medical devices, and AI. Several friends recommended this book to me having heard an interview with Mr Parker on Radio 4 and having been moved by his warmth and eloquence.

His book is beautifully written and lays bare Mr Parker's crisis of self-identity following such a dramatic change in body image and ability, reiterating to me the humbling process our patients can go through and the myriad of emotion that goes with this experience. He challenges misconceptions and stigmas so commonly held around disability, touches on a despicable personal experience of disability hate crime and reminds the reader just how very human we all are, regardless of limb count or faculty.

Considering that, in his words, he is "12% machine", Mr Parker coined the term "hybrid human", which he feels best describes himself as opposed to "disabled" or even "cyborg". He reasons that we are all, in fact, "hybrid humans" to lesser or greater extents, for example through our dependence upon phones to jog our memories and communicate, artificial hips to cope with the pain of osteoarthritis or even upon contact lenses or glasses to read this journal. We are an adaptable species that is capable of merging with the tools that enable us, be they spears or MPKs. However, Mr Parker remains grounded and wary of a domination and over-evolution of technology that risks detracting from our visceral humanity.

Indeed, Mr Parker provides a balanced investigation into when technology helps and when it hinders. He speaks cautiously of the hype around "medical miracles" portrayed in the media and provides a reality check when examining for example, the practical limitations of the bionic eye and risks associated with osseointegration. Whilst human innovation in medical technology should be lauded, one must respect that it is often a slow and difficult process to achieve adequate strides in providing actual tangible benefit to human beings.

Mr Parker skilfully tackles the sticky area of the medical devices market, a big business, and openly explores the inevitable inequality associated with anything that comes with a big price tag. Sadly, poverty and disability commonly coexist, and the unavoidable costs associated with the latest innovation in health technology are often out of reach of the pockets of those who need it most, thereby facilitating the poverty trap.

I urge you to read Mr Parker's book. It is thoughtfully written, carefully researched and personal, prompting a reflection upon our current and future relationship with ever evolving technology. It is an excellent and stimulating read.

ASIN: B094TRLTJP
Publisher: Wellcome Collection; Main edition (17 Feb. 2022)

YOGA FOR LIMB LOSS' SOUTH-THAMES STUDY DAY – A REFLECTION

Alicia Bunn, Senior Physiotherapist (ITU, Vascular, Surgery), Kent and Canterbury Hospital

My first experience of yoga was led by the new keen P.E. teacher at school. We were 14 and just hoping we could play dodgeball afterwards. When I next went to a yoga class it was run by the university in exam week and it was a complete revelation. Since then I have dipped in and out of practising yoga for years, especially through Covid-19. I was thrilled to learn that Fiona and Sally (our BACPAR representatives for East Kent) had in conjunction with Pip (Yoga teacher of 10 years) organised a 'yoga for limb loss' study day. Physiotherapists of varying expertise and some students attended. Most were local to Kent working across acute, outpatient and community settings. Free refreshments offered the perfect opportunity to discuss our learnings with colleagues around the days' busy agenda. We first focused on the origins of yoga, many of the attendees had themselves trained to various levels and so a mix of experiences were identified. Pip described yoga as "mindful movement". Defined as the art of connecting with physical/ emotional /psychological sensations during movement. She inspired us with Dan Nevins who became a bilateral amputee in 2004 and a yoga teacher in 2015. He demonstrates the versatility of yoga and gives talks around the world detailing mindset and the self-empowerment he discovered

Nevins, D. 2019

Mental benefits aside, the well explored physical benefits include increased strength, balance and flexibility with the possibility to improve cardiovascular health as well. All markers of fitness that we encourage our patients to strive towards. Next up: Mindfulness and meditation! The origins of Yoga can be traced back to Northern India over 5,000 years ago and experts believe that mindfulness, breathing, and meditation were always a close relative. The yoga guru and pioneer Swami Vishnudevananda divided yoga into 5 principles. Meditation and breathwork make up two of those. Pip led us through a yoga session to familiarise us all with the classic movements and what level of strength, balance and coordination is required. We focused on our breathwork throughout and then went through a mindfulness practice. I know I speak for all attendees when I say it was an extremely calming experience. Indeed, there is a substantial body of evidence backing mindfulness practice for the reduction of symptoms of subclinical depression and anxiety. As well as decreasing stress (Schreiner, I., & Malcolm, J., 2008). We were all so relaxed, it would have been easy to nod off if we weren't about to begin the problem-solving part of the day!

Working together as a group we analysed the yoga positions we had previously explored. Using our combined experience and knowledge, we adapted them for limb loss yogis. This involved various aids commonly used amongst yogis such as straps and blocks to make some of the more challenging positions scalable to the level of the practitioner. We finished the day by reviewing several real-life and anonymous case studies prepared by Fiona. Dividing into small groups we worked together to create a yoga programme tailored to a hypothetical patient, their problem list and goals. Each group presented their programme, explaining their clinical reasoning and describing its practical application. We had the opportunity to critique and bounce ideas off one another. All in all, I can say the day was a success, giving us attendees ample ideas and providing an opportunity to discuss holistic treatments for our patients. I would like to say a last and huge thank you to Pip, Fiona and Sally for organising and bringing about the day. Looking forward to our next learning opportunity!

References:

Nevins, D. (2019) I'm grateful for this body., Dan Nevins. Facebook. Available at: **https://www.facebook.com/thedannevins/** (Accessed: February 22, 2023).

Schreiner, I., & Malcolm, J. (2008). The Benefits of Mindfulness Meditation: Changes in Emotional States of Depression, Anxiety, and Stress. *Behaviour Change*, 25(3), 156-168. doi:10.1375/bech.25.3.156

CONTRIBUTING TO REHABILITATION IN UKRAINE

A group of BACPAR members and a physiotherapist from the USA gave a second webinar in March – 'Lower Limb Prosthetic Rehabilitation'. This followed the initial webinar in July 2022 – 'Conflict Injuries and Amputation – Rehabilitation in the Acute Phase' (along with our American colleague and a UK-based OT). BACPAR is also supporting the process acting as a financial intermediary for the financial assistance required for simultaneous translation.

The March webinar was recorded and is available as a YouTube video. This was fully attended by 250 viewers in the first 24 hours following the webinar. Positive feedback has been received. Presenters said it has been a privilege to be able to support their Ukrainian therapy colleagues in this way.

Amongst other organisations supporting Ukrainian therapy teams are ADAPT (the CSP professional network for Physiotherapists for Global Health), the International Committee of the Red Cross (ICRC), the World Health Organisation (WHO), Médecins Sans Frontières (MSF) and Humanity and Inclusion (HI).

Here's the team photo from the most recent webinar.

MULTIDISCIPLINARY TEAM MANAGEMENT OF A TRANSTIBIAL AMPUTATION WITH LONGSTANDING CONTRALATERAL UPPER LIMB ABSENCE. FROM PRE-AMPUTATION TO (NEARLY) 12 MONTHS POST PROSTHETIC DELIVERY

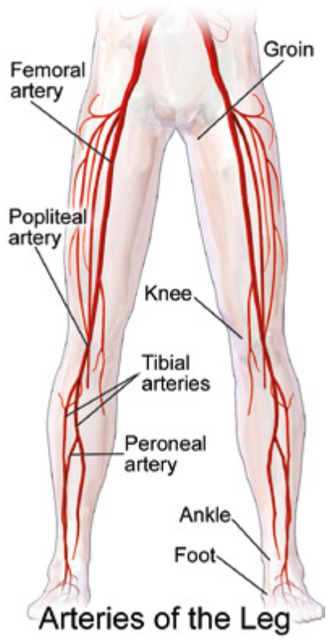
Louise Tisdale Clinical Specialist Physiotherapist Wolverhampton Louise.Tisdale@nhs.net

A little background about the service I work within. Wolverhampton's limb absence rehabilitation service is one of 3 in the West Midlands (alongside that in Birmingham and Stoke) contracted together with 1 prosthetic provider, Blatchford.

This case study outlines the MDT involvement in the management of an individual referred to our service pre-amputation by a Vascular service.

I have consent to share this individual's story. This case presentation was accepted and presented as a platform presentation for ISPO UK NMS in October 2022.

At the time of the referral (May 2021) our subject was 54. A male NHS administrator who had been receiving care from the vascular service since 2018 for the management of claudication symptoms. Initially managed conservatively he underwent a right femoral to posterior tibial bypass in October 2020.



Arteries of the Leg

The bypass calf wound dehisced, which was painful, there was development of gangrene in the first and second toes of the right foot. His mobility became limited. There was subsequently a non-successful attempt at angioplasty of the graft.

Amputation was discussed by the vascular team with our subject at transfemoral (TFA) or through knee (TKA) level because of concerns of the healing potential of a transtibial amputation. He was referred to us, but it was indicated that he was not yet ready to meet us. In the referral we had been made aware that he also had left upper limb absence (ULA). We do not manage upper limb patients, so I contacted the neighboring service who do. He had been provided with a prosthesis in the past but was now inactive. Having confirmed this, we accepted him.

A pre amputation assessment was carried out by myself and the Senior OT colleague in June 2021 and the following information was gained.

Lived in a first floor flat with no lift.
Admin role – a mix of working from home and in office as a result of Covid measures.
Left congenital upper limb absence – short trans radial.
Diabetic on Metformin
Peripheral arterial disease
Ex-smoker (2020)
Our concerns regarding a right TFA/TKA
Self-propelling wheelchair use – in view of ULA and assessed left glenohumeral (GH) joint restricted but pain free range.
The challenge of donning and suspension choice for a TFA/TKA prosthesis in view of left ULA
Walking distance limited through necrotic toes – 1 elbow crutch use on right side – 30 mins. Has had some claudication pain in left leg.
Re-housing challenges.

Discussion
Accepting of mobility scooter in future – peripheral arterial disease (PAD) and level of amputation
Declined counsellor input but accepted Befriender support (a counsellor supervised session)
Family support accepted – already supporting with personal activities of daily living (PADL), and activities of daily living – shopping/cleaning.
Keen to avoid or delay an amputation but accepts it is inevitable.

Time to
Review his living arrangements – a rehousing support letter provided – he was accepting of a move.
Heal the calf ulcer – it had shown some improvement.
Make a wheelchair referral – a slim gentleman at 5ft 1 tall requiring a small wheelchair – 1 arm drive or left leg scooter (vascular risk)
Motorbike has not been ridden (the UL prosthesis was used for this only) because of left GH joint and right LL issues.

Consideration
BLARt score 10 (TF/TK) strong likelihood of walking with a prosthesis.
Phantom Limb Pain (PLP) a real consideration in view of pain experienced and vascular symptoms.
A primary MPK if TFA carried out in view of LULA – space for an MPK if TKA?

Rest pain in the right hallux had led to his request for surgery of the vascular team.

Surgery offered in August 2021 TKA but declined through still awaiting rehousing so then booked for September. Further OT support with the housing team; wheelchair accessible property needed for a long-term wheelchair user. Details of the received wheelchair dimensions were shared with the rehousing team.

Surgical note received – Right TTA in September 2021

Post op healing
Surgical site hematoma, oral antibiotics for cellulitis
Placed on an intermediate care ward for wound monitoring; self-propelling in wheelchair, independent in PADL and transfers on ward, carrying out exercises independently.
Awaiting ok from vascular surgeon to provide compression sock.
Revision considered but later debrided and he was medically fit for discharge once the wound was no longer infected.
Discharged to a step-down placement whilst awaiting rehousing.
Some neuropathic pain in the residuum – Amitriptyline had been started pre amputation and Gabapentin was added.

He was happy to undergo our post op assessment in late November 2021.
The lateral aspect of the wound was yet to heal. The fibula length was not ideal.
Excellent range of motion in the hips, lacked 10 degrees at the knees into extension but active range equalled passive range.
The left gleno-humeral joint was still reduced in range but still asymptomatic.

He had occasional Phantom Limb Pain, cramp, in the distribution of the foot. A Class One compression sock (CSS) was provided which he independently donned. Advice re exercises was checked to ensure that Imagined Movements were being performed.

He received ongoing Community Nursing input for the management of the wound. He received an assessment for powered wheelchair assessment, there were concerns re how local authority fire doors and thresholds would be crossed in a manual chair.

Goals were developed using the Rivermead Goal Planning questionnaire and were outlined as follows.
To return to his admin role in the NHS
To return to boomerang throwing – accessing the park to throw
To resume motorbike use – after modification.

3 months post-op he was tolerating the CSS well, a PPAM aid pressure test was carried out and exercises carried out whilst non weight bearing with it in situ.

Problem
To be able to use the PPAM aid in gait the individual needs to be well supported. The patient is a left ULA.

Solution
The left upper limb was supported by the parallel bar being raised, a Dermaseal gel sock was donned inside out to the left UL residuum to cushion it and add tackiness for weight bearing in gait though the left UL.

https://charlottetisdale.co.uk/

Gait was performed forward and backwards to keep the left upper limb support at the correct height to provide sufficient support for the PWB PPAM aid.

The PPAM aid was tolerated well, he demonstrated good exercise tolerance and the vascular team had no concerns re the wound status.

There was a break in the treatment sessions – a COVID outbreak at his step-down placement and then a move into his new property.

The wound continued to progress, superficial eschar was present and scar tissue mobilization was carried out by the patient using an emollient. With continued PPAM aid use the residual limb volume stabilised and a cast and measure appointment was booked.

Initial prescription and prosthetic rehabilitation.
Goals indicated K3 activities, PPAM aid mobility demonstrated a potential for SIGAM D provided his vascular symptoms in the left lower limb and right residuum integrity would allow this. The scar tissue and reduced muscle /soft tissue coverage laterally indicated the potential need for a different interface.

A polypropylene socket with pelite liner was provided, an Epirus foot – cited in the Blatchfords' Prescription Guidelines as K2/3, weighing 400g and a build height of 85mm was utilised with an Alps Flex Suspension sleeve.

The patient weighed 50kg. He had been independent in donning the CSS, the Dermaseal sock on the left UL and had assisted me in PPAM aid donning.

Donning and doffing was practiced, the limb had been fitted with some trial parts whilst the actual parts were awaited from NHS Supply Chain. A foam/ silicone dressing was used to reduce shear on the scar tissue. In gait practice in the parallel bars "the higher on the left bar "technique was again utilised. There were adjustments to the alignment to reduce lateral discomfort. Sock fit was reviewed regularly to maintain comfort. The Dermaseal sock was also trialed on the TTA side.

He commenced a graduated return to work; working from home initially and later attendance in the workplace was supported by Access to Work (taxi fees)

Equipment was provided to support his personal care in his new home. We trialed one quad stick on the ipsilateral side, out of the parallel bars to offer more off-loading whilst the residuum became accustomed to wearing a prosthesis.

Whilst awaiting the supply of his own parts for delivery home, walking distance, weight bearing and time using the prosthesis was progressed within the limb fitting centre. Following limb delivery home, the prosthesis was well utilised in functional activities, transfers, standing and walking unaided indoors despite residual limb pain.

Pain management
The residual limb wound was healed. The patient reported distal lateral residual limb pain. Pain was neuropathic in type. Neuropathic pain is now defined by the International Association for the Study of Pain (IASP) as 'pain caused by a lesion or disease of the somatosensory nervous system'.

His symptoms were aggravated by weight bearing in the prosthesis.

Review
He was reviewed by the prosthetist. A new socket was indicated, he also had a routine vascular review from which there were no concerns outside of the residual limb pain (RLP). Our plan to fit a new socket was taken into consideration and the patient was told that he should contact the center if there were any issues.

I had prescribed lidocaine 700mg (LA) patches for a 1-month trial to get him through the wait for his new socket. Having checked that he had good sensation and intact skin in the region of patch application.

A new socket was provided fitted over an Alps Easyliner Cushion liner. The gel liner had been provided prior to the cast and measure to assess the patient's ability to don and doff independently and tolerance to this material.

This combination facilitated a reduction in RLP enabling a longer time in the prosthesis (10 hours) and walking further. The LA patches were no longer required.

Our service routinely carries out MDT review 3, 6 and 12 months post-delivery of the limb (home to the patient)

At the 3 month review the goal achievement was noted as follows
Return to work achieved.
He had accessed a Boomerang throwing area but was yet to throw.
We provided information regarding the National Association for Bikers with Disability – NABD.
Some distal lateral RLP persisted, but his Socket Comfort Score was 9/10. He was walking more than 50m unaided over uneven surfaces. He was using a mobility scooter for longer distances. Dual thickness socks were ordered to trial to improve the fit.
His SIGAM was D, K3.
A second liner and suspension sleeve were provided to facilitate good hygiene once it had been established that neither product was an irritant.

At a later physiotherapy review we required support from the prosthetist after I had carried out some walking tests to ascertain if the RLP reported was driven by his increased walking activity – i.e., ischaemic or prosthetic fit related. He was able to walk 100m before the onset of lateral RLP, in a repeated walking test, it was determined that there may be a small ischaemic element, but it was not the main driver.
The distance walked was greater than his left pre amputation distance. A prosthetic adjustment to improve the fit provided further relief.

The 6-month post-delivery review.
He was not experiencing any PLP or PLS. His main concern was walking over uneven ground. We discussed a change of prosthetic foot/ankle prescription to improve compliance of the prosthetic foot, reducing pressure on the residuum in gait activity, and reducing the challenge of uneven ground in combination with the provision of waterproof components to support his personal care. In the increased distances he was walking he experienced some left calf pain.

A new socket was to be manufactured, including check socket assessment in view of some ongoing RLP and adjustments already made. A smaller gel liner was required.

We considered the foot/ankle prescription in view of his activity level, aim to improve his balance whilst walking on uneven ground and need to increase his independence in PADL. A Dry-Pro cover is not available in his size.

A hydraulic ankle trial was carried out. Prior to the trial a video of outdoor gait was taken, a two-minute walk test was carried out outdoors (uneven ground, down, up and across a slope), the prosthetic evaluation questionnaire (PEQ) was completed. These measures are repeated at the end of a trial – usually 2 weeks long (it is acknowledged that the PEQ usually asks for a review of the previous 4 weeks) to enable the individual to gain experience of the new component whilst ensuring it can be returned if not suitable.

The Echelon was selected because it has a build height of 115mm and is waterproof. The Echelon was trialed with good outcomes.

	Pre Trial (Epirus)	End Trial (Echelon)
2MWT (m) unaided	105m	118m
PEQ Ambulation	82.6	94.41
Appearance	73.38	80
Frustration	98.4	95.74
Perceived Response	96.81	97.16
Residual Limb Health	68.35	93.97
Social Burden	96.28	98.23
Sounds	90.43	95.74
Utility	73.94	93.09
Wellbeing	86.70	96.28

Following the successful trial an Easysleeve suspension sleeve was provided for use in water-based activity – it does not have a fabric cover. He can swap suspension sleeves as needed. The patient has reported less RLP, he has been able to throw and catch the boomerang and has improved confidence over uneven ground.

What is next?
His 12-month post-delivery will be held in April 2023. The goals set will be reviewed.

If the patient wishes to return to using his prosthetic upper limb for motor bike riding, he may require a review of the fit of the upper limb prosthesis.

As a centre we, as part of the 3 West Midlands amputee rehabilitation services, are carrying out a Residual Limb Quality audit, having checked that there have been no updates to the work previously carried by the Roehampton team (with the Roehampton team and advising them of our plan), Dawn Crofts (Blatchfords' national clinical lead Prosthetist) is leading on this and we will aim to present it at a Vascular Research & Innovation Consortium Supporting research in the West Midlands meeting

Note
If our patient had had a TFA or TKA the BLARt score increases by 2, he would still have been green.

This case presentation was prepared for the UK ISPO NMS Annual Scientific Meeting on 8th October 2022, Free paper. As BACPAR Chair my place at the ASM was funded by BACPAR. The case presentation has been updated from that point in time (just prior to 6 months post-delivery).

References

Access to Work
https://www.gov.uk/access-to-work

Bowrey S, Naylor H, Russell P, Thompson J. Development of a scoring tool (BLARt score) to predict functional outcome in lower limb amputees. *Disabil Rehabil.* 2019 Sep;41(19):2324-2332. doi: 10.1080/09638288.2018.1466201. Epub 2018 May 12. PMID: 29754521.**https://pubmed.ncbi.nlm.nih.gov/29754521/**

British Association of Chartered Physiotherapists in Amputee Rehabilitation (2020) Evidence based clinical guidelines for the physiotherapy management of adults with lower limb prostheses, 3rd Edition. Available at **https://www.bacpar.org/Data/Resource_Downloads/ProstheticGuidelines-RecommendationsDocument.pdf?date=02/10/2022%2014:08:42**

Lidocaine Patch – patient information leaflet **https://www.paindata.org/documents/drugs-lidocaine.pdf**

https://www.nabd.org.uk/

Ortho Europe
https://www.ortho-europe.com/product/ppam-aid/

Smith S, Pursey H, Jones A, Baker H, Springate G, Randell T, Moloney C, Hancock A, Newcombe L, Shaw C, Rose A, Slack H, Norman C. (2016). *'Clinical guidelines for the pre- and post-operative physiotherapy management of adults with lower limb amputations. 2nd Edition.* **https://www.bacpar.org/Data/Resource_Downloads/PreandPostOpGuidelines-Recommendations.pdf?date=02/10/2022%2014:11:22**

Sivaraman Nair (2003) Life goals of people with disabilities due to neurological disorders *Clinical Rehabilitation*; 17: 521–527 (appendix)

https://en.wikipedia.org/wiki/Femoropopliteal_bypass#/media/File:Blausen_0607_LegArteries.png

Editors: This article is based on a presentation given by Lou at ISPO UK 2022

WHAT NEXT IN MICROPROCESSOR PROVISION FOR PRIMARY PATIENTS?

Dr Poornashree H Ramamurthy, Consultant in Amputee Rehabilitation, Birmingham Community Healthcare NHS Foundation Trust, West Midlands Rehabilitation Centre

Like everyone in the amputee rehabilitation community, we at the West Midlands Rehabilitation Centre welcomed the roll out of the NHS England Microprocessor Knee (MPK) policy in 2017. We started providing these life changing MPK units for our established patients in April 2018. Due to the huge number of those who fulfilled the criteria for MPK provision, and no additional resources, we had to develop a process of prioritisation, and started with patients with multi limb loss or with issues on the contralateral limb. We then commenced the provision of MPKs to patients whose mechanical knee units were coming up for replacement. However, with this form of prioritisation of our caseload, we felt that we would always be playing catch up with MPK provision for our established patients.

We were very keen to issue MPK units to primary amputees, as we felt they would benefit the most in the long term. We hoped this would improve their confidence with prosthetic mobility, reduce compensatory gait adaptations and enable them to make the most functional use of the knee. In the latter part of 2019, we started exploring MPK prescription for primary amputees who would potentially fulfil the policy criteria.

At the start of the pandemic and initial lockdown, we were not able to see patients due to staff redeployment and furlough. For service recovery, we prioritised primary patients who were being seen with strict infection precautions. Having piloted a primary patient with MPK prescription prior to the pandemic, we felt it would now be even more appropriate to proceed to MPK prescription for those primary patients, who we felt were going to be potential MPK users.

We used the NHSE policy as our guide for patient selection. Patients who were fit and active prior to the amputation and with potential ability to walk with a free knee outdoors were considered. Patients who were able to walk out of the parallel bars with a free knee on the Femurett with the support of elbow crutches or a Zimmer frame were initially selected to proceed with an MPK trial. We followed the process of recording outcome measures with the Femurett, and at the end of trial with the MPK prosthesis.

Having provided MPK prostheses for a few primary amputees, we reviewed our outcomes to guide further service provision. Overall the outcomes were very positive. These patients had significantly less falls in the early stages of prosthetic mobility. We anticipated a more intensive therapy input with MPKs when compared to those with mechanical knees, however that was not the case.

Some younger primary amputees progressed remarkably well and were able to manage slopes and leg-over-leg downstairs quite quickly and easily. There was immediate positive feedback from patients and clinicians in response to fitting an MPK vs a non-MPK. As primary amputees do not have any frame of reference, they are able to spontaneously use the knee yield function on slopes and stairs without developing the fear that established patients have had to overcome when swapping to an MPK unit. Therefore, they do not need to adapt their lives to avoid slopes and stairs.

Having reviewed our preliminary outcomes, the ability to walk with a free knee on a Femurett with elbow crutches appears to be a good predictor of MPK suitability. Though, it can be said that MPKs are suitable for most patients who can manage functional prosthetic mobility. With the ability to trust the knee and feel the stumble recovery, the primary amputees appear to progress quickly and be less reliant on walking aids. With the restoration of a more natural gait pattern, these amputees will arguably use both sides equally and minimise the gait deviations which result in extra stresses on the contralateral limb and the lower back. Therefore, this should reduce the long-term risks of developing musculoskeletal conditions like osteoarthritis and osteopenia related to gait deviations seen in the established non-MPK user population. There are various factors that will need quantitative and qualitative evaluation in the future.

Acknowledgments –
Amputee Rehabilitation Multidisciplinary Team at West Midlands Rehabilitation Centre

DEVELOPING AND TESTING INTERVENTIONS TO INCREASE PHYSICAL ACTIVITY IN PEOPLE WITH PAD AND IC AND DOES EDUCATION AND PAIN MANAGEMENT MAKE A DIFFERENCE?

Dr Chris Seenan, School of Health and Life Sciences, Glasgow Caledonian University

What is the problem we are interested in?
Peripheral Arterial Disease (PAD) is a major global health problem, affecting 1 in 5 people over 60 and 236 million people worldwide [1,2]. Intermittent Claudication (IC) is the most common symptom of PAD and associated with impaired quality of life due to reduced physical capacity[3]. Furthermore, due to the diffuse nature of atherosclerosis and the involvement of other arterial beds, they have 3-4 times increased mortality compared to age and sex-matched controls[4]. Within 5 years of diagnosis, 1 in 3 patients with PAD have had either a Myocardial Infarction, Cerebrovascular Accident or died from other cardiovascular causes [5]. Also, at 5 years from diagnosis approximately 1 in 3 people with PAD will have died from any cause, at 10 years it is 1 in 2 and at 15 years it is 3 out of every 4 [5]. It is clear that PAD is a significantly life-limiting condition.

The causes or risk factors for developing PAD are the same as those for coronary artery disease. This includes smoking, diabetes, hypertension, hypercholesterolaemia and older age [6]. Thus, therapeutic intervention, lifestyle modification and risk factor management are central to the management of PAD and IC [7].

People with IC are 40-45% less physically active compared to age-matched controls [8]. Physical Activity (PA) is a predictor of all-cause mortality[9,10] and higher levels of PA are associated with better QoL and less functional decline in people with PAD [11,12].

Participation in supervised exercise demonstrates benefits in walking distances and quality of life. The most recent Cochrane review that included 32 RCTs and 1835 people with IC, found that exercise intervention improved walking distance and physical and mental aspects QoL [13]. It is also associated with physiological / anatomical changes in endothelial function, inflammatory state, muscle composition and angiogenesis[14]. Unfortunately, these exercise programmes are not commonly available, especially in the UK, and when they are, people with PAD and IC face multiple barriers to accessing them. In a recent survey of vascular services across the UK, only 48% of vascular centres had access to a supervised exercise programme. And due to this limited provision, for those that did, patients face significant burdens in terms of travel and cost to access the intervention[15].

Also, there is limited evidence that these interventions lead to improvements in physical activity. Exercise interventions have very strong evidence of positive effect on walking distance and QoL, however there is limited evidence of effect on daily PA [16].

What have we done about it?
Working from this understanding that PAD is a significant health issue and that it is generally under-diagnosed and undertreated, we felt we might be able to help around the issues of physical activity and exercise.

First of all, it was important to deepen our understanding of the problem. We started by exploring the experience of living with PAD and IC and found that life for people with PAD and IC as this is a key first step in working out what we might be able to do to help. We found that life with PAD and IC is characterised by frustration and decreased quality of life [17].

We then explored the relationship people with PAD have with engaging in physical activity. We conducted a review of the barriers and enablers to physical activity as reported by people with PAD and IC and found that the main barriers reported were pain, and limited knowledge and understanding of the condition and the benefits of exercise [18].

Using this information generated from the evidence synthesis, we started to think about what interventions might look like that would help increase physical activity for people with PAD and IC. The limited understanding of the condition in people with PAD was associated with an uncertainty of the importance, and how best to exercise and there were no established pain management strategies for people with IC. What we wondered was if we could develop an intervention, or interventions, to address these barriers and make use of the enablers that we had identified? This is why we focused on patient education and pain management.

The theory we developed was that patient education in a group format could employ the enablers of support systems, cognitive strategies and positive beliefs while addressing the barriers of knowledge and understanding and lack of motivation. And then an effective pain management intervention might address the barrier of pain, enhancing self-efficacy and ultimately quality of life.

In a proof-of-concept study, we demonstrated that pain management in the form of TENS could significantly improve pain intensity and increase treadmill walking distances in people with PAD and IC [19]. Also, a study led by Prof Garry Tew developed patient-centred group education (SEDRIC) and found that it was associated with short term increase in physical activity [20].

So, it was upon this work that we developed the PrEPAID trial which aimed to test these interventions together and individually [21].

As a feasibility trial, the aim of PrEPAID was not the determine if these interventions work, but to find out if it would be feasible to run a large trial to test these interventions and to explore if the interventions were acceptable for people with the condition.

The design of the trial was a 2 by 2 factorial design where we aimed to randomised 80 people with PAD and IC to four groups and compare TENS, versus placebo TENS, with or without patient education. Participants were required to be able to walk a consistent distance on treadmill (<20% variation) and not be awaiting surgical intervention. We blinded the participants to the type of TENS the received and blinded the researcher who was measuring the primary outcomes to which group each participant was allocated to.

TENS intervention consisted of a device to use at home for 6 weeks and placebo TENS was achieved by using the same device but locked to only deliver ineffective stimulation parameters. Participants were asked to use the device as appropriate for them and their lifestyle, switching it on only when needed.

The education intervention followed the SEDRIC curriculum [20] and focused on knowledge and perceptions about the disease, risk factor modification and self-management of walking behaviour. This was delivered as a one-off, 3-hour session followed by phone calls every 2 weeks where individual goals were reviewed and revised.

Participants were identified via claudication clinic lists and approached either by their surgeon or by letter. If they agreed to participate, they were invited to attend two visits, one week apart to complete baseline measures and final eligibility assessment which included variation in treadmill walking distance.

Outcome measures were completed at baseline, end of intervention and at a 3-month follow-up visit. After the final follow-up visit, all participants were invited to complete a semi-structured interview that explored their experience of participating in the study and their thoughts on the interventions. Primary outcomes for this study included recruitment rates, participant retention, quality of outcome data collected, adverse events, uptake of interventions and acceptability of interventions. Absolute claudication distance measured via treadmill testing was identified as the primary outcome to determine sample size for a definitive trial. We also measured PA behaviour using activPAL, quality of life (ICQ and SF-36), pain quality (MPQ), pain intensity (VAS), illness beliefs (IPQ) and psychosocial determinants (GDS-SF and PSEQ).

Ninety-five potential participants completed baseline screening (1030 records reviewed; 267 eligible individuals). Individuals excluded during screening (n=38) had >20% variability in treadmill ACD. All randomised participants (n=56) received their allocated intervention, and outcome completion was 91% (6 weeks) and 80% (3 months). Attendance at the group education session was high (96%) with 63% taking follow-up phone calls. Compliance with TENS (>=30 min/day, >=3 days/week, >=3weeks) was 70% according to participant-completed logs, but only 28% using TENS machine records.

Generally, participants were keen to participate and stayed in the trial to the end of follow-up. We were also able to collect good quality and complete data for the primary outcomes measures meaning the way we planned the trial worked well.

Interviewed participants (n=9) were generally positive about the interventions and trial procedures, however experience of TENS use was mixed. The study procedures were acceptable, and the burden of travel as ameliorated by providing taxis. TENS was less acceptable if perceived not to be effective (either placebo or active) and there was a burden of the size and nature of the machine (wires). The education was very well received due to perceived effectiveness and how it made the participants feel (listened to and sharing experience). There was a general suggestion that it could be streamlined or delivered in more regular meetings rather than one longer session.

So, what now?
We are currently writing up the findings from the PrEPAID study and will publish the findings in full soon. These initial findings indicate that it is possible to design a trial that is feasible and acceptable to test

the efficacy of these interventions. The interventions themselves are acceptable with some minor enhancements especially related to the deliver of TENS. We are therefore already thinking about and working on our next steps and planning for a funding application.

There are also a number of projects running in parallel addressing other aspects of the problem and will contribute to this next stage of the research. Dr Abaraogu is leading the NIHR-funded OPTIMA Trial which aims to synthesise the currently published literature review of behaviour change interventions for PA in people with PAD and IC. The findings of this review will feed into the enhancement of the PrEPAID intervention.

Sean Paul Carroll is completing his PhD exploring the effects of TENS with or without motivational interviewing on PA in people with PAD and IC. Ebuka Anieto is using co-production methodology to engage with people with PAD and IC, their relatives and health professionals to co-design intervention(s) that aim to increase PA in people with PAD and IC. Both of these projects will contribute essential information related to the design and implementation of possible interventions and continue to develop the network of collaborations.

Ultimately, we hope the cumulation of all these projects will help to enhance the care of people with PAD through greater availability and enhanced delivery of interventions that help increase PA and reduce progression to other serious cardiovascular conditions.

References:

[1] Song P, Rudan D, Zhu Y, Fowkes FJI, Rahimi K, Fowkes FGR, et al. Global, regional, and national prevalence and risk factors for peripheral artery disease in 2015: an updated systematic review and analysis. *Lancet Global Heal* 2019;7:e1020–30. **https://doi.org/10.1016/s2214-109x(19)30255-4.**

[2] Criqui MH, Matsushita K, Aboyans V, Hess CN, Hicks CW, Kwan TW, et al. Lower Extremity Peripheral Artery Disease: Contemporary Epidemiology, Management Gaps, and Future Directions: A Scientific Statement From the American Heart Association. *Circulation* 2021;144:e171–91. **https://doi.org/10.1161/cir.0000000000001005.**

[3] Inglis SC, McMurray J, Böhm M, Schaufelberger M, Veldhuisen DJ, Lindberg M, et al. Intermittent claudication as a predictor of outcome in patients with ischaemic systolic heart failure: analysis of the Controlled Rosuvastatin Multinational Trial in Heart Failure trial (CORONA). European Journal of Heart Failure 2010;12:698–705. **https://doi.org/10.1093/eurjhf/hfq070**.

[4] McDermott MM. Lower Extremity Manifestations of Peripheral Artery Disease. *Circ Res 2015;116:1540–50*. **https://doi.org/10.1161/circresaha.114.303517**.

[5] Norgren L, Hiatt WR, Dormandy JA, Nehler MR, Harris KA, Fowkes FGR, et al. Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II). J *Vasc Surg 2007;45:S5–67*. **https://doi.org/10.1016/j.jvs.2006.12.037**.

[6] Aday AW, Matsushita K. Epidemiology of Peripheral Artery Disease and Polyvascular Disease. *Circ Res 2021;128:1818–32*. **https://doi.org/10.1161/circresaha.121.318535**.

[7] Layden J, Michaels J, Bermingham S, Higgins B, Group G. Diagnosis and management of lower limb peripheral arterial disease: summary of NICE guidance. *BMJ (Clinical Research Ed) 2012;345:e4947*. **https://doi.org/10.1136/bmj.e4947**.

[8] Sieminski DJ, Gardner AW. The Relationship between Free-Living Daily Physical Activity and the Severity of Peripheral Arterial Occlusive Disease. *Vasc Med 1997;2:286–91*. **https://doi.org/10.1177/1358863x9700200402**.

[9] Gardner AW, Montgomery PS, Parker DE. Physical activity is a predictor of all-cause mortality in patients with intermittent claudication. *J Vasc Surg 2008;47:117–22*. **https://doi.org/10.1016/j.jvs.2007.09.033**.

[10] Garg PK, Tian L, Criqui MH, Liu K, Ferrucci L, Guralnik JM, et al. Physical Activity During Daily Life and Mortality in Patients With Peripheral Arterial Disease. *Circulation 2006;114:242–8*. **https://doi.org/10.1161/circulationaha.105.605246**.

[11] Golledge J, Leicht AS, Yip L, Rowbotham SE, Pinchbeck J, Jenkins JS, et al. Relationship Between Disease Specific Quality of Life Measures, Physical Performance, and Activity in People with Intermittent Claudication Caused by Peripheral Artery Disease. *Eur J Vasc Endovasc 2020;59:957–64*. **https://doi.org/10.1016/j.ejvs.2020.02.006**.

[12] Garg PK, Liu K, Tian L, Guralnik JM, Ferrucci L, Criqui MH, et al. Physical Activity During Daily Life and Functional Decline in Peripheral Arterial Disease. *Circulation 2009;119:251–60*. **https://doi.org/10.1161/circulationaha.108.791491**.

[13] Lane R, Harwood A, Watson L, Leng GC. Exercise for intermittent claudication. *Cochrane Db Syst Rev 2017;12:CD000990*. **https://doi.org/10.1002/14651858.cd000990.pub4**.

[14] Rodrigues E, Silva I. Supervised exercise therapy in intermittent claudication: a systematic review of clinical impact and limitations. *Int Angiol 2020;39*. **https://doi.org/10.23736/s0392-9590.19.04159-2**.

[15] Harwood AE, Pymer S, Ibeggazene S, Ingle L, Caldow E, Birkett ST. Provision of exercise services in patients with peripheral artery disease in the United Kingdom. *Vascular 2021:17085381211035260*. **https://doi.org/10.1177/17085381211035259**.

[16] Golledge J, Singh TP, Alahakoon C, Pinchbeck J, Yip L, Moxon JV, et al. Meta-analysis of clinical trials examining the benefit of structured home exercise in patients with peripheral artery disease. *Brit J Surg 2019;106:319–31*. **https://doi.org/10.1002/bjs.11101**.

[17] Abaraogu UO, Ezenwankwo EF, Dall PM, Seenan CA. Living a burdensome and demanding life: A qualitative systematic review of the patients experiences of peripheral arterial disease. *Plos One 2018;13:e0207456*. **https://doi.org/10.1371/journal.pone.0207456**.

[18] Abaraogu U, Ezenwankwo E, Dall P, Tew G, Stuart W, Brittenden J, et al. Barriers and enablers to walking in individuals with intermittent claudication: A systematic review to conceptualize a relevant and patient-centered program. *Plos One 2018;13:e0201095*. **https://doi.org/10.1371/journal.pone.0201095**.

[19] Seenan C, McSwiggan S, Roche PA, Tan C-W, Mercer T, Belch JJF. Transcutaneous Electrical Nerve Stimulation Improves Walking Performance in Patients With Intermittent Claudication. J *Cardiovasc Nurs 2016;31:323–30*. **https://doi.org/10.1097/jcn.0000000000000258**.

[20] Tew GA, Humphreys L, Crank H, Hewitt C, Nawaz S, Al-Jundi W, et al. The development and pilot randomised controlled trial of a group education programme for promoting walking in people with intermittent claudication. *Vasc Med 2015;20:348–57*. **https://doi.org/10.1177/1358863x15577857**.

[21] Abaraogu UO, Dall PM, Brittenden J, Stuart W, Tew GA, Godwin J, et al. Efficacy and Feasibility of Pain management and Patient Education for Physical Activity in Intermittent claudication (PrEPAID): protocol for a randomised controlled trial. *Trials 2019;20:222*. **https://doi.org/10.1186/s13063-019-3307-6**.

THE NEW JVSGBI JOURNAL

Miranda Asher, BACPAR research officer

Journal of VASCULAR SOCIETIES GREAT BRITAIN & IRELAND

You may have already seen the Journal of Vascular Societies Great Britain and Ireland (JVSGBI) and considered submitting something for publication. They aim to be a robust peer-reviewed journal, but without the challenging hurdles that are often part of the scientific journal submission process.

The JVSGBI has published in excess of 50 papers so far, and with its affiliation to BACPAR they would love to hear from BACPAR members about anything vascular related. If you have a piece of original research, clinical trial, cohort study, or review (either systematic or meta-analyses) then why not submit it for peer review?

However, if you have something else to say that isn't a research article, they would still love to hear from you with any of the following:

- Clinical case report
  - Report on a case which gives interesting insight and learning into specific clinical management issues.
- Debate article
  - Discussion of a hot topic with well-argued viewpoints in "pro" and "con" format.
- Editorial proposal
  - Insight on an important issue and conclusion that supports advancement in understanding.
- Meeting report
  - Reports from an important conference or meetings which could support advancement in understanding.
- News article
  - An update on important advancements or news from the sector.
- Q&A – your vascular questions answered
  - A burning question that you have which is relevant to a specific member of the editorial board.

Please visit JVSGBI.com to check out the journal and consider submission or contact **bacpar.research@gmail.com** with any questions.

A FOCUS ON THE FUTURE OF PROSTHETICS

Emma Marsh, Marketing Manager at Blatchford

If you ask someone to describe the future of prosthetics, you'll get very different answers depending on who you ask.

Ask a family member of an amputee. They'll describe a future where their life looks more like their past — a family life that continues without any more changes.

For the patient, the future of prosthetics promises a constant series of ongoing improvements — something evolutionary — a future in sharp contrast to the permanence of their amputation.

For clinicians, there's the promise of new technologies to learn from and introduce to patients that will help them on their journey — technologies that improve outcomes for the patient and make it easier for the clinician to be more effective.

For prosthetic manufacturers, the future of prosthetics means creating limbs and limb systems that are as life-like as possible while improving comfort, durability, maintenance, and accessibility of the prosthetic for more people.

Together, patient, caregiver, clinician, and manufacturer make up a community with a shared vision and unique motivations. Each member of this community is faced with their own barriers, from the availability of emerging innovations to the acceptance of their necessity.

Despite these challenges, the future looks bright. Innovation and acceptance steadily improve for amputees and their clinics. Many are proud to be part of these efforts through their own contributions and continue to lead in the field of emerging technologies. As a collaborative community, they've innovated their own progressive technologies like microprocessors, app control, and adaptive technologies to help make the prosthetic experience more comfortable and in tune with the amputee.

Prosthetics of the past

This progress towards the future of prosthetics has a long history. The origins of prosthetics are ancient, but meaningful advancements in prosthetics can be traced back to 1890 when Blatchford was founded using clinical provisions based on the Anglesea or Clapper Leg. (PLACE 'Early years' photo here entitled Early years 1890 – Photo 2 in photos folder)

After World War II, Blatchford began concentrating development on a prosthetic knee that allowed for stabilised weight-bearing and flexion when walking. Thus, the Blatchford Stabilized Knee became popular worldwide. It established Blatchford as the industry leader in prosthetic innovation and the pioneer of the future of prosthetics.

World War II was a catalyst for innovation working to accommodate soldiers returning home from battle. These innovations saw improvements in design, quality, and production while new efforts were also established to ensure the soldiers would receive the support they needed.

As the ability to provide healthcare to the people of the UK increased, innovations in the technology of prosthetics increased as well. Carbon fibre, titanium, and other lightweight metals became the future materials of advanced prosthetics allowing patients more durable limbs without weighing down mobility.

Modern prosthetics of the 20th century

In more recent years, prosthetic technology continues to progress with microprocessors and adaptive technology that allow for better recognition of terrain and varied gaits.

"It's about not having to think about being an amputee and just go out and do what everyone else does." explains Becky, wearing the Orion3

"Microprocessor powered prosthetics help imitate the way limb systems work together to give the amputee greater freedom of movement through biomimicry," explains Ben Auzenne, VP of Sales and Marketing at Blatchford.

"In addition to basic human movement, each person is unique, and so is the way they walk or handle themselves with their prosthetic limb," says Auzenne. "So, technology has adapted to allow more accurate mimicry of movement."

Recent innovations offer more choices

While some focus on improving technology and creating specific limbs for specific activities, no prosthetic can be all things to all people. This inherent truth has given birth to a multitude of prosthetic options for patients. Now, when they need a prosthetic limb, they are not limited to a simple static leg. Instead, a myriad of solutions can be found to help with whatever mobility challenge they have facing them.

The Linx (3-time winner of the Queens Awards for Technological Achievement) is helping clinicians fine tune the limb with a complimentary app

Running and walking are often the first ideas that come to mind, but stability while being stationary is just as paramount. The adaptability to navigate uneven terrain becomes essential as the world continually presents uneven surfaces everywhere you go. So, the ability to measure surroundings and change accordingly becomes the cornerstone of functionality for limbs where the patient knows they'll be facing slants and slopes.

Unique among these innovations is Linx, the world's only fully integrated limb that delivers an experience that effectively mimics the incredible and complex structure of the human leg. It achieves this union by actively sensing and analysing data on the user movement, activity, environment, and terrain providing a coordinated stream of instructions to the hydraulic support system.

The advances in prosthetics are not just engineering and technology. The relationship between patient and clinic and how they complement one another is always an area that draws attention when talking to those impacted by limb loss. The same can be said of the clinicians, as the patients become like family while they help them establish their new life.

"We are focused on enabling clinicians and patients to make product choices based upon meaningful clinical outcomes," explains Paul Roberts, Blatchford Group CEO. "With advancements in technology and digital capabilities rapidly improving, we are pushing the boundaries on new product development and connected digital health to enhance and improve the lives of users, caregivers, and providers."

A future built by patients and clinics

One couple serves as a great example of the triangular relationship between Blatchford, the patients, and the clinics and how they collaborate to pioneer the future of prosthetics. For Chris and Denise Arthey, their journey started in Southeast Texas along Highway 35 while on a motorcycle road trip. A drunk driver hit them in a head-on collision. Each having lost their left leg, the couple had a long road to recovery, but being strong tenacious people, they endured and overcame.

The Arthey's journey led them to Blatchford where they became among the first to test the Orion3 knee with a microprocessor, allowing for an overall better physical and emotional experience as the technology could effectively read their gait patterns and the terrain to adjust accordingly.

The Blatchford solution seemed like a dream come true but there was one problem. The fact that the knee had a microprocessor in it meant at the time that the NHS would no longer cover their prosthetic expenses,

Chris and Denise Arthey are helping to redefine the future of prosthetics through their collaborations with clinics, product engineers, and other amputees

explaining that the Arthey's were considered private patients. Luckily, Blatchford stepped in with their Ambassador program, giving the Arthey couple a voice they could use to connect with other amputees as well as receiving the necessary product support they rely on.

Denise feels a great personal reward from meeting and talking with other amputees and motivating them through her own experiences. Chris also helps motivate others through his endurance and athleticism competing in marathons and performing great feats like hiking Kilimanjaro. He's also fascinated by the science of his prosthetics and because of his relationship with Blatchford, he went back to university and obtained a master's degree in Biomedical Engineering so that he could further help with the future advancement of prosthetics.

As Blatchford Ambassadors, the Arthey's helped educate clinics throughout England in how to help patients fit and calibrate knees with microprocessors. Chris and Denise have gone on to spread their story to multiple audiences and are reaching many more through their recently published book about their tale, Highway 35.

The evolving world of prosthetics

From Texas to the United Kingdom, the Arthey's story represents just one of millions being told around the world. According to the University of Southampton, "There are over 100 million people worldwide that need a prosthetic limb to replace an amputated arm or leg, or an orthotic device to support a damaged limb." This global need for prosthetic innovation is massive and Blatchford's effect on the future of prosthetics is far reaching.

Blatchford works internationally to help as many people as possible through offices in the UK, US, Germany, Norway, and India with over 30 distributors throughout the globe in places like Ukraine, China, Hungary, Israel, Japan, Malaysia, Saudi Arabia, Slovakia and Sri Lanka.

Innovations in prosthetics continue to reach beyond geographic borders and extend beyond the limits of our imagination. Microprocessors, full limbic systems, and most recently osseointegration paint a picture of how the future of prosthetics continues to get closer to imitating an organic limb.

The signs of this future for prosthetics can be seen in a wide spectrum. From product development and innovation to improved collaboration between patients and clinicians, this community is working together at shaping a widespread future that includes financial support for patients, improvements in fitting prosthetics, emotional support for caregivers and amputees, more freedom and choices for patients and clinicians, and better outcomes for all.

The future of prosthetics is bright, indeed.

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The impact of Covid-19 on therapy standards following lower limb amputation in a regional vascular unit (UK): A retrospective clinical audit

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Background

Peripheral vascular disease (PVD) refers to vessel occlusive diseases, originating from the venous or arterial system [1]. Within this, peripheral arterial disease (PAD) occurs in approximately one in five adults over the age of 60 in the UK [2]. It is the primary cause of major lower limb amputation (LLA). Diabetes increases risk of PAD, but can itself also cause LLA [3].
Following a national review recommending vascular services are configured to a limited number of centres, regional hubs were established [4] with complementary services at secondary 'spoke' sites. Within hubs patients admitted for LLA normally receive Physiotherapy (PT) and Occupational Therapy (OT) intervention pre-operatively if circumstances allow, and always post-operatively. However, the start of the Covid-19 pandemic in March 2020 brought significant changes to healthcare services nationally and internationally [5]. In the UK, there was significant pressure to make 30,000 NHS beds available [6]. Increased hospital admissions required re-prioritisation of services; non-urgent and elective procedures were stopped, but urgent and emergency major amputations were still undertaken [7]. Hence, the need for hospital care and therapy for these patients remained.
The Royal College of OTs (RCOT) and British Association for Chartered Physiotherapists in Limb Absence Rehabilitation (BACPAR) have evidence-based guidelines for LLA [8-9] with both referencing each other. Although there are some differences between the professions, arguably the focus should be patient-centred care and effective intervention thus supporting an integrated approach. Integration should facilitate efficient work, reduce duplication, improve communication, and aim to provide the best for patients [10-11]. As BACPAR recommendations underpin much of the integrated PT/OT in the local hub, they are appropriate for evaluating practice. Audits measure a service against standards to identify shortfalls, and implement improvement [12-13]. Given BACPAR have a standardised documentation audit tool [14], it was appropriate to generalise this to review the local therapy service. It explores whether an integrated approach helped meet standards during Covid-19 thus maintaining patient care, and considers implications for practice.

Aims

- To audit PT/OT adherence to BACPAR pre & post op LLA guidelines following vascular and diabetes-related LLA
- To explore integrated PT/OT in meeting standards pre Covid-19 (PC) and during Covid-19 (DC)
- To identify implications for practice

Methods

- Patients identified by clinical coding
- Electronic patient records identified by medical record numbers & Financial Identification Number
- Inclusion/exclusion criteria applied
- Numbers for auditing: PC (n=11), DC (n=16)
- BACPAR documentation audit tool [14] completed: profession/s involved with meeting recommendations - PT, OT, Therapy Technical Instructor (TI), other Multi-Disciplinary Team (MDT)
- Exception/non-applicable (N/A) reasons recorded
- Met, partially met, unable to tell/unclear, not done, N/A calculated (%)
- PT, OT, TI, MDT involvement for fully met criteria calculated (%)

Inclusion criteria	Justification
Admitted:	
Beginning Sept 2018 – end Feb 2020	Pre-Covid-19 therapy service (baseline)
Beginning Mar 2020 – end Aug 2021	During Covid-19 therapy service (comparison)
Adults (18years+)	Adult vascular service
Unilateral or bilateral LLA (transtibial or higher) within care episode	Relevant to pre and post-operative BACPAR recommendations.
Vascular/diabetes-related LLA (vascular coded)	Relevant to vascular therapy team/MDT
Discharged to normal place of residence	Audited therapy pathway from admission to discharge.
Exclusion criteria	
Residual-limb revisions only	Function may remain unchanged. May not require full therapy input.
Admitted for second LLA	Due to previous experience of LLA may not require full therapy pathway.

Findings

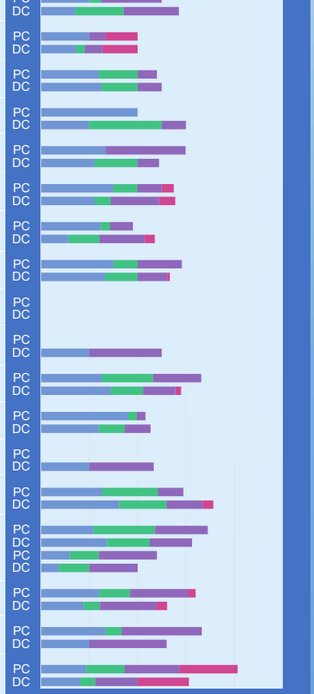
BACPAR GUIDELINE ADHERENCE (FULLY MET & NOT DONE) BY PT/OT/TI/MDT

Improved/Maintained/Decreased

Recommendation	Fully met % (PC/DC)	Not done % (PC/DC)
Assessment	70.5 / 71	4.5 / 0
Patient Journey	33.3 / 35.1	49.2 / 54.5
Written information	72.7 / 100	18.2 / 0
Informed Goal setting	20 / 26.8	73.3 / 53.7
Rehab goals	50 / 61.5	50 / 38.5
Cognition	66.7 / 100	0 / 0
Care of the remaining limb	30 / 30	50 / 43.3
Care of the residual limb	22.2 / 32.7	61.1 / 47.3
Pre-op management	40.4 / 48.3	55.8 / 34.5
Post-op management	75 / 75	6.3 / 10.4
Environment and Equipment	0 / 0 (N/A)	0 / 0 (N/A)
Compression therapy	0 / 57.1	0 / 14.3
Mobility	83.4 / 82.3	15.6 / 16.4
Maximum post-op mobility	100 / 100	0 / 0
Early Walking Aid (EWA)	0 / 75	100 / 25
Falls Management	47.5 / 62.7	15 / 6.8
Wheelchair and seating (temporary & long term (LT) provision)	100 / 100 (temp) 90 / 100 (LT)	0 / 0
Prevention/reduction of contractures	75.8 / 76.6	24.2 / 17
Exercise programmes	60 / 76.9	20 / 15.4
Management of phantom limb sensation/pain	71.4 / 62.7	7.1 / 13.7

PROFESSION INVOLVEMENT (%) FOR FULLY MET GUIDELINES

PT OT TI MDT



Implications for practice

- An integrated OT/PT approach may help meet standards following LLA and accommodate varying demands on services
- The findings give insight into local practice showing strengths and where improvements are needed
- Further published research is needed to provide stronger evidence-base for OT with pre and post-operative LLA

References

1. Park D. Peripheral Vascular Disease. In: Integrative Medicine. Elsevier; 2012. p. 237-246.e3. Available from: http://dx.doi.org/10.1016/b978-1-4377-1793-8.00026-1 2. Meffen A, Pepper CJ, Sayers RD, Gray LJ. Epidemiology of major lower limb amputation using routinely collected electronic health data in the UK: a systematic review protocol. BMJ Open. 2020;10(6):e037053. Available from: http://dx.doi.org/10.1136/bmjopen-2020-037053 3. Meffen A, Houghton JSM, Nickinson ATO, Pepper CJ, Sayers RD, Gray LJ. Understanding variations in reported epidemiology of major lower extremity amputation in the UK: a systematic review. BMJ Open. 2021;11(1):e053599. Available from: http://dx.doi.org/10.1136/bmjopen-2021-053599 4. Get It Right First Time (GIRFT). 2018. Available from: https://www.gettingitrightfirsttime.co.uk/surgical-specialty/vascular-surgery/ 5. Pruu Bettger J, Thoumi A, Marquevich V, De Groote W, Rizzo Battistella L, Imamura M, et al. COVID-19: maintaining essential rehabilitation services across the care continuum. BMJ Glob Health. 2020;5(6):e002070. Available from: http://dx.doi.org/10.1136/bmjgh-2020-002670 6. National Audit Office (NAO) (2020). Department of Health & Social Care: Readying the NHS and adult social care in England for COVID-19. nao.org.uk. [cited 2022 Feb 1]. Available from: https://www.nao.org.uk/wp-content/uploads/2020/06/Readying-the-NHS-and-adult-social-care-in-England-for-COVID-19-Summary.pdf 7. Vascular Society. COVID-19 virus and vascular surgery. 2020 [cited 2021 Dec 12]. Available from: https://www.vascularsociety.org.uk/professionals/news/133/covid19_virus_and_vascular_surgery 8. Alwal, A, McLaughlin, J, Spiliotopoulou, G. Occupational therapy with people who have had lower limb amputation. 2011. 9. Smith S, Pursey H, Jones A, Baker H, Springate C, Randell T et al. 2nd edition- clinical guidelines for the pre and post operative physiotherapy management of adults with lower limb amputations. 2016. Available from: https://bacpar.csp.org.uk 10. Moyers PA, Metzler CA. Interprofessional collaborative practice in care coordination. Am J Occup Ther. 2014;68(5):500–5. Available from: http://dx.doi.org/10.5014/ajot.2014.685002 11. Ward P, Moran M, Murphy C, Enright A, Finn J, Duggan O. Interdisciplinary teamwork - the SMART approach. Int J Integr Care. 2017;17(5):587. Available from: http://dx.doi.org/10.5334/ijic.3607 12. Gernsh K, Mawson S. Research, audit, practice development and service evaluation: implications for research and clinical governance. Pr Dev Health Care. 2005;4(1):33–9. Available from: http://dx.doi.org/10.1002/pdh.28 13. Limb C, Fowler A, Gundogan B, Koshy K, Agha R. How to conduct a clinical audit and quality improvement project. Int J Surg Oncol (N Y). 2017;2(6):24. Available from: http://dx.doi.org/10.1097/IG.0000000000000024 14. Smith S, Pursey H, Jones A, Baker H, Springate G, Randell T et al. Clinical guidelines for the pre and post operative physiotherapy management of adults with lower limb amputations. 2nd Edition. Audit and Implementation guide. 2016. Available from: https://bacpar.csp.org.uk

HW/MDH - November 2022

Physical activity participation among community re-integrated army veterans following lower limb amputation in Sri Lanka

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Background

- Lower limb amputation (LLA) associated secondary disabilities related to reduced physical activity (PA) levels.
- However, PA participation among LLA population in Sri Lanka is unknown.

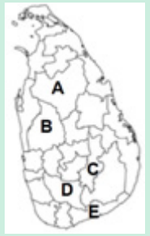
Methods

- A comparative cross-sectional study was conducted in five districts of Sri Lanka.
- Level of PA was assessed for community re-integrated army veterans with LLA (group 1, n=85) using the International Physical Activity Questionnaire (IPAQ).
- PA was defined as metabolic equivalent of task (MET)-minutes/week and computed for walking, moderate-intensity, and vigorous-intensity activities.
- Level of PA was classified as either very active, sufficiently active, or sedentary.
- This assessment was repeated with a group of age and sex matched healthy individuals (group 2, n=85).

Results

1. Demographics

Demographics	Group 1 (n=85)	Group 2 (n=85)
Gender (Male %)	100	100
Age (Mean (SD))	46.3(6.0)	46.7(6.0)
BMI (Mean (SD))	26.2(3.4)	25.0(3.1)
Time since amputation (Mean (SD))	21.7(5.9)	N/A
Amputation type (Unilateral %)	100	N/A
Amputation level (%) Transfemoral Transtibial	 8.2 91.7	 N/A

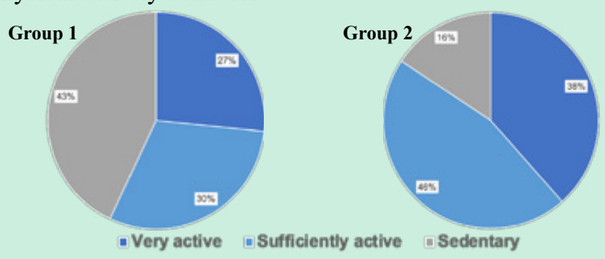


Study setting (A-E: five districts)

2. Physical activity level and participation in activities of different intensity levels

	Group 1 (n=79) Median MET-min/week (IQR)	Group 2 (n=83) Median MET-min/week (IQR)	Significance (p value)
Total physical activity level	1913.6 (3506.9-515.8)	4857.3 (8296-1008.39)	p<0.05*
Physical activity intensity			
Total walking	145.5 (644.5-0)	519.6 (1164.2-64.9)	p<0.05*
Total moderate intensity activity	1134 (3039.6-476.4)	1260 (3169.7-584.8)	p>0.05
Total vigorous intensity activity	0 (189-0)	126 (3024-0)	p<0.05*

3 Physical activity behavior



Conclusions

- ❖ PA participation is insufficient in majority of the veterans with LLA, and lower compared to healthy counterparts.
- ❖ Veterans mostly engaged in moderate-intensity and domestic and garden related physical activities.
- ❖ These findings may guide development and implementation of physical rehabilitation interventions for this population.

Acknowledgements

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A REFLECTION

Jonathan Wood, Highly Specialist Physiotherapist, Artificial Limb and Appliance Service, Cardiff

Title of Event: Amputee Study Day.
Date: 28/09/22.
Venue: St Fagans National Museum of History, Cardiff
Overall: A truly fantastic study day and Continuing Professional Development (CPD) opportunity.
Extremely well attended (approximately 90 clinicians/individuals from across Wales).
A wide variety of speakers who are leaders in their field.
Representation from the whole Multi-Disciplinary Team (MDT). This, along with a professional but inclusive atmosphere facilitated some very interesting discussions.
Every topic covered was excellent but my personal highlights were the following.

Knee disarticulation vs transfemoral amputation levels

John McFall

Key learning points relevant to practice: Clear pros and cons of knee disarticulation and of transfemoral amputation with lively and animated engagement from the audience.
Despite many years as part of the ALAC (Artificial and Appliance Centre) MDT, I found this presentation fascinating, particularly due to my relatively new role developing the Microprocessor Knee Service.
Application of learning into practice: I now feel I have the knowledge to confidently discuss this topic with the MDT and my patients.

Secondary reconstruction of the residual limb

Miss Alex Crick – Consultant in plastic and reconstructive surgery

Key learning points relevant to practice: I did not appreciate the potential risks/implications of closing wounds too early after high energy/impact traumas or the amount of planning and staging that occurs ahead of surgery (such as the use of moulds).
"The surgical procedure must never be considered the whole treatment but merely an incident in the general rehabilitation of the patient".
Application of learning into practice: I now feel I have an increased understanding of the potential problems that can occur related to the bones, nerves, muscles and skin, along with solutions that are available to remedy them.

The wrong side of the knife – lessons I learnt from becoming a double below knee amputee

Neil Hopper – Vascular Surgeon

Key learning points relevant to practice: Immensely powerful presentation/insight.
"I was like a chess piece picked up and placed in the wrong position. It took me a while to be put back in the right position".
"Plan B doesn't have to be worse than Plan A – just different".
Grief is "like a bright light". Friends and family are sunglasses. They help you look at the light. The light gets dimmer with time.
Work life balance. Work – We are a small cog in a big wheel. Home – We are a big cog in a small wheel. There is more to life than work.

Application of learning into practice: Look out for a 'post discharge crash' in patients.
The importance of:

* Patient resilience

* External support from family/friends/colleagues/patients
* Holistic assessment
* Advocacy
* Truly open and honest discussions with patients
* Goal setting/targets.

Psychology and prosthetics: Expectation and outcomes

Prof. Pamela Gallagher – Head of the School of Psychology and Dublin Psycho-prosthetics Group

Key learning points relevant to practice: What's a good outcome? We are all different with different goals, objectives and values.

What meaning does the prosthesis hold? This is very important. The prosthesis is a functional tool but also a social, cultural and aesthetic tool.

The media portrays inspirational images of prosthetic use which are not necessarily helpful when most people want to do 'normal' things.

Application of learning into practice: What's important to the patient?

The predominant focus on physical functioning needs to be challenged. Increased wear time in hours is not necessarily an indication of greater success.

A person-centred, collaborative approach with shared decision-making is of paramount importance.

Managing Lymphoedema and Cellulitis: the implications for people with amputations

Linda Jenkins – National Lymphoedema and Cellulitis Lead for Wales

Key learning points relevant to practice: Lymphoedema is defined as swelling in tissues for more than 3/12.

Uncommon in head/neck due to draining all day.

Usually in lower limbs due to sitting and reduced mobility.

Prevalence increases with age.

"How do you get the fluid out of a sponge? – Squeeze it".

Application of learning into practice: Various treatment options –

* Skin care/clean/moisturise.
* Compression garments – 100's of different types.
* Weight management – healthy lifestyle/dietician/increased weight increases lymphoedema.
* Activity and movement – precautions? No evidence to avoid activity or movement. Gradually increase activity, resistance, weight and/or load.
* Wearing compression garments whilst exercising provides double the squeeze.
* Sleep – avoid a chair. Discuss why the individual is not sleeping in bed – toileting/anxiety/difficulty getting in and out. Consider resting in bed during the day if not using it at night.
* Consider massage/self-massage.
* Compression bandages can be used if there are wounds.
* 29% of lymphoedema patients develop cellulitis.
* Compression therapy is palliative rather than curative and is a life-long commitment.

In summary: As noted previously, this was a truly fantastic study day and CPD opportunity with diverse representation from across Wales. Every speaker demonstrated their passion and desire to improve patient care and highlighted the importance of our advocacy role. It will be hard to beat but I eagerly await the next study day.

FIRST WORLD WAR LEGACIES AT THE RNOH

Nicola Lane and Philip Milnes-Smith

Warning: Dated, offensive language from source material is used.

I lost my lower left leg in January 1968, when I was run over by a number 11 bus in Trafalgar Square. From 1968 to 1988 I attended Queen Mary's Limb Fitting Centre, Roehampton, established in 1915 in response to the unprecedented numbers of amputee ex-servicemen in the First World War. Over 41,000 British servicemen lost limbs, and the provision of today's prosthetics and orthotics has evolved from the challenges of their rehabilitation.

After moving to NW London in 1988 I became a patient at the Prosthetics Rehabilitation Unit (PRU) at the Royal National Orthopaedic Hospital (RNOH) in Stanmore. But in 2001 I went back to Roehampton Limb Fitting Centre, to explore the craft and technology of prosthetics for Leicester City Art Gallery's ADORN,EQUIP exhibition. Working with users from Leicester's Limb Fitting Centre, we photographed the workshops that had been such an important part of my life:

Workshop benches at Roehampton Limb Fitting Centre / 2001/ Nicola Lane & Steve Wilkes

In the photograph below from the IWM archives, we see the strikingly similar work benches at Queen Mary's Hospital, Roehampton, for the re-training and rehabilitation of amputee ex-servicemen, and possibly one of the ex-servicemen being trained in the fabrication of artificial limbs.

But it was a shock to discover that the entire site of Queen Mary's, the site of so much meaning in my experience of limb loss, would totally disappear when the old hospital was developed as luxury flats and houses, the workshops demolished, and a new hospital built nearby. So I was alarmed by news that the RNOH Stanmore Prosthetics and Orthotics department

'Finishing touches' / © IWM Q 33689

buildings were scheduled for demolition. I determined to document the buildings before they disappeared.

I had heard stories about the 'Grey Lady' ghost in the PRU and discovered 'Grey Lady' ghosts are often associated with WW1 military hospitals. In June 2019 the **National Lottery Heritage Fund** awarded **Pegleg Productions** a grant for 'Searching for the Grey Lady: A Ghost from WW1 at the RNOH', enabling me as Project Leader to mark the First World War Centenary at the **RNOH Stanmore** by working with participants to identify and document surviving WW1 era traces, buildings and objects on the Stanmore site, including the training of disabled ex-servicemen and civilian patients as technicians for Prosthetics and Orthotics.

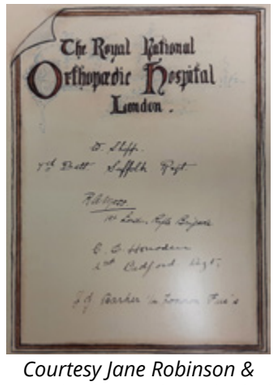
At first the only clue to WW1 was a 1914 photograph showing nurses and wounded Belgian soldiers posed outside the 'Wardell Hospital', previously the 'Mary Wardell Convalescent Home for Scarlet Fever', requisitioned by the War Office in 1914. It is now Eastgate House, housing the admin offices of the RNOH.

Wardell Hospital, Stanmore. 1914 / Courtesy RNOH

There appeared to be no records, either on site or elsewhere, of the 'Wardell Hospital' and the wounded treated there – just a few articles discovered in British Library newspaper archives, and the discovery that between late August of 1914 and May 1915, 250,000 Belgian refugees arrived in Britain, the largest influx of political refugees in British history.

"The 'Trench Band' give a performance at a party at the Mary Wardell Hospital, Stanmore, given by the British soldier inmates to a number of wounded Belgian soldiers who are under the care of the Wounded Allies Relief committee. The performers are using the home-made instruments with which they formerly amused their comrades in the trenches."
'Glasgow Daily Record' August 25th 1915
© British Library Board / British Library newspaper archive

A rare link between WW1 and the London RNOH was provided by Jane Robinson, a Member of the Friends of St Paul's Cathedral researching the 'First World War Altar Frontal' given to St Paul's Cathedral in 1919. She was unable to find any 'paper trail' apart from one (unattributed) 1916 newspaper cutting, describing how 'The Royal Orthopaedic Hospital' was the first to be selected for the special treatment of soldiers with 'bad wounds of the arms and legs', and how their rehabilitation included embroidery work:



Courtesy Jane Robinson & Friends of St Paul's Cathedral

"The Surgeons have expressed their sense of the value of the work in helping the men to regain the use of their hands and fingers..."

Jane also shared images of the illuminated book accompanying the Altar frontal, with names of ex-servicemen treated at the London RNOH. To my knowledge, this is the only surviving record of WW1 wounded at the RNOH:

In 1922 the London RNOH acquired the Wardell Hospital as their 'Country Branch', to provide clean air, 'Dr Sun', and beautiful surroundings for the rehabilitation and cure of 'crippled children'.

The RNOH Country Branch
c.1922 / Courtesy Derek Sayers and RNOH

Post WW1, urgent strategies for re-training the huge numbers of WW1 disabled ex-servicemen had brought more 'progressive' ideas to vocational training for disabled people.

The buildings currently housing the Prosthetics and Orthotics Departments were built in 1937 as a technical school for what were then termed "Crippled Boys": the Crippled Boys Training College.

The entire site was designed to be fully accessible, and its opening was celebrated as "a significant extension of the hospital idea that the care for the disabled include not only their physical compensation... but the provision of training for a craft".

Today the Crippled Boys Training College workshops house the RNOH Orthotics Department:

RNOH Orthotics Department 2020/ Nicola Lane

In 2019 we began to film and document the Orthotics workshops and interviewed technicians in the hope that evidence and archives of the Crippled Boys survived. It became clear that once again I was witnessing a disappearing world, as the building was being cleared in preparation for re-development. We

"The 'Cripples' Training School moved to the west end of the hospital in 1936 from Kensington. Some of these chaps stayed all their working lives in the hospital. "Mac" McKensie can be seen just to the right of the boy standing in the centre. He retired and sadly died just a few years ago. Boots are still made in the hospital in the same area – now called Orthotics Dept."
'Training School workshops 1936'
Courtesy Derek Sayers and RNOH

found no archives relating to its history, but thanks to the Orthotics Production Manager and others, discoveries did emerge:

A Senior Technician described how he had been trained by 'Mac', the last of the 'Boys', identified in the photo pictured above.

I also interviewed Simon Cox, a former RNOH patient working in the RNOH Medical Physics Department, who re-trained as an engineer during his rehabilitation from a serious accident. Simon stressed the importance of maintaining the 'transmission of skills'.

A promotional magazine from Shell Oil, possibly early 1970s, about the use of plastics in Orthotics and Prosthetics, provided an unexpected link to WW1. It describes Mr. William Tuck, then Manager of the 'Orthopaedic Appliances Department at the RNOH', how as a child Mr Tuck was treated for a 'foot deformity' with surgical boots and a leg support, almost certainly at the London RNOH in Great Portland Street, and that:

"The tragedies of the 1914-18 War taught him the skills he uses..."

In a RNOH fund-raising film made around the early 1930s there is a reference to the 'wounded ex-servicemen' employed in the Great Portland Street workshops.

"...Instruments and boots are made in the Workshops, by wounded ex-servicemen, who have been taught this difficult and useful work..."
https://www.youtube.com/watch?v=DIanvkgnaVc&t=4s

Perhaps Mr. Tuck as a child patient was inspired to learn his skills from these men.

As Jane Robinson discovered, Great Portland Street RNOH was the first hospital to treat 'bad arm and leg injuries' from WW1, suggesting that wounded ex-servicemen might have been employed in their Workshops after rehabilitation. A former employee in the 1980s remembers:

"...The workshop took up all of the basement area and employed several disabled (prosthetic-wearing) men who made the prostheses...

In 2008 Stephanie Williamson, Co-Chair of Architects for Health, became Project Manager for the redevelopment of the RNOH Bolsover Street, responsible for decommissioning and emptying the old Great Portland Street building:

"The basement...had several locked storerooms that hadn't been explored in decades – filthy, dirty, dusty and damp in places.... Much of the material is now in the London Metropolitan Archives. I was very lucky to persuade them to take it because otherwise I had been told to skip it all. "

So it is unsurprising that we found no records of the Great Portland Street workshops or ex-servicemen with artificial limbs working as 'fitters'. In June 1939, as for the second time in living memory the UK prepares for War, an unattributed newspaper cutting announces that the workshop at Great Portland Street is being transferred to the Crippled Boys Training College at Stanmore:

"...the number of trainees had been increased to 112. The training college was not self supporting yet, and unless the hospital could get an increase in the contribution from the authorities it would be difficult to make both ends meet..."

The catalogue pictured below was discovered in a drawer in Orthotics, and almost certainly migrated

from Great Portland Street to Stanmore Crippled Boys Training College:

ARTIFICIAL LIMBS

Fig. 113. Fig. 114. Fig. 115.

Fig. 113. Illustration of Metal Limb for above knee amputation, noted for lightness, durability and comfort. An important feature of this limb is that the whole of the lower section from knee to the ankle is made out of one piece of Duralumin; also the actual knee section which receives the small willow or metal backet, thereby eliminating unnecessary joints and rivets, and making for greater strength and neater appearance. The limb is made to conform as nearly as possible to the natural one, there being no ugly gaps at the ankle or bulges at the knee. The wearer can walk quite rapidly, exert control over the limb without straining the muscles of the stump. Shoulder Straps can be dispensed with, and in their place in a soft padded leather waist belt, about 4 inches wide, which adds to comfort and ease of control.

The foot is made of Willow and covered in Calf and polished, the ankle-joint is of Steel (the bearing of the limb is chiefly taken on this part). The ankle movement is the simplest and most reliable action possible, as there are no springs to break, rubber buffers having proved more efficient. The knee-joint has a perfectly smooth action, working on a steel bolt with fibre bushes, which allows the limb to endure any amount of hard wear.

Fig. 114. For through knee amputation, fitted with strong moulded leather backet to receive stump.

Fig. 115. For amputation just below knee joint, with moulded leather bucket to receive stump.

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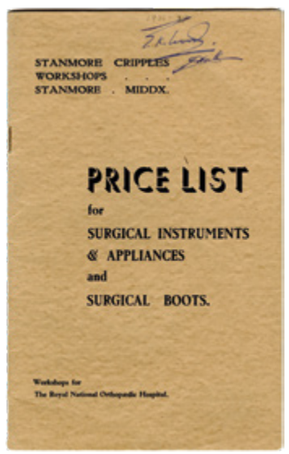
'Descriptive Catalogue' c. 1930s / courtesy RNOH

An important objective of the Training College was on-site manufacturing of appliances and instruments for the hospital, as evidenced in the 1936 pamphlet pictured below, discovered in an old filing cabinet:



STANMORE CRIPPLES WORKSHOPS STANMORE . MIDDX.

PRICE LIST

for

SURGICAL INSTRUMENTS & APPLIANCES

and

SURGICAL BOOTS.

Workshops for The Royal National Orthopaedic Hospital.

'Stanmore Cripples Workshops' Price List.1936-1939 / courtesy RNOH

The Pandemic brought our search to an abrupt close. However, Culture Recovery funding enabled Pegleg Productions to recruit archivist Dr Philip Milnes-Smith. His research has clarified our understanding of the Crippled Boys' Training College complex and its idealistic ethos and operation. He discovered the BMJ article pictured right:

JULY 17, 1937 NEW TRAINING COLLEGE FOR CRIPPLES THE BRITISH MEDICAL JOURNAL 129

NEW TRAINING COLLEGE FOR CRIPPLES

THE STANMORE ENTERPRISE

A college for the training of crippled lads in useful trades has been established in association with the Royal National Orthopaedic Hospital in the ample grounds of the country branch of that institution at Stanmore. The college is to be formally opened during the present month (July) on the completion of the building, but in fact it has been functioning, though not to its full capacity, for the greater part of a year.

In this woodland country of Middlesex a very pleasing group of buildings has been put up, the lay-out of which is difficult to convey in a photograph, where one hundred male cripples between the ages of 16 and 22 will be given a chance, despite their physical disabilities, of going out into the world as self-supporting individuals. The single-story buildings, including the dormitories, have been arranged in the form of a wide arc so as to secure the maximum sunshine and air. In spite of the fact that the building is on sloping ground, there is not one step which the cripple has to mind.

FIG. 1.—The Cripples' Training College, Stanmore.

Although it is controlled by the hospital committee and enjoys some of the hospital services, the college is quite separate from the hospital. But it must be considered a significant extension of the hospital idea that the care for the disabled should include not only their physical compensation as far as that may be possible, but the provision of training for a craft which will enable them on final discharge to meet life more or less on equal terms. The college is a new undertaking so far as the Royal National Orthopaedic Hospital is concerned, but it continues the work of the Home for Crippled Boys, Woolsthorpe House, Wright's Lane, Kensington, which was founded in 1865 to board and lodge cripples and teach them a trade. The hospital took over this institution, with the boys actually in training, and those boys, numbering forty-eight, have formed the nucleus of the Stanmore college, which now that it is completed will accommodate 100. The cost of the new buildings has amounted to nearly £70,000.

FIG. 2.—At work in the boot-making shop.

The Course of Training

The college is approved by the Board of Education, which has authorized local authorities to pay £90 per annum for each trainee, with entitlement to the 50 per cent. grant made by the Board. The boys are generally sent to the college by local authorities or social or philanthropic organizations. In very exceptional cases they may be admitted slightly below the age of 16, but that is not favoured. The course of training covers a minimum period of three years.

The trades taught, all under expert instruction, are boot-making (surgical and ordinary) with repairs; mattress-making and upholstery; painting and sign-writing; general woodwork and cabinet-making; tailoring; and watch and clock repairing. Other trades may be included as the organization develops. A whole-time schoolmaster is employed, and the lads in classes all have an hour's general education a day. The hours of work or instruction are from 9 to 5, with an hour's interval, and then the lads are free of restraint, except that they are expected to be in by a certain hour.

Accommodation and Resources

A tour of the college proved this to be one of the pleasantest places of the kind we have ever visited. Indeed, the only drawback is that the working and domestic conditions are so cheerful and healthy that when the students eventually go out into workshops less clean and spacious and orderly, and into lodgings lacking these refinements and amenities, they will be aware of an unpleasant change in their circumstances. Nowhere is there any institutional atmosphere. The dining hall, with the flowers on its tables, would do credit to a good-class hotel. There is a recreation room, with provision for table tennis, billiards, and other games, a quiet room where even the wireless is prohibited, and a concert hall of quite surprising size, equipped with right accessories. The dormitories, one of them constructed with specially large open windows for lads with a tuberculous tendency, have been arranged on the most modern hygienic principles, and there is also a self-contained sick bay with six beds for cases of temporary illness; any cases of serious illness are of course sent away to hospital. There is also ample bathing provision, and some of the baths have been so designed as to facilitate lads with certain deformities getting in and out. Outdoor sports are encouraged, and the football team is by all accounts quite formidable to its opponents. A scouts troop is well supported, and amateur dramatic and debating societies have discovered much hidden talent. The first copy of the stencilled college magazine, entitled *The Trainee*, entirely produced by the pupils themselves, is a remarkable production. As for the workshops themselves, these seemed to be, from the point of view of light and hygiene and convenience, model establishments under the Factories Acts. Although the disability in the case of some of those at work was obvious, many others were working in such positions that apart from close inspection they would have been taken as physically normal.

1937 BMJ / courtesy BMJ archive

The article paints a vivid picture of a positive community where leisure time was integral to the disabled learners' experience, while accounts at the LMA show they were paid pocket money. This was undermined, first by the outbreak of war in 1939, post-war austerity, and the College's economic challenges during the birth of the NHS. The survival of its buildings represents a now perhaps unique surviving example of deliberately accessible architecture from the 1930s.

We have discovered that WW1 legacies of rehabilitation remain embedded in the history of the RNOH; that history is not confined to the documents held within archives but can live in memories, stories, skills and technology, in the lived experience of patients, technicians, volunteers and clinicians. But there is more to discover!

For more information about the Grey Lady project go to: **https://peglegproductions.org/our-search-for-the-grey-lady**

Check out Pegleg Productions Podcast series created in response to Lockdown, in collaboration with RNOH's Radio Brockley and performed by RNOH patients, staff, clinicians and volunteers: **https://peglegproductions.org/podcasts**

BRIDGING THE GAP BETWEEN HOSPITAL REHABILITATION AND COMMUNITY ACTIVITY

Kiera Roche CEO, LimbPower

LimbPower uses research and insight to identify gaps in service, we then create programmes to bridge the gap between hospital rehabilitation and community activity. We start our engagement programmes after you discharge patients from your service. The main programmes that primary amputees can engage in when they get home are reVAMP, our FREE online fitness classes and free online videos.

We launched reVAMP, our virtual 12-week fitness and nutrition programme and the FREE online exercise classes during the Covid-19 pandemic to support amputees and people with limb differences to exercise at home and stay fit and mobile. Through these programmes, we were able to reach inactive participants and support them to engage in exercise. Our ability to reach harder-to-reach patients has led LimbPower to expand both the online classes and reVAMP to include both seated and standing options.

What is different about reVAMP and our online exercise classes is that they are adapted to benefit amputees and people with limb differences. Our classes were selected to promote functional strength, to support activities of daily living and agility and balance to improve mobility, but mostly they are engaging and fun and give participants the chance to meet and develop friendships with other people with limb differences.

Our classes include yoga and meditation, Wobble (seated) and Paracise (standing), Tai Chi and a seated HIIT class. reVAMP was designed to model the exercise referral programme to support patients for a prolonged time to encourage patients to continue with the exercise after the programme finishes. What we have seen is participants requesting to stay on the programme. We now have four levels lasting 12 months.

Over 300 people with limb differences have benefited from reVAMP and the FREE online classes; you can help us support more people by telling patients about the two programmes and sharing our information leaflets. Together we can support amputees and people with limb differences on their lifelong Journey to remain healthy and physically active.

The reVAMP programme and the online fitness classes are managed by Rebecca Legon, who can be contacted via email at: **rebecca@limbpower.com**.

AN INTERVIEW WITH @MUM OF 3 & AMPUTEE

Sarah

Sarah with her family, October 2022

Can you tell us about yourself?

Hi, I'm Sarah. I'm 40 and live with my husband and 3 sons.

I was born with 2 limb differences, one affecting my right lower leg and one affecting my left hand. These conditions were never officially diagnosed at the time. It is only recently, through social media and the wealth of information that's now available, that I now know these are fibular hemimelia and symbrachydactyly.

I am a senior biomedical scientist, working in an NHS diagnostic laboratory. In my spare time, you'll find me catching up with friends over a glass of wine or standing at the side of a rugby or football pitch watching my sons play!

So last year you had an elective amputation – can you tell us a bit about the background to that decision?

Following my birth, I was referred to Great Ormond Street Hospital where they began investigations into my limb differences. They were undiagnosed prior to birth (as there were no routine ultrasound scans done at that time). Following investigations, including genetic testing, nothing was ever definitively diagnosed, and doctors put it down to "just one of those things". Over the years my prosthetists had always had a tough time making prosthetics for my leg, as it was an unusual shape. It had a curved tibial bone and a small foot with 3 toes. It was a constant juggling act of trying to get it comfortable, well-fitting and well aligned.

After each pregnancy, I found that I needed a new prosthetic to be made for me, as they never seemed to fit quite right afterwards! After my third son was born in 2018, I began getting pain in my right knee. This continued for a few years, until I also began getting off-set pain in my left hip. After a discussion with my limb centre Consultant, he explained that this was all being caused by poor alignment, and he warned that if this couldn't be resolved, I'd suffer real issues with my joints, possibly requiring joint replacement surgeries. It was at that point that I began to seriously consider elective amputation. Although my prosthetic leg at the time was comfortable and well-fitting, my prosthetist was still struggling to get the alignment right, and the pain was getting worse. It had got so bad by early 2021, that I had made up my mind to go for the amputation. It sounds crazy, but once I'd made that decision, I was actually relieved and felt positive that it would be the right decision in the long term.

Sarah pre-amputation September 2021, struggling with poor prosthetic alignment

You started Facebook and Instagram pages to document your 'journey'? How did that come about?

I started my Facebook and Instagram pages (@ mumof3andamputee) just before my first appointment with my surgeon. I had been thinking about it for a while. Then, one evening, I was catching up with friends and mentioned it to them and they thought it was an excellent idea. Hearing them talk so favourably about it and the potential for its impact, I decided to go ahead with it!

What sort of things did you document?

I included some introductory videos about me and my background, including what had led me to making my decision. There were some videos and funny stories involving my prosthetic from when I was young. I then documented follow up videos/posts every time I had a hospital appointment, updates on my progress, as well as any issues relating to my limb differences affecting my everyday life. I posted pictures and updates from hospital and of course afterwards during my recovery and rehabilitation.

What sort of following and feedback did you get?

Within a few weeks of starting the pages, I had already received messages from strangers saying that they were in a similar position, or had been through the same thing. It was really positive to hear and reassured me that I had made the right choice. I have connected with people in different countries, of all ages and in different situations. It has been great to make connections with people that I wouldn't otherwise be able to do. I have over 1000 followers now on Instagram (which I'd never have imagined!).

What were the benefits – and challenges you experienced ?

Initially, I started the pages purely for me, as a way to process my thoughts and feelings about my amputation, as well as a way of keeping friends and family up-to-date with my journey. However, it soon became apparent that what I was posting resonated with many others and I realised the potential benefits. I began following other amputees and people with limb difference, as well as charities involved in both. I found many wonderful resources and some really inspirational people who, probably without even knowing it, helped me immeasurably during those few months prior to my surgery. Even though the amputation was my decision, it was a huge thing to try and process internally, and I did struggle with the mental burden of it. The hope is that by sharing my story, it helps others in the same way that it did for me.

Social media helped me find the amazing limb loss and limb difference community! I began to connect with parents in America, whose children all had a limb difference and found that I was able to be a source of information and comfort for them. By speaking about my life experiences and achievements, despite having limb differences, I was able to reassure them about their little ones. Unfortunately, my experiences with social media haven't always been positive. I have received messages from individuals asking me for pictures of my legs/feet in exchange for money and even one pretending to be a fellow amputee asking for a video about how I put on my prosthetic leg! Thankfully, these are few and far between and haven't deterred me from continuing the pages. Charities like the Amputation Foundation, Limbless Association, Limb Power and Steel Bones provide really valuable resources for amputees, and I was able to take advantage of LA's Volunteer Visitor Service where I had a chat on the phone with an established amputee. When I'm able to do so, I'm going to train to become one too.

Are you planning to continue the Facebook and Instagram pages?

Yes, absolutely! I have really enjoyed it, and would like to continue after my official rehabilitation is over! There will always be ongoing issues/struggles/problems

associated with living life as an amputee and with a limb difference, and I think it's really important to normalise these. Since my amputation, I've become quite passionate about raising awareness of limb loss and limb difference, especially to younger generations, so this gives me a platform to be able to do this. I have a few exciting things coming up too, so will definitely want to show these off!

How have your 3 boys coped with the last year?

They have done so well and I'm so proud of them all. At the time of my surgery, they were 10, 7 and 3 years old, so I was concerned about how they would cope, but they were fantastic. We spoke about the surgery in the months leading up to it, but, purposefully, not in too much detail. I didn't want them to worry too much ahead of the date, and get bogged down with the gory details (which son no.2 in particular was very keen to hear all about!) With the additional uncertainties created by COVID-19, I didn't know for sure if my surgery would go ahead until 3 days before when I took my PCR test. At that point, we sat down and had a proper chat about it all.

While in hospital, I was only permitted one visitor for one hour a day. My husband visited me a few times, but I didn't want home life to be anymore upheaved than it already was, so he was also there for the boys as much as possible and did an amazing job! There were a lot of video chats with the boys from my hospital bed! In August last year, I did an interview that was featured in a popular women's magazine and they wanted a family photograph to go alongside the article. The boys were so excited that they were in a magazine and both took it to school for show and tell!

Is there anything about your whole experience that could be fed in to improve the services for future patients?

Unfortunately, my occupational therapy assessment got missed pre-operatively, and I found myself without a wheelchair or commode and without any kind of home assessment having been performed. I believe this was just an unfortunate oversight by the hospital, however, at the time it was quite stressful!

I am incredibly lucky to have an amazing sister-in-law, who is a senior physiotherapist in amputee rehabilitation!! She was invaluable in those early days after I was discharged, as I had lots of questions. If I didn't have her, I think that I would have felt unsure about who to direct these questions to in that period between being discharged from hospital and having my limb centre primary appointment. Perhaps a clearer understanding of key contacts during this time period would be useful for new amputees.

I also knew very little about the differences between NHS and private prosthetic services. I'd seen posts on social media from amputees featuring things like running blades, different types of prosthetics etc, but (perhaps naively) didn't realise that these types of components would only be available privately. I have been incredibly fortunate to have been gifted a running blade through a charitable foundation, so my next step is to look into how I'm going to be able to use it.

Sarah rockpooling for the first time with her waterproof prosthesis, August 2022

DIVING IN AT THE DEEP END

Lise Hassell

My introduction to swimming as an above knee amputee began when I was an inpatient at Queen Mary's Hospital, Roehampton. I have always enjoyed swimming but thought my swimming days were over. I was, however, proved to be very wrong!

A small group of us were taken to a local swimming pool towards the end of our rehab by our physio. For me personally, there was a huge physical and psychological fear attached to this. The physical barrier for me, was related to getting in and out of the wheelchair poolside, and out of the pool and back into the wheelchair. We overcame this obstacle by practising on dry land in the rehab gym with the physios. I had never realised how important upper body and core strength are to an amputee until then. Once poolside, what had seemed like a huge hurdle was quickly overcome by placing several floats on the ground to ease my way out of the wheelchair in a more graduated way. This is a practice I have since adopted when using a pool that is not accessible.

The psychological barriers took much longer to overcome, and only time allowed me to work through these. Lack of self-esteem, a negative new body image, and the perception of others are often huge barriers that can prevent an amputee participating in exercise. However once you are in the water you are able to move freely, just as an able-bodied person. This gave me a huge sense of normalcy and achievement.

Practical and logistical issues will always be issues for consideration when swimming somewhere new as an amputee. I have since learnt that graduated steps and a water level to the edge of the poolside are an amputee's best friends.

I have taken up open water swimming at a nearby lake. Everyone is so friendly and accommodating, and there are other amputee swimmers there too. The combination of cold water and the camaraderie has a very positive impact on one's mental health. Since becoming an amputee, I have swum in several 24 hour relays with Team Limbitless. We are a team of six people, with disabilities ranging from high spinal cord injury to amputees. We raise money for Level Water; a charity that teaches disabled children to swim. Our team is a perfect example to demonstrate that having a disability should not prevent you from taking part in any activities and reaching your goals.

Swimming is now a huge part of my life. I train 4 times a week for 2 hours at a time, and I now have a coach for sea swimming. I have several swims lined up this year, including the Solent, and the Christiansborg Rundt Copenhagen swim.

I believe that swimming was perhaps the single most important part of my rehab journey. If it hadn't been for the physio dragging me to the pool, I doubt that I would ever have had the courage to have even gone to a public pool, alone. I strongly believe that swimming should be an integral part of an amputee's rehabilitation.

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